

Air Force Institute of Technology

AFIT Scholar

AFIT Documents

5-15-2009

Air Force Institute of Technology Research Report 2008

Office of Research and Sponsored Programs, Graduate School of Engineering and Management, AFIT

Follow this and additional works at: <https://scholar.afit.edu/docs>



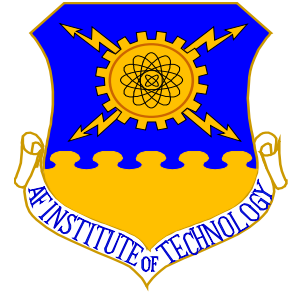
Part of the [Higher Education Commons](#)

Recommended Citation

Office of Research and Sponsored Programs, Graduate School of Engineering and Management, AFIT, "Air Force Institute of Technology Research Report 2008" (2009). *AFIT Documents*. 9.
<https://scholar.afit.edu/docs/9>

This Report is brought to you for free and open access by AFIT Scholar. It has been accepted for inclusion in AFIT Documents by an authorized administrator of AFIT Scholar. For more information, please contact richard.mansfield@afit.edu.

AFIT/EN/TR-09-02
TECHNICAL REPORT
MAY 2009



Air Force Institute of Technology

Research Report 2008

Period of Report: 1 October 2007 to 30 September 2008

Graduate School of Engineering and Management

GRADUATE SCHOOL OF ENGINEERING AND MANAGEMENT
AIR FORCE INSTITUTE OF TECHNOLOGY
WRIGHT-PATTERSON AIR FORCE BASE, OHIO

Approved For Public Release: Distribution Unlimited

AIR FORCE INSTITUTE OF TECHNOLOGY

Wright-Patterson Air Force Base, Ohio

Reproduction of all or part of this document is authorized.

This report was edited and produced by the Office of Research and Sponsored Programs, Graduate School of Engineering and Management, Air Force Institute of Technology. The Department of Defense, other federal government, and non-government agencies supported the work reported herein but have not reviewed or endorsed the contents of this report.

For additional information, please call or email:

937-255-3633
DSN 785-3633
research@afit.edu

or visit the AFIT website: www.afit.edu



Air Force Institute of Technology Research Report 2008 Foreword

Research is the cornerstone of the dramatic advances in air, space, and cyber technology that underpin the nation's ability to meet the international and homeland security challenges of tomorrow. Research is also an integral part of graduate education, providing graduates with in-depth knowledge, critical thinking skills, and problem solving abilities. At the Air Force Institute of Technology (AFIT), our faculty and students engage in research with the goal of sustaining the technological supremacy of the United States Air Force (USAF) and the Department of Defense (DoD).

AFIT maintains active partnerships with our Air Force's organizations and operational communities as well as the DoD and other federal agencies to maximize the contributions of our research programs to national needs. Our faculty and students also engage in collaborations with researchers at universities throughout the nation to advance the state-of-the-art in a variety of disciplines. AFIT cooperates with commercial enterprises to ensure timely transfer of new technology to US industry through Cooperative Research and Development Agreements (CRADAs) whenever appropriate.

This Research Report is prepared annually to report on the significant contributions of this institution; to solicit continued involvement and support from our Air Force, DoD, and other federal partners; and to encourage new sponsors to participate in AFIT's research programs. AFIT welcomes new opportunities to engage in research projects that are of mutual interest to our customers, faculty, and students.

Heidi R. Ries, Ph.D.
Dean for Research
Graduate School of Engineering
and Management



Table of Contents

AIR FORCE INSTITUTE OF TECHNOLOGY	i
1. INTRODUCTION.....	1
1.1. OVERVIEW.....	1
1.2. THE GRADUATE SCHOOL OF ENGINEERING AND MANAGEMENT RESEARCH COLLABORATION.....	1
2. SPECIAL RECOGNITIONS.....	4
2.1. FACULTY FELLOWS.....	4
2.2. PROFESSIONAL CERTIFICATIONS.....	5
2.3. RESEARCH AWARDS	7
2.3.1. FACULTY.....	7
2.3.2. STUDENTS.....	8
3. RESEARCH STATISTICS.....	9
3.1. RESEARCH ASSESSMENT QUESTIONNAIRE RESULTS.....	9
3.2. RESEARCH AND CONSULTING OUTPUT MEASURES.....	11
3.3. RESEARCH AND CONSULTING SPONSORSHIP.....	12
3.4. OUTSIDE FUNDING FOR THE GRADUATE SCHOOL OF ENGINEERING AND MANAGEMENT.....	14
4. SPONSORSHIP OF STUDENT RESEARCH	16
4.1. DOCTORAL DISSERTATIONS.....	16
4.1.1. HEADQUARTERS UNITED STATES AIR FORCE.....	16
4.1.2. AIR COMBAT COMMAND.....	16
4.1.3. AIR EDUCATION AND TRAINING COMMAND.....	16
4.1.4. AIR FORCE COMMUNICATIONS AGENCY.....	16
4.1.5. AIR FORCE RESEARCH LABORATORY.....	16
4.1.6. UNITED STATES CENTRAL COMMAND.....	18
4.1.7. UNITED STATES NAVAL ACADEMY.....	18
4.1.8. THE HIGH ENERGY LASER JOINT TECHNOLOGY OFFICE.....	18
4.2. MASTER'S THESES.....	19
4.2.1. OFFICE OF THE SECRETARY OF THE AIR FORCE.....	19
4.2.2. HEADQUARTERS UNITED STATES AIR FORCE.....	19
4.2.3. AIR COMBAT COMMAND.....	20
4.2.4. AIR EDUCATION AND TRAINING COMMAND.....	20
4.2.5. AIR FORCE MATERIEL COMMAND.....	23
4.2.6. AIR MOBILITY COMMAND.....	33
4.2.7. AIR FORCE SPACE COMMAND.....	33
4.2.8. USAF FIELD OPERATING AGENCIES.....	33
4.2.9. DEPARTMENT OF DEFENSE.....	34
4.2.10. DEPARTMENT OF ENERGY.....	36
4.2.11. OTHER FEDERAL AGENCIES.....	36
4.2.12. NON-FEDERAL SPONSORS.....	36
4.3. GRADUATE RESEARCH PAPERS.....	38
4.3.1. OFFICE OF THE SECRETARY OF THE AIR FORCE.....	38
4.3.2. HEADQUARTERS UNITED STATES AIR FORCE.....	38
4.3.3. AIR COMBAT COMMAND.....	38
4.3.4. AIR EDUCATION AND TRAINING COMMAND.....	38
4.3.5. AIR FORCE MATERIEL COMMAND.....	39
4.3.6. AIR MOBILITY COMMAND.....	40
4.3.7. AIR FORCE SPACE COMMAND.....	40
4.3.8. AIR FORCE RESERVE COMMAND.....	40
4.3.9. DEPARTMENT OF DEFENSE.....	40
5. ACADEMIC DEPARTMENT PUBLICATIONS AND FUNDING INFORMATION	41
5.1. DEPARTMENT OF AERONAUTICS AND ASTRONAUTICS.....	42
5.2. DEPARTMENT OF ELECTRICAL AND COMPUTER ENGINEERING.....	58
5.3. DEPARTMENT OF ENGINEERING PHYSICS	90
5.4. DEPARTMENT OF MATHEMATICS AND STATISTICS	105
5.5. DEPARTMENT OF OPERATIONAL SCIENCES.....	111
5.6. DEPARTMENT OF SYSTEMS AND ENGINEERING MANAGEMENT	128

6.	RESEARCH CENTER PUBLICATIONS AND FUNDING INFORMATION.....	149
6.1.	ADVANCED NAVIGATION TECHNOLOGY CENTER	150
6.2.	CENTER FOR DIRECTED ENERGY	154
6.3.	CENTER FOR CYBERSPACE RESEARCH.....	158
6.4.	CENTER FOR MASINT STUDIES AND RESEARCH.....	167
6.5.	CENTER FOR OPERATIONAL ANALYSIS	170
6.6.	CENTER FOR SYSTEMS ENGINEERING.....	175
	APPENDICES.....	177
	APPENDIX A: FACULTY CREDENTIALS.....	177
	APPENDIX B: POST-DOCTORAL AND OTHER RESEARCH ASSOCIATES CREDENTIALS.....	206
	APPENDIX C: ABBREVIATIONS FOR ORGANIZATIONS	207
	APPENDIX D: INFORMATION FOR OBTAINING A COPY OF A THESIS	209

(INTENTIONALLY BLANK)

1. INTRODUCTION

1.1. OVERVIEW

This Research Report presents the FY08 research statistics and contributions of the Graduate School of Engineering and Management (EN) at AFIT. AFIT research interests and faculty expertise cover a broad spectrum of technical areas related to USAF needs, as reflected by the range of topics addressed in the faculty and student publications listed in this report. In most cases, the research work reported herein is directly sponsored by one or more USAF, or DoD agencies.

AFIT welcomes the opportunity to conduct research on additional topics of interest to the USAF, DoD, and other federal organizations when adequate manpower and financial resources are available and/or provided by a sponsor. In addition, AFIT provides research collaboration and technology transfer benefits to the public through CRADAs. Interested individuals may discuss ideas for new research collaborations, potential CRADAs, or research proposals with individual faculty using the contact information in Appendix A or via the AFIT Directory at www.afit.edu/directory.

Additional information on the research programs at AFIT may also be found on the research web home page at <http://www.afit.edu/en/enr/>. The Office of Research and Sponsored Programs, Graduate School of Engineering and Management can be reached at 937-255-3633, (DSN 785-3633) or by email: research@afit.edu. The primary points of contact are Dr. Michael J. Caylor, Director of Sponsored Programs, 937-255-3636 x7104, DSN 785-3636 x7104 and Dr. Heidi R. Ries, Dean for Research, 937-255-3636 x4544, DSN 785-3636 x4544.

1.2. THE GRADUATE SCHOOL OF ENGINEERING AND MANAGEMENT RESEARCH COLLABORATION

As detailed in the 2008-2009 catalog at <http://www.afit.edu/en/ener/catalog.cfm>, AFIT offers Master's and Doctoral programs in a variety of disciplines through six departments: the Department of Mathematics and Statistics (ENC), the Department of Electrical and Computer Engineering (ENG), the Department of Engineering Physics (ENP), the Department of Operational Sciences (ENS), the Department of Systems and Engineering Management (ENV), and the Department of Aeronautics and Astronautics (ENY). In all of these disciplines, research is an integral component of graduate education, developing an individual student's skills and providing new knowledge of interest to many.

A brief listing of each department's research areas of emphasis appears below. Please contact the faculty, relevant departmental office, or the Office of Research and Sponsored Programs for further information, or visit the Graduate School of Engineering and Management departmental websites at www.afit.edu.

The [Department of Aeronautics and Astronautics](#) invites research topic proposals and collaborative suggestions for the Aeronautical, and Astronautical engineering programs. The following list highlights the Department's research specialties:

Aeroelasticity and Design Optimization
Aerospace Structures and Materials
Analysis of Computer Turbines
Autonomous Control of UAVs
Computational Fluid Dynamics
Control of High Performance Aircraft
Dynamic Flight Simulation
Experimental Fluid Dynamics
High Velocity Impact
Impact Dynamics
Inflatable Space Structures

Materials and Structural Analysis
Mechanics of Materials and Structures
Micro Air Vehicles
Non-Linear Dynamics
Reentry Dynamics
Rocket & Space Propulsion
Rotocraft Aeromechanics
Satellite Cluster Dynamics, Navigation, & Control
Spacecraft Dynamics & Control

The [Department of Electrical and Computer Engineering](#) invites research topic proposals and collaborative suggestions for the Electrical Engineering, Computer Engineering, and Computer Science programs, as well as the **Advanced Navigation Technology Center (ANT)** and the **Center for Cyberspace Research (CCR)**. The following list highlights the Department's research specialties:

Advanced Security-focused Computing Architectures
Artificial Intelligence
Automatic Target Recognition
Communications/Radar
Computer Communication Networks
Cyber Operations and Security
Electromagnetics/Low Observables
Evolutionary Algorithms

Guidance, Navigation and Control
Information Visualization
Micro and Nanosystems
Parallel and Distributed Processing
Signal and Image Processing
Software Engineering
Wireless Networks
Wireless Sensor Networks

The [Department of Engineering Physics](#) invites research topic proposals and collaborative suggestions for the Applied Physics, Nuclear Engineering, Electro-Optics (jointly operated with the Department of Electrical and Computer Engineering), and Materials Science (jointly operated with the Department of Aeronautics and Astronautics) programs, as well as the **Center for Directed Energy (CDE)** and the **Center for MASINT Studies and Research (CMSR)**. The following list highlights the Department's research specialties within these programs:

Combating Weapons of Mass Destruction
Computational Physics
Counterproliferation
Directed Energy Weapons
Electronic and Photonic Materials

Lasers and Electro-Optics
Nuclear Weapons and Effects
Nuclear Forensics
Remote Sensing and Signature Analysis
Space Weather

The [Department of Mathematics and Statistics](#) invites research topic proposals and collaborative suggestions for the following research specialties:

Acoustic Wave Scattering
Category Theory
Optimization
Design of Experiments
Electromagnetics
Gait Recognition

Information Fusion
Multiscale Methods
Functional Analysis
Numerical Analysis
Partial Differential Equations
Wavelets

The [Department of Operational Sciences](#) invites research topic proposals and collaborative suggestions within the areas of Operations Research, Logistics Management programs, as well as the **Center for Operational Analysis (COA)**. The following list highlights the Department's research specialties:

Applied/Multivariate Statistics
Capacity and Queue Modeling
Decision and Risk Analysis
Information Operations/Information Warfare
Inventory Management/Theory
Math Programming and Optimization
Network Modeling

Operational Modeling and Simulation
Operational Problems and Heuristic Modeling
Sensor/Classifier Fusion
Space and International Logistics
Space Logistics Modeling
Stochastic Systems Analysis
Supply Chain Management

The [Department of Systems and Engineering Management](#) is seeking research topic proposals and collaborative suggestions for the Cost Analysis, Engineering Management, Environmental Engineering and Science, Information Resource Management, Research and Development Management programs, as well as the **Center for Systems Engineering (CSE)**. The following list highlights the Department's research specialties:

Applied Environmental Sciences	Knowledge and Strategic Information Management
Cost Analysis	Leadership and Management
Crisis Project Management	Multidisciplinary Distributed Cognition
Crisis Engineering Services Management	Nanotoxicity and Pharmacokinetic Modeling
Crisis Knowledge Management	Operational Information Integration
Cyberlaw and Cyberwar	Organizational Change and Theory
Defense Product Development	Organizational Control Center Performance
Ecological Engineering – Constructed Wetlands	Sustainable Development
Economics and Finance	System Dynamics Analysis
Facility and Infrastructure Management	Systems Engineering
Information Assurance and Security	Technology Development and Application

Another avenue for educational and research collaboration with the Graduate School of Engineering and Management is through association with one or more of **AFIT's Research Centers**. A brief listing of each Center's educational or research areas of emphasis appears below. Please contact the Centers directly (see Ch. 6), or contact the Office of Research and Sponsored Programs for further information (937-255-3633, DSN 785-3633).

The [Advanced Navigation Technology \(ANT\) Center](#) is a forward-looking navigation research center seeking to identify and solve tomorrow's most challenging navigation and targeting problems by focusing on three research thrusts: multiple-vehicle autonomous navigation and control, non-GPS precision navigation, and robust GPS navigation.

The [Center for Directed Energy \(CDE\)](#) is dedicated to Air Force and DoD research in high energy lasers (HEL), high power microwaves (HPM), and their enabling technologies. The Center is an advocate for transitioning these systems to the battlefield through vigorous scientific and engineering research, graduate education programs and diverse consulting activities.

The [Center for Cyberspace Research \(CCR\)](#) is one of the National Security Agency (NSA) and Department of Homeland Security's designated Centers of Academic Excellence in Information Assurance Education (CAE/IAE). CCR is also a National Science Foundation Cyber Corp institution. CCR's objectives are to provide cutting-edge offensive and defensive research solutions for cyberspace and cyber security applications and produce a cadre of technically educated leaders for the DoD and federal Government. In June 2008, the CCR was designated the Air Force's Cyberspace Technical Center of Excellence.

The [Center for MASINT Studies and Research \(CMSR\)](#) is focused on Air Force and Department of Defense Measurement and Signature Intelligence (MASINT) scientific, technical and operational activities through graduate research programs. CMSR is a national resource for educating a new generation of MASINT professionals.

The [Center for Operational Analysis \(COA\)](#) directs defense relevant research and timely technology transfer in providing approaches and solutions to current and future operational and resource issues while developing critical and forward thinking analysts, managers, and leaders.

The [Air Force Center for Systems Engineering \(AF CSE\)](#) is a directorate within AFIT and is the recognized Center of Excellence for Systems Engineering (SE) within the Air Force (AF) and the US Department of Defense (DoD). The mission of the Center is to shape the future of systems engineering with the goal of improving our ability to deliver war-fighting capabilities. We accomplish this by conceptualizing new processes, practices, tools, and resources through research, education, and consultation.

2. SPECIAL RECOGNITIONS

2.1. FACULTY FELLOWS

Badiru, Adedeji B., Professor and Head Department of Systems and Engineering Management, Fellow of the Institute of Industrial Engineers, Fellow of the Nigerian Academy of Engineering.

Bridgman, Charles J., Professor Emeritus of Nuclear Engineering, Department of Engineering Physics, Fellow of the American Nuclear Society.

Elrod, William E., Professor Emeritus of Aerospace Engineering, Department of Aeronautics and Astronautics, Fellow of American Society of Mechanical Engineers International.

Franke, Milton E., Professor Emeritus of Aerospace Engineering, Department of Aeronautics and Astronautics, Fellow of the American Society of Mechanical Engineers.

Hengehold, Robert L., Professor of Physics, Department of Engineering Physics, Fellow of the American Physical Society.

Houpis, Constantine H., Professor Emeritus of Electrical Engineering, Department of Electrical and Computer Engineering, Fellow of the Institute of Electrical and Electronic Engineers.

Mall, Shankar, Professor of Aerospace Engineering, Department of Aeronautics and Astronautics, Fellow of the American Society of Mechanical Engineers International.

Maybeck, Peter S., Professor Emeritus of Electrical Engineering, Department of Electrical and Computer Engineering, Fellow of the Institute of Electrical and Electronic Engineers.

Pachter, Meir, Professor of Electrical Engineering, Department of Electrical and Computer Engineering, Fellow of the Institute of Electrical and Electronic Engineers.

Palazotto, Anthony N., Professor of Aerospace Engineering, Department of Aeronautics and Astronautics, Fellow of American Institute of Aeronautics and Astronautics, Fellow of the American Academy of Mechanics and the American Society of Civil Engineers.

Perram, Glen P., Professor of Physics, Department of Engineering Physics, Fellow of the Directed Energy Professional Society.

Ruggles-Wrenn, Marina B., Associate Professor of Aerospace Engineering, Department of Aeronautics and Astronautics, Fellow of the American Society of Mechanical Engineers International.

Soni, Som R., Associate Professor of Systems Engineering, Department of Systems and Engineering Management, Fellow of the American Society for Composites, Associate Fellow of AIAA.

Terzuoli, Andrew J., Associate Professor of Electrical Engineering, Department of Electrical and Computer Engineering, Fellow of the Electromagnetics Academy.

Thomas, M. U., Dean, Graduate School of Engineering and Management, Fellow of the Institute of Industrial Engineers, Fellow of the American Society of Quality, Fellow of the Institute for Operations Research and Management Sciences.

Torvik, Peter J., Professor Emeritus of Aerospace Engineering and Engineering Mechanics, Department of Aeronautics and Astronautics, Fellow of the American Institute of Aeronautics and Astronautics, Life Fellow of American Society of Mechanical Engineers International, Fellow of the Ohio Academy of Science.

2.2. PROFESSIONAL CERTIFICATIONS

Badiru, Adedeji B., Leadership Certificate, University of Tennessee Leadership Institute

Badiru, Adedeji B., Professional Engineer, State of Oklahoma

Baldwin, Rusty O., Professional Engineer, State of Ohio

Baldwin, Rusty O., Certified Information Systems Security Professional (CISSP)

Barelka, Alex J., Certified Project Management Professional (PMP)

Carl, Joseph W., Professional Engineer, State of Ohio; Certified Systems Engineering Professional (CSEP) by INCOSE

Coutu, Ronald A., Jr., Professional Engineer, State of California

Cunningham, William A. III, Certified Transportation and Logistics (CTL) by the American Society of Transportation and Logistics (AST&L)

Goltz, Mark N., Hazardous Waste Management Specialty Certification as a Diplomate Environmental Engineer, American Academy of Environmental Engineers

Goltz, Mark N., Professional Engineer, State of Minnesota

Goltz, Mark N., Board Certified Environmental Engineer, American Academy of Environmental Engineers

Greendyke, Robert B., Professional Engineer, State of Texas

Grimaila, Michael R., Certified Information Security Manager (CISM); Information Systems Audit and Control Association (ISACA); Rolling Meadows, IL.

Grimaila, Michael R., Certified Information System Security Professional (CISSP); International Information Systems Security Certification Consortium, Inc. (ISC)2; Vienna, VA.

Houpis, Constantine H., Professional Engineer, State of Ohio

Kunz, Donald L., Professional Engineer, Commonwealth of Virginia

Marciniak, Michael A., Certified Laser Safety Officer, Board of Laser Safety, Orlando, FL

Mattioda, Daniel D., FAA Airframe and Powerplant License

Mattioda, Daniel D., FCC Ground Radio Operators License with Radar Endorsement

Mullins, Barry E., Professional Engineer, State of Colorado

Mullins, Barry E., Security Essential Certification (GSEC) from SysAdmin, Audit, Network, Security Institute's (SANS) Global Information Assurance Certification (GIAC) Program

Mullins, Barry E., Assessing Wireless Networks (GAWN) certification from the SysAdmin, Audit, Network, Security Institute's (SANS) Global Information Assurance Certification (GIAC) Program

Palazotto, Anthony N., Professional Engineer, State of Ohio

Perram, Glen P., Professional Engineer, State of Ohio

Quinn, Dennis W., Professional Engineer, State of Ohio

Reeder, Mark F., Professional Engineer, State of Ohio

Slagley, Jeremy, Board Certified Industrial Hygienist, American Academy of Industrial Hygienists

Strouble, Dennis D., Licensed Attorney, State of Texas

Thomas, M. U., Professional Engineer, State of Michigan

Turner, Jason M., Certified Usability Analyst (CUA) - Human Factors International; Certified Enterprise Architect (CEA) - Federal Enterprise Architecture Certification Institute

2.3. RESEARCH AWARDS

2.3.1. FACULTY

CUSUMANO, SALVATORE, J.

Bartell, R.J., Krizo, M.J., Fiorino, S.T. Air Force Modeling and Simulation Planning Award for 2007, presented to the AFIT Center for Directed Energy M&S Team, accepted 12 March 2008.

DEA, JOHN R., Maj

2008 Warren Randolph Church Award for Excellence in Mathematics, Naval Postgraduate School, Monterey, CA.

Air Force Association Award for Outstanding U.S. Air Force Student, Summer 2008, Naval Postgraduate School, Monterey, CA.

FIORINO, STEVEN, T., Lt Col

Bartell, R.J., Krizo, M.J., Fiorino, S.T. Air Force Modeling and Simulation Planning Award for 2007, presented to the AFIT Center for Directed Energy M&S Team, accepted 12 March 2008.

HOPKINSON, KENNETH M.

Hopkinson, K., and Graham, S., "Connecting the Warfighter: Moving from Today's Crude Bent Pipes to the Tactical Battle Systems of the Future," Air University Blue Dart Award for Opinion/Editorial Article, February 2008.

MARTIN, RICHARD K.

HKN (Eta Kappa Nu, Delta Xi Chapter) Instructor of the Year, March 2008.

PETERSON, GILBERT L.

Air Force Junior Scientist of the Year, September 2008.

RAINES, RICHARD A.

Air Force Science and Engineering Educator of the Year, September 2008.

Inducted into the Association of the Old Crows Hall of Fame for significant contributions towards the advancement of Information Operations, October 2007.

RAQUET, JOHN F.

Nielsen, M., J. Raquet, M. Veth, and M. Pachter, Best-presentation-in-session award, "Development and Flight Test of a Robust Optical-Inertial Navigation System Using Low-Cost Sensors," *Proceedings of ION GNSS-2008*, Savannah, GA, Sep 2008.

Ozdemir, H., J. Raquet, and G. Lamont, Best-presentation-in-session award, "Design of a Regional Satellite Navigation System Constellation Using Genetic Algorithms," *Proceedings of ION GNSS-2008*, Savannah, GA, Sep 2008.

Highlighted in "50+ Leaders to Watch" article in *GPS World*, May 2008.

2.3.2. STUDENTS

GALLUP, HEATHER L.

Lt. Edwin E. Aldrin Sr. Award, March 2008.

HELLESEN, DENZIL L.

Secretary James G. Roche Award, March 2008.

JOHNSON, ROBERT J.

Commandant's Award, 2008.

MURPHY, SEAN D.

Lt. Edwin E. Aldrin Sr. Award, June 2008.

PETTUS, EVAN L.

Mervin E. Gross Award, June 2008.

RUSNOCK, CHRISTINA F.

Mervin E. Gross Award, March 2008.

SKARDA, BRYAN E.

Skarda, B., Mills, R.F., McDonald, J.T., and Strouble, D., Best Student Paper: Concepts, Theory, and Policy Track, "Operationalizing Social Engineering for Offensive Cyber Operations," 13th International Command and Control Research and Technology Symposium (ICCRTS), Bellevue WA, June 2008.

SOLIMAN, NEIL S.

MASINT Association Award for Academic Excellence Award, March 2008.

Association of Old Crows Academic Research Excellence Award, March 2008.

SUSKI, WILLIAM C., II

ATIA Academic Research Excellence Award, Advanced Technical Intelligence Association (ATIA), March 2008.

SWEENEY, DANIEL D.

Sweeney, D.D., and J.M. Slagley. "Noise and Dust Control in Simulated Coal Mine Longwall Shearer Operation." Poster Presentation at the American Industrial Hygiene Conference and Exposition, Minneapolis, MN, June 08. Awarded best student poster by AIHA Engineering Technology Committee.

WICKERT, DOUGLAS P.

Douglas Wickert (Robert Canfield, advisor), Best Presentation Award, Structures, 33rd AIAA Dayton-Cincinnati Aerospace Sciences Symposium, March 4, 2008.

3. RESEARCH STATISTICS

3.1. RESEARCH ASSESSMENT QUESTIONNAIRE RESULTS

An AFIT Research Assessment Questionnaire, shown on the following page, was sent to each sponsor of a Master's thesis and doctoral dissertation project during FY 2008 to determine the project's contribution, significance and cost avoidance. Detailed results of the questions asked are shown in Table 3.1. The data in this table are based on 63 questionnaires returned out of the 286 questionnaires mailed.

Table 3.1: Sponsor Assessment of AFIT Research

QUESTION	EN
Did this research contribute to a current Air Force/DoD project? (Yes answers)	98%
The thesis work was: Highly significant Significant Slightly significant Not significant	33% 56% 11% 0%
Average man-years of effort saved by the sponsors.	.96
Average cost avoided per thesis/dissertation by the sponsors.	\$165,104
Total cost avoided for all theses and dissertations sponsored (estimated).	\$47 M
Rank of respondents Colonel (DR IV/GM-15) Lt Col (DR-III/GM-14) Major (DR-II/GM-13) Of the 63 questionnaires, 37 respondents did not list Rank/GS levels. These percentages represent only those which responded.	22% 39% 39%

3.2. RESEARCH AND CONSULTING OUTPUT MEASURES

There are measurable indicators of AFIT's contribution to the engineering and scientific community and AFIT's success in staying well informed of technical possibilities and scientific opportunities. These indicators include the number and quality of technical publications accepted by the editors of journals; the number of presentations accepted for regional, national and international conferences; the number of research projects conducted; the number of consultations performed for Air Force and DoD customers; and finally, the number of student graduate research papers, MS theses, and PhD dissertations completed and submitted to the Defense Technical Information Center. For FY08, these output measures are shown in Table 3.2.

Table 3.2: Faculty Research and Sponsored Programs Output by Graduate School Department

	Graduate School by Department						
	Graduate School (EN) Total	Math & Stats (ENC)	Electrical & Comp Eng (ENG)	Engineering Physics (ENP)	Operational Sciences (ENS)	Sys & Eng Management (ENV)	Aeronautics & Astro (ENY)
Number of Faculty (FTE)	134	15	34	20	21	24	20
Refereed Publications	171	8	48	23	20	24	48
Refereed Conferences	247	5	96	19	33	48	46
Other Presentations and Publications	276	37	70	57	35	61	16
Sponsor Funded Projects	172	4	67	42	11	12	36
Substantial Consultations	63	3	25	8	6	14	7
Books	6	0	3	0	2	1	0
Chapters of Books	15	0	13	0	2	0	0
Patents	0	0	0	0	0	0	0
Doctoral Dissertations Advised	34	0	14	6	5	1	8
Master's Theses Advised	277	9	73	21	30	92	61
Graduate Research Papers Advised	44	0	10	0	24	10	0

FTE: Full-time equivalent

3.3. RESEARCH AND CONSULTING SPONSORSHIP

As part of an Air Force institution, the faculty members of the Air Force Institute of Technology focus their research on current problems as well as future systems of the Air Force and other DoD organizations. Evidence of this focus is that 88% of technical and 86% of all theses and dissertations listed in Table 3.2 are externally sponsored by Air Force, DoD and Government agencies. In addition, most of the research projects and consultations are carried out for Air Force and DoD units. The data are summarized in Table 3.3 and Figure 3.1.

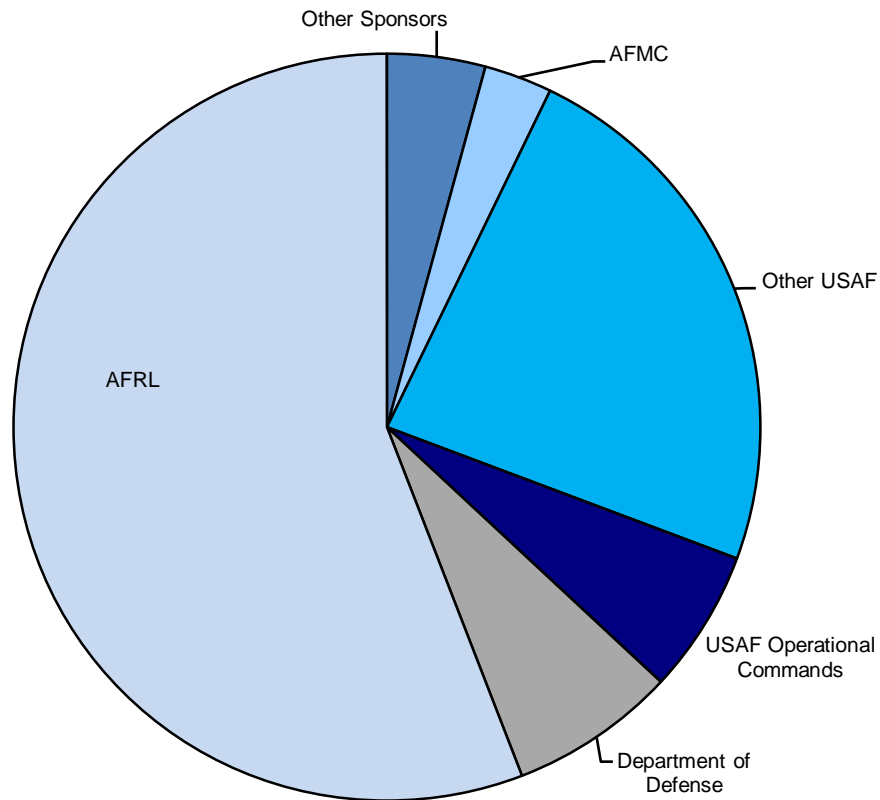


Figure 3.1: Sponsors of AFIT Theses and Dissertations

Table 3.3: AFIT External Sponsorship by Organization

SPONSOR ORGANIZATION	PhD Dissertations	Master's Theses	Graduate Research Papers	Funded Projects	Substantial Consultations
HQ UNITED STATES AIR FORCE	1	12	5		6
OFFICE OF THE SECRETARY OF THE AIR FORCE		3	1	6	1
AIR EDUCATION AND TRAINING COMMAND		6	1		
AIR COMBAT COMMAND	1	3	4	6	3
8 th Air Force		2	1		
National Air and Space Intelligence Center		4		4	4
AIR FORCE MATERIEL COMMAND		7	2	6	
Aeronautical Systems Center		6	3		4
Air Force Research Laboratory (AFRL)		1			4
Air Force Office of Scientific Research (AFOSR)	6	22		27	2
Air Vehicles Directorate (RB)	1	19		16	
Directed Energy Directorate (RD)	1	6		10	1
Human Effectiveness Directorate (RH)		14	2	4	
Information Directorate (RI)	2	3	1	3	2
Materials & Manufacturing Directorate (RX)	3	4		6	
Munitions Directorate (RW)		6		6	
Propulsion Directorate (RZ)	4	21		5	
Sensors Directorate (RY)	5	44		21	4
Space Vehicles Directorate (RV)	1	5		2	2
AIR FORCE RESERVE COMMAND			3	1	
AIR FORCE SPACE COMMAND		4	1		3
AIR MOBILITY COMMAND		1	10		
US AIR FORCE OPERATING AGENCIES					
Air Force Center for Environmental Excellence		5			
Air Force Civil Engineer Support Agency		2			
Air Force Communications Agency	1			1	
Air Force Information Operations Center		4		1	
Air Force Test Pilot School		2		1	
Air Force Technical Application Center				1	2
Other Operating Agencies		5			
DEPARTMENT OF HOMELAND SECURITY		2		1	
DEPARTMENT OF DEFENSE		10	3	3	10
Defense Threat Reduction Agency				3	1
High Energy Laser Joint Technology Office		1		4	
US Office of Secretary Defense		1			2
US Central Command	1	1			
US Strategic Command		2			1
US Transportation Command				1	
United States Army				1	1
United States Navy	1	1		1	
DEPARTMENT OF ENERGY		5		1	1
OTHER FEDERAL AGENCIES	1				4
Environmental Protection Agency		1			
National Aeronautics and Space Administration				1	
National Geospatial Intelligence Agency				2	
National Security Agency				4	
NATIONAL SCIENCE FOUNDATION				2	
DAYTON AREA GRADUATE STUDIES INSTITUTE				2	
Other Non-Federal Agencies		5		1	5
TOTALS					
	29	240	37	154	63

NOTE: Some student publications have multiple sponsors; See App C for Selected Acronym List

3.4. OUTSIDE FUNDING FOR THE GRADUATE SCHOOL OF ENGINEERING AND MANAGEMENT

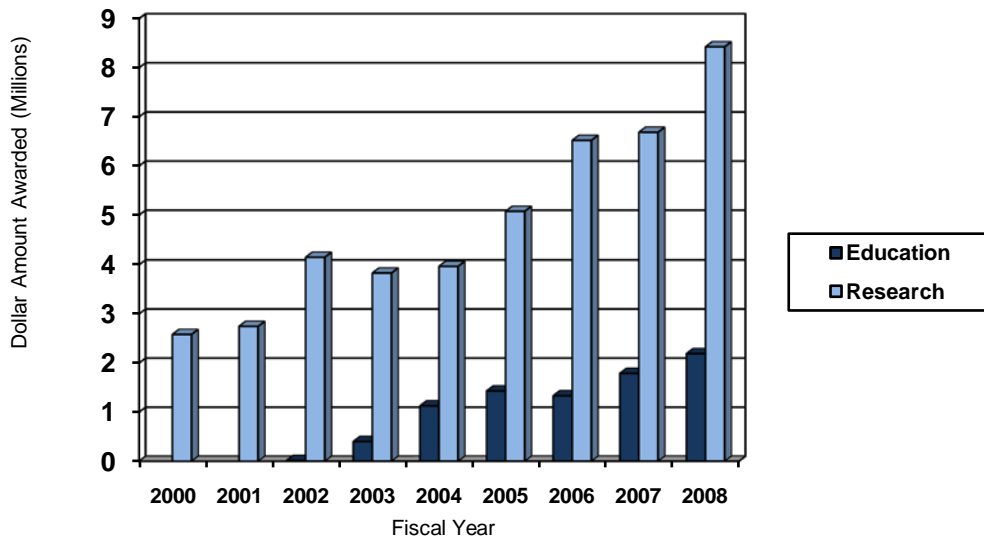
Many of the Graduate School of Engineering and Management’s theses and research projects completed under faculty supervision (sponsored or unsponsored) are funded in part by other Air Force, DoD and government units and agencies. Often, this funding results from collaboration between faculty and thesis sponsors and occurs when the research project can be leveraged by the purchase of equipment or services not otherwise available. Tables 3.4 and 3.5, and Figure 3.3, summarize outside funding for FY08, and Figure 3.2 summarizes the past nine fiscal years of outside sponsored funding.

Department	Newly Awarded Research Projects		Newly Awarded Education Projects		Additional Research Expenditures	Total FY08 Sponsored Activity	
	#	\$k	#	\$k		#	\$k
Mathematics & Statistics (ENC)	4	92	-	-	13	4	105
Electrical & Computer Eng (ENG)	61	2,924	6	1,241	4,162	67	8,327
Engineering Physics (ENP)	38	2,837	4	890	1,352	42	5,079
Research & Sponsored Programs (ENR)	1	10	-	-	5	1	15
Operational Sciences (ENS)	11	1,000	-	-	455	11	1,455
Systems and Eng Management (ENV)	11	605	1	60	689	12	1,354
Aeronautical & Astronautical Eng (ENY)	36	958	-	-	3,224	36	4,182
TOTAL	162	8,426	11	2,191	9,900	173	20,517

Center	#	\$k	#	\$k		#	\$k
Advanced Navigation Technology (ANT)	18	828	-	-	638	18	1,466
Center for Directed Energy (CDE)	19	1,756	1	51	458	20	2,265
Center for Cyberspace Research (CCR)	15	765	6	1,241	804	21	2,810
Center for MASINT Studies and Research (CMSR)	7	493	1	756	264	8	1,513
Center for Operational Analysis (COA)	9	1,047	-	-	326	9	1,373
Center for Systems Engineering (CSE)	7	497	1	60	360	8	917
TOTAL	75	5,386	9	2,108	2,850	84	10,344

Notes: DoD regulations limit AFIT’s charges to DoD organizations. These nonchargeable items are reflected as “additional research expenditures”. All Center funds are also included in departmental funding.

Figure 3.2: New Award History FY00-FY08



* Pie chart on the right shows breakdown by AFRL Directorate.

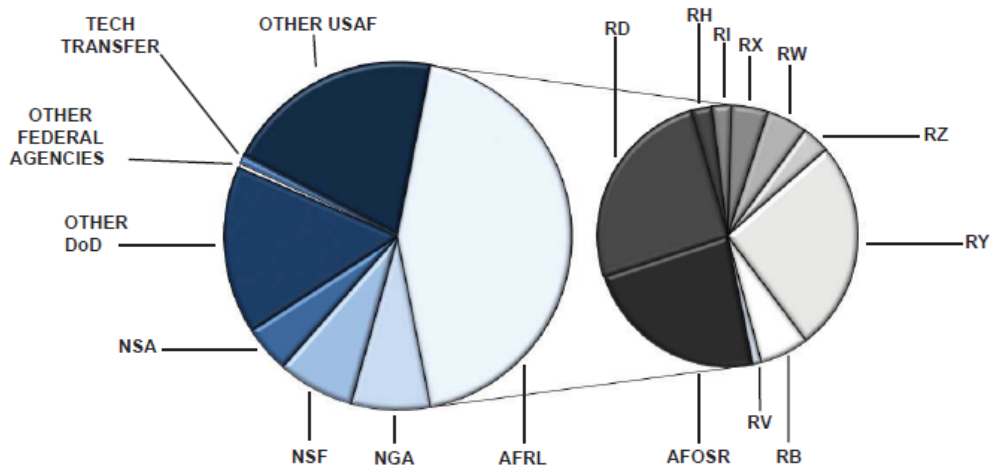


Figure 3.3 New FY08 Awards by Sponsor

Table 3.5 New FY08 Awards to Academic Departments & Research Centers by Sponsor

	<i>AFRL</i>	<i>Other USAF</i>	<i>Other DoD</i>	<i>NGA</i>	<i>NSF</i>	<i>NSA</i>	<i>Other Federal</i>	<i>Non-Federal</i>	<i>Total</i>
Dept.	<i>Dollars</i>	<i>Dollars</i>	<i>Dollars</i>	<i>Dollars</i>	<i>Dollars</i>	<i>Dollars</i>	<i>Dollars</i>	<i>Dollars</i>	<i>Dollars</i>
ENC	92,277	-	-	-	-	-	-	-	92,277
ENG	2,036,616	713,738	409,349	30,000	528,424	447,412	-	-	4,165,539
ENP	948,573	548,736	1,134,320	756,000	230,000	-	29,209	44,308	3,727,146
ENR	10,000	-	-	-	-	-	-	-	10,000
ENS	66,500	316,293	596,970	-	-	20,000	-	-	999,763
ENV	145,000	481,692	30,385	-	-	-	7,700	-	664,777
ENY	794,615	109,634	15,000	-	-	-	-	38,860	958,109
TOTAL	4,129,851	2,170,093	2,186,024	786,000	758,424	467,412	36,909	83,168	10,617,611
Research Center	<i>Dollars</i>	<i>Dollars</i>	<i>Dollars</i>	<i>Dollars</i>	<i>Dollars</i>	<i>Dollars</i>	<i>Dollars</i>	<i>Dollars</i>	<i>Dollars</i>
ANT	752,491	45,900	-	30,000	-	-	-	-	828,391
CCR	637,075	94,530	298,549	-	528,424	447,412	-	-	2,005,990
CDE	806,787	9,000	761,055	-	230,000	-	-	-	1,806,842
CMSR	-	434,736	14,000	756,000	-	-	-	44,308	1,249,044
COA	59,500	279,293	707,770	-	-	-	-	-	1,046,563
CSE	55,000	159,552	322,140	-	-	-	-	20,160	556,852
TOTAL	2,310,853	1,023,011	2,103,514	786,000	758,424	447,412	-	64,468	7,493,682

Note: All Center funds are also included in departmental funding.

4. SPONSORSHIP OF STUDENT RESEARCH

4.1. DOCTORAL DISSERTATIONS

4.1.1. HEADQUARTERS UNITED STATES AIR FORCE

RODRIGUEZ, JUNE F.D., *Metamodeling Techniques to Aid in the Aggregation Process of Large Hierarchical Simulation Models*. AFIT/DS/ENS/08-03. Faculty Advisor: Dr. John O. Miller. Sponsor: HQ USAF.

4.1.2. AIR COMBAT COMMAND

FRIEND, MARK A., *Combat Identification with Synthetic Aperture Radar, Out-Of-Library Identification and Non-Declarations*. AFIT/DS/ENS/07-04. Faculty Advisor: Dr. Kenneth W. Bauer, Jr. Sponsor: AFOSR and ACC.

4.1.3. AIR EDUCATION AND TRAINING COMMAND

AIR FORCE INSTITUTE OF TECHNOLOGY

Although no external sponsor is identified, in most cases, AFIT faculty sponsored the below projects due to their relevance to current or future USAF, DoD and/or Homeland Security requirements.

FORD, THOMAS C., *Interoperability Measurement*. AFIT/DSE/ENV/08-S01. Faculty Advisor: Dr. John M. Colombi. Sponsor: N/A.

HUBENKO, VICTOR P., *A Secure and Efficient Communications Architecture for Global Information Grid Users Via Cooperating Space Assets*. AFIT/DCE/ENG/08-02. Faculty Advisor: Dr. Richard A. Raines. Sponsor: N/A.

JOHNSON, STEVEN E., *Range Precision of LADAR Systems*. AFIT/DEE/ENG/08-15. Faculty Advisor: Dr. Stephen C. Cain. Sponsor: N/A.

PHILLIPS, JAMES D., *Joint Image and Pupil Plane Reconstruction Algorithm based on Bayesian Techniques*. AFIT/DEE/ENG/08-07. Faculty Advisor: Dr. Stephen C. Cain. Sponsor: N/A.

PRINS, NICHOLAS J., *Distribution Iteration: A Robust Alternative to Source Iteration for Solving the Discrete Ordinates Radiation Transport Equations in Slab and XY-Geometries*. AFIT/DS/ENP/08-S04. Faculty Advisor: Dr. Kirk A. Mathews. Sponsor: N/A.

VENEMA, TODD M., *Closed-Loop Adaptive Optics Control in Strong Atmospheric Turbulence*. AFIT/DEE/ENG/08-21. Faculty Advisor: Lt Col Juan R. Vasquez. Sponsor: N/A.

4.1.4. AIR FORCE COMMUNICATIONS AGENCY

AUGERI, CHRISTOPHER J., *On Graph Isomorphism and the Page Rank Algorithm*. AFIT/DCS/ENG/08-08. Faculty Advisor: Dr. Barry E. Mullins. Sponsor: AFCA.

4.1.5. AIR FORCE RESEARCH LABORATORY

AFRL: AIR FORCE OFFICE OF SCIENTIFIC RESEARCH

FRIEND, MARK A., *Combat Identification with Synthetic Aperture Radar, Out-Of-Library Identification and Non-Declarations*. AFIT/DS/ENS/07-04. Faculty Advisor: Dr. Kenneth W. Bauer, Jr. Sponsor: AFOSR and ACC.

KEE, PATRICK, *Electronic State Distributions of $YBa_2Cu_3O_{7-x}$ Laser Ablated Plumes*. AFIT/DSP/ENP/08-S05. Faculty Advisor: Dr. Glen P. Perram. Sponsor: AFOSR.

LEAP, NATHAN J., *A Confidence Paradigm for Classification Systems*. AFIT/DS/ENS/08-02. Faculty Advisor: Dr. Kenneth W. Bauer, Jr. Sponsor: AFOSR.

McCLORY, JOHN W., *The Effect of Radiation on the Electrical Properties of Aluminum Gallium Nitride/Gallium Nitride Heterostructures*. AFIT/DS/ENP/08-01. Faculty Advisor: Dr. James C. Petrosky. Sponsor: AFOSR and AFRL/RV.

McCLUNG, AMBER J.W., *Extension of Viscoplasticity Based on Overstress to Capture the Effects of Prior Aging on the Time Dependent Deformation Behavior of a High-Temperature Polymer: Experiments and Modeling*. AFIT/DS/ENY/08-D15. Faculty Advisor: Dr. Marina B. Ruggles-Wrenn. Sponsor: AFOSR.

MOORE, ELIZABETH A., *Electrical Activation Studies of Silicon Implanted Aluminum Gallium Nitride with High Aluminum Mole Fraction*. AFIT/DS/ENP/08-D01. Faculty Advisor: Dr. Yung Kee Yeo. Sponsor: AFOSR.

AFRL: AIR VEHICLES DIRECTORATE

LARSON, REID A., *A Novel Method Characterizing the Impact Response of Functionally Graded Plates*. AFIT/DS/ENY/08-06. Faculty Advisor: Dr. Anthony N. Palazotto. Sponsor: AFRL/RB.

AFRL: DIRECTED ENERGY DIRECTORATE

LEMASTER, DANIEL A., *Statistical Methods for Polarimetric Imagery*. AFIT/DEE/ENG/08-18. Faculty Advisor: Dr. Stephen C. Cain. Sponsor: AFRL/RD.

AFRL: INFORMATION DIRECTORATE

RODRIGUEZ, BENJAMIN M., II, *JPEG Steganography Embedding Methods*. AFIT/DEE/ENG/08-20. Faculty Advisor: Dr. Gilbert L. Peterson. Sponsor: AFRL/RI.

SAMBORA, MATTHEW D., *Statistical Methods for Image Registration and Denoising*. AFIT/DCE/ENG/08-14. Faculty Advisor: Dr. Richard K. Martin. Sponsor: AFRL/RI.

AFRL: MATERIALS AND MANUFACTURING DIRECTORATE

COLE, WALTER P., *Atmospheric Turbulence Effects Correction Factors for the Laser Range Equation*. AFIT/DS/ENP/08-02. Faculty Advisor: Dr. Michael A. Marciniak. Sponsor: AFRL/RX.

KADING, GLEN A., *Piezo-Electrochemical Transducer Effect Intercalated Graphite Micro-Electromechanical Actuators*. AFIT/DEE/ENG/08-03. Faculty Advisor: Maj LaVern A. Starman. Sponsor: AFRL/RX.

YELESER, TUFAN, *Creep Behavior of Oxide/Oxide Composites with Monazite Fiber Coating at 1100°C in Air and in Steam Environments*. AFIT/GA/ENY/08-S01. Faculty Advisor: Dr. Marina B. Ruggles-Wrenn. Sponsor: AFRL/RX.

AFRL: PROPULSION DIRECTORATE

DOSTER, JASON C., *Hypermixer Pylon Fuel Injection for Scramjet Combustors*. AFIT/DS/ENY/08-02. Faculty Advisor: Dr. Paul I. King. Sponsor: AFRL/RZ.

FREEBORN, ANDREW B., *Pylon Effects on a Scramjet Cavity Flameholder Flowfield*. AFIT/DS/ENY/08-04. Faculty Advisor: Dr. Paul I. King. Sponsor: AFRL/RZ.

HOPPER, DAVID R., *Direct Initiation of Multiple Tubes by Detonation Branching in a Pulsed Detonation Engine*. AFIT/DS/ENY/08-05. Faculty Advisor: Dr. Paul I. King. Sponsor: AFRL/RZ.

REED, SHAD A., *Development of Experimental, Analytical, and Numerical Approximations Appropriate for Nonlinear Damping Coatings*. AFIT/DS/ENY/08-01. Faculty Advisor: Dr. Anthony N. Palazotto. Sponsor: AFRL/RZ.

AFRL: SENSORS DIRECTORATE

BEARD, TODD W., *Application of Optimization Techniques to Spectrally Modulated, Spectrally Encoded Waveform Design*. AFIT/DEE/ENG/08-16. Faculty Advisor: Dr. Michael A. Temple. Sponsor: AFRL/RZ.

COUSIN, KEVIN, *A Unified Framework for Solving Multiagent Task Assignment Problems*. AFIT/DCS/ENG/08-01. Faculty Advisor: Dr. Gilbert L. Peterson. Sponsor: AFRL/RZ.

GIRARD, JASON A., *Material Perturbations to Enhance Performance of the Theile Half-Width Leaky Mode Antenna*. AFIT/DEE/ENG/08-04. Faculty Advisor: Dr. Michael J. Havrilla. Sponsor: AFRL/RZ.

MARSH, DAVID W., *Composable Distributed Access Control and Integrity Policies for Query-Based Wireless Sensor Networks*. AFIT/DEE/ENG/08-06. Faculty Advisor: Dr. Rusty O. Baldwin. Sponsor: AFRL/RZ.

TURNER, REGINALD J., *A Wide Area Bipolar Cascade Resonant Cavity Light Emitting Diode for a Hybrid Range Intensity*. AFIT/DEE/ENG/08-12. Faculty Advisor: Maj LaVern A. Starman. Sponsor: AFRL/RZ.

AFRL: SPACE VEHICLES DIRECTORATE

McCLORY, JOHN W., *The Effect of Radiation on the Electrical Properties of Aluminum Gallium Nitride/Gallium Nitride Heterostructures*. AFIT/DS/ENP/08-01. Faculty Advisor: Dr. James C. Petrosky. Sponsor: AFOSR and AFRL/RV.

4.1.6. UNITED STATES CENTRAL COMMAND

ARTELLI, MICHAEL J., *Modeling and Analysis of Resolve and Morale for the "Long War"*. AFIT/DS/ENS/07-02. Faculty Advisor: Dr. Richard F. Deckro. Sponsor: US CENTCOM.

4.1.7. UNITED STATES NAVAL ACADEMY

STEVENS, ROBERT E., *Optimal Control of Electrodynamical Tethers*. AFIT/DS/ENY/08-13. Faculty Advisor: Dr. William E. Wiesel. Sponsor: USNA.

4.1.8. THE HIGH ENERGY LASER JOINT TECHNOLOGY OFFICE

MASSEY, STEVEN M., *Simulated Brillouin Scattering Phase Conjugation in Fiber Optic Waveguides*. AFIT/DS/ENP/08-S03. Faculty Advisor: Maj Timothy H. Russell. Sponsor: HEL-JTO.

4.2. MASTER'S THESES

4.2.1. OFFICE OF THE SECRETARY OF THE AIR FORCE

CHAUSSE, JEAN P., *Impact of Language Immersion Programs on Foreign Language*. AFIT/GRD/ENV/08-M02. Faculty Advisor: Dr. Alfred E. Thal, Jr. Sponsor: SAF and AF/A1.

FRUGÉ, JOHN W., *Comparing Information Assurance Awareness Training for End-Users: A Content Analysis Examination of Air Force and Defense Information Systems Agency User Training Modules*. AFIT/GIR/ENV/08-M07. Faculty Advisor: Dr. Dennis D. Strouble. Sponsor: SAF/XC.

KIM, SE YOUNG, *A Case Analysis of Explaining the Main Factors that Contribute to ROK'S Decision Making in Procurement of Defense Articles*. AFIT/GLM/ENS/08-14. Faculty Advisor: Lt Col Stanley E. Griffis. Sponsor: SAF/IA.

4.2.2. HEADQUARTERS UNITED STATES AIR FORCE

CHAUSSE, JEAN P., *Impact of Language Immersion Programs on Foreign Language*. AFIT/GRD/ENV/08-M02. Faculty Advisor: Dr. Alfred E. Thal, Jr. Sponsor: SAF and AF/A1.

CORBIN, REBECCA S., *An Analysis of Groundwater Flow Patterns in a Constructed Treatment Wetland Cell*. AFIT/GEM/ENV/08-M04. Faculty Advisor: Dr. Michael L. Shelley. Sponsor: AF/A7 and AFCEE.

CULLEN, ANDREW J., *A Multi-Objective Linear Program Model to Test Hub-and-Spoke Networks as a Potential Air Force Deployment Alternative*. AFIT/GEM/ENS/08-M01. Faculty Advisor: Dr. James T. Moore. Sponsor: AFOSR/NM and AF/A7.

DURAND, JEFFREY M., *Aircraft Maintenance Organizational Structure Changes An Antecedent Model*. AFIT/GLM/ENS/08-1. Faculty Advisor: Dr. Jeffrey A. Odgen. Sponsor: Logistics Transformation Office.

HAWKINS, LESLIE S., *Micro-Etched Platforms for Thermal Inactivation of Bacillus Anthracis and Bacillus Thuringiensis Spores*. AFIT/GWM/ENP/08-M01. Faculty Advisor: Dr. Larry W. Burggraf. Sponsor: AF/A3S and AFNWCA(AT).

MAIN, BRYAN D., *Analytical Techniques and the Air Force Logistics Readiness Officer*. AFIT/GLM/ENS/08-9. Faculty Advisor: Dr. William A. Cunningham. Sponsor: AF/A4I.

NIELSEN, TYLER K., *Characterization Patterns of MILCON Project Contract Modifications*. AFIT/GEM/ENV/07-D01. Faculty Advisor: Dr. Alfred E. Thal, Jr. Sponsor: AF/IL.

PONACK, RYAN S., *Assessing Capabilities of the High Energy Liquid Laser Area Defense System Through Combat Simulations*. AFIT/GOR/ENS/08-18. Faculty Advisor: Dr. John O. Miller. Sponsor: AF/A9.

SEAMAN, GREGORY G., *Optimization of Therapeutic Strategies for Organophosphate Poisoning*. AFIT/GES/ENV/08-M06. Faculty Advisor: Dr. Michael L. Shelley. Sponsor: AF Surgeon General and Joint Program Executive Office for Chemical and Biological Defense.

STRACHAN, ELISE V., *Governance Structure Transformation During ERP Implementations*. AFIT/GLM/ENS/08-12. Faculty Advisor: Dr. Jeffrey A. Odgen. Sponsor: AF Logistics Transformation Office.

THOMPSON, IAN F., *Oxygenation of the Root Zone and TCE Remediation: A Plant Model of Rhizosphere Dynamics*. AFIT/GES/ENV/08-M07. Faculty Advisor: Dr. Michael L. Shelley. Sponsor: AF/A7 and AFCEE/ERD.

YESUÉ, ELIZABETH A., *A Cocitation Analysis of Crisis Management Literature*. AFIT/GEM/ENV/08-M01. Lt Col Christopher J. West. Sponsor: AF/A7.

4.2.3. AIR COMBAT COMMAND

KRETZER, MICHAEL P., *Modeling Predator MQ-1 Logistics*. Faculty Advisor: Dr. Alan W. Johnson. Sponsor: ACC/432 AMXS.

ROSNER, JAMES W., *An Analysis of the Design-Build Delivery Method in Air Force Military Construction*. AFIT/GEM/ENV/08-M16. Faculty Advisor: Lt Col Christopher J. West. Sponsor: AFMC MSO/A7M and ACC/CCTT.

VILLARREAL, VAUGHN A., *Near Real-Time Battle Damage Assessment*. AFIT/GAE/ENY/08-J07. Faculty Advisor: Dr. David R. Jacques. Sponsor: 86th FWS.

8th AIR FORCE

KIM, TAE HO, *Combat Identification Modeling Using Robust Optimization Techniques*. AFIT/GOR/ENS/08-11. Faculty Advisor: Dr. Kenneth W. Bauer, Jr. Sponsor: AF/A8SI.

WILLIAMSON, DEREK L., *Inland Resupply Without a Road or Runway: Airdrop Solutions Including High-Altitude Precision Systems*. AFIT/GLM/ENS/08-15. Faculty Advisor: Maj Shane N. Hall. Sponsor: AFOSR/NM and AF/A8XC.

NATIONAL AIR AND SPACE INTELLIGENCE CENTER

COSTELLO, CHRISTOPHER S., *Multi-Reference Frame Image Registration for Rotation, Translation, and Scale*. AFIT/GE/ENG/08-05. Faculty Advisor: Dr. Richard K. Martin. Sponsor: NASIC.

HALL, DAVID M., *Demonstrative Maneuvers for Aircraft Agility Predictions*. AFIT/GAE/ENY/08-M13. Faculty Advisor: Lt Col Christopher M. Shearer. Sponsor: NASIC.

SCHMUNK, MATTHEW M., *Initial Determination of Low Earth Orbits Using Commercial Telescopes*. AFIT/GA/ENY/08-M11. Faculty Advisor: Dr. Richard G. Cobb. Sponsor: NASIC.

STRATTON, MARK A., *An Investigation of Limitations in the Accuracy of Time-to-Location Internet Protocol Geolocation*. AFIT/GIR/ENV/08-M21. Faculty Advisor: Dr. Michael R. Grimaila. Sponsor: NASIC/SMIAI.

4.2.4. AIR EDUCATION AND TRAINING COMMAND

HOLLAND, JEFFREY G., *Evaluating Experiential Leader Development: A Programmatic of the Effectiveness of US Air Force Squadron Officer School Curricula*. AFIT/GLM/ENV/08-M01. Faculty Advisor: Lt Col Kent C. Halverson. Sponsor: AETC/SOC/DES.

KETTLES, THOMAS R., *Integration of Information Operations Theory into the Corporate Air Force*. AFIT/GIR/ENG/08-02. Faculty Advisor: Dr. Robert F. Mills. Sponsor: AETC/SOC/DE.

LARSON, PHILLIP K., *Forecasting Expeditionary Training for Company Grade Logistics Readiness Officers: A Delphi Study*. AFIT/GLM/ENS/08-8. Faculty Advisor: Dr. William A. Cunningham. Sponsor: AETC/A4R.

AIR FORCE INSTITUTE OF TECHNOLOGY

NOTE: Although no external sponsor is identified, in most cases, AFIT faculty sponsored the below projects due to their relevance to current and future USAF, DoD and/or Homeland Security requirements.

BEACH, MICHAEL J., *An Analysis of Construction Cost and Schedule Performance*. AFIT/GEM/ENV/08-M02. Faculty Advisor: Maj Sonia E. Leach. Sponsor: N/A.

BOYER, BARTH H., *Creep-Rupture and Fatigue Behavior of a Notched Oxide/Oxide Ceramic Matrix Composite at Elevated Temperature*. AFIT/GAE/ENY/08-J01. Faculty Advisor: Dr. Shankar Mall. Sponsor: N/A.

BURRIS, ANDREW B., *A Qualitative and Quantitative Assessment of Readiness for Organizational Change Literature*. AFIT/GEM/ENV/08-J01. Faculty Advisor: Lt Col Daniel T. Holt. Sponsor: N/A.

CARROLL, SEAN C., *Mission Impact Analysis Visualization for Enhanced Situational Awareness*. AFIT/GCO/ENG/08-01. Faculty Advisor: Lt Col Stuart H. Kurkowski. Sponsor: N/A.

CERNY, TROY A., *Discrete Event Simulation of a Suppression of Enemy Air Defenses (SEAD) Mission*. AFIT/GSS/ENV/08-M01. Faculty Advisor: Lt Col Kent C. Halverson. Sponsor: N/A.

CONFER, BRIAN S., *An Analysis of Second-Tier Arms Producing Country Offset Policies: Technology Transfer and Defense Industrial Base Establishment*. AFIT/GRD/ENV/08-M03. Faculty Advisor: Dr. Alfred E. Thal, Jr. Sponsor: N/A.

DELICAN, SABAN ATINC, *Electrically Steerable Diffraction Gratings for Hyperspectral Imaging: A Microelectromechanical System Design and Fabrication*. AFIT/GE/ENG/08-01. Faculty Advisor: Dr. Guna Seetharaman. Sponsor: N/A.

DERBIS, RACHEL M., *Modeling GPS Satellite Orbits Using KAM Tori*. AFIT/GA/ENY/08-M09. Faculty Advisor: Dr. William E. Wiesel. Sponsor: N/A.

DERBIS, RICHARD M., *Ultrafast Spectroscopy of Mid-Infrared Semiconductors Using the Signal and Idler Beams of a Synchronous Optical Parametric Oscillator*. AFIT/GAP/ENP/08-M02. Faculty Advisor: Dr. Michael A. Marciniak. Sponsor: N/A.

EDWARDS, MICHAEL T., *Strategies for Minimizing Monetary Loss in the Department of Defense Budget Through Use of Financial Derivatives*. AFIT/GIR/ENV/08-M05. Faculty Advisor: Lt Col Jeffrey S. Smith. Sponsor: N/A.

GOUGH, DAVID P., *A Multiple Case Study Analysis of Digital Preservation Techniques Across Government, Private, and Public Service Organizations*. AFIT/GIR/ENV/08-M08. Faculty Advisor: Dr. Alan R. Heminger. Sponsor: N/A.

GULMUS, MESUT, *Determining the Capability Requirements for a Space Based Optical Sensor to Determine the Trajectory of an Incoming Antisatellite Weapon*. AFIT/GSS/ENY/08-M03. Faculty Advisor: Lt Col Kerry D. Hicks. Sponsor: N/A.

HICKMAN, KRISTA M., *A Decision Tool to Evaluate Budgeting Methodologies for Estimating Facility Recapitalization Requirements*. AFIT/GEM/ENV/08-M09. Faculty Advisor: Dr. Alfred E. Thal, Jr. Sponsor: N/A.

JOHNSON, MICHAEL D., *Dynamic Supersonic Base Store Ejection Simulation Using Begger*. AFIT/GAE/ENY/08-D01. Faculty Advisor: Lt Col Raymond C. Maple. Sponsor: N/A.

JOHNSON, ROBERT J., *Improved Feature Extraction, Feature Selection, and Identification Techniques that Create a Fast Unsupervised Hyperspectral Target Detection Algorithm*. AFIT/GOR/ENS/08-07. Faculty Advisor: Dr. Kenneth W. Bauer, Jr. Sponsor: N/A.

KANG, YOUN IN, *Combat Identification Using Multiple TUAV Swarm*. AFIT/GOR/ENS/08-09. Faculty Advisor: Dr. John O. Miller. Sponsor: N/A.

KAYA, EMRE, *Crew Exploration Vehicle (CEV) Skip Entry Trajectory*. AFIT/GSS/ENY/08-M06. Faculty Advisor: Lt Col Kerry D. Hicks. Sponsor: N/A.

KAYS, JUAN A., *Position Characteristics and Their Relationship to Selection for Promotion*. AFIT/GEM/ENV/08-M11. Faculty Advisor: Lt Col Daniel T. Holt. Sponsor: N/A.

KINLEY, KELLI S., *What Constitutes an Act of War in Cyberspace*. AFIT/GIR/ENV/08-M12. Faculty Advisor: Dr. Dennis D. Strouble. Sponsor: N/A.

LEON, ELISABETH M., *Molecular Characterization of Wetland Soil Bacterial Communities in Constructed Mesocosms*. AFIT/GES/ENV/08-M04. Faculty Advisor: Dr. Charles A. Bleckmann. Sponsor: N/A.

LOTT, JANELL M., *Physical Attractiveness, Social Network Location, and Performance in the Military*. AFIT/GEM/ENV/08-M12. Faculty Advisor: Lt Col Kent C. Halverson. Sponsor: N/A.

MATHER, DAVID E., *Discrete Counting of Short Lived Isotopes with Low Background Detectors*. AFIT/GNE/ENP/08-M03. Faculty Advisor: Dr. Kirk A. Mathews. Sponsor: N/A.

MAXON, RYAN A., *Software Assurance Best Practices for Air Force Weapon and Information Technology Systems - Are We Bleeding?* AFIT/GIR/ENV/08-M13. Faculty Advisor: Dr. Dennis D. Strouble. Sponsor: N/A.

NICHOLSON, BYRON D., *A Delphi Study Assessing Long-term Access to Electronic Medical Records (EMR)*. AFIT/GIR/ENV/08-M15. Faculty Advisor: Dr. Alan R. Heminger. Sponsor: N/A.

NORGAARD, JASON C., *An Examination Into How Group Performance is Influenced by Various Communication Channels*. AFIT/GIR/ENV/08-M16. Faculty Advisor: Dr. Alan R. Heminger. Sponsor: N/A.

OLSEN, NATHAN P., *The Impact of Operations Tempo (OPTEMPO) on Intentions to Depart the Military. Does the Increase of OPTEMPO Cause Action?* AFIT/GEM/ENV/08-M15. Faculty Advisor: Maj Sharon G. Heilmann. Sponsor: N/A.

OWNBY, JOHN F., *The Effect of Elevated Temperature on the Fretting Fatigue Behavior of Nickel Alloy IN-100*. AFIT/GA/ENY/08-M04. Faculty Advisor: Dr. Shankar Mall. Sponsor: N/A.

OZER, SONER, *Increasing Combat Aircraft Survivability Through Coherent Self-Protection Jammers*. AFIT/GE/ENG/08-20. Faculty Advisor: Maj Michael A. Saville. Sponsor: CCR.

PAGUIRIGAN, HENRY G., *Suspicion Modeling in Support of Cyber-Influence Operations/Tactics*. AFIT/GIR/ENV/08-M17. Faculty Advisor: Maj Jason M. Turner. Sponsor: N/A.

POGORZELSKI, WILLIAM A., *Software Acquisition Improvement in the Aeronautical Systems Center*. AFIT/GRD/ENV/08-S1. Faculty Advisor: Lt Col Brian Hermann. Sponsor: N/A.

REICH, JOSEPH P., *Ionospheric Response to Solar Flares Using an Improved Version of SAMI2*. AFIT/GAP/ENP/08-M08. Faculty Advisor: Lt Col Christopher G. Smithtro. Sponsor: N/A.

ROACH, NEAL R., ROHE, WAYNE C., and WELTY, NATHAN F., *A System Engineering Approach to the Design of a Spacecraft Dynamics and Control Testbed*. AFIT/GSE/ENV/08-M01. Faculty Advisor: Dr. Jonathan T. Black. Sponsor: N/A.

ROHE, WAYNE C., See ROACH, NEAL R.

ROQUE, PAUL N., *Performance Analysis of Effective Range and Orientation of UHF Passive RFID*. AFIT/GCO/ENG/08-06. Faculty Advisor: Dr. Richard A. Raines. Sponsor: CCR.

SAAVEDRA, FRANCIS M., *A Maturity Model and Architecture Definition to Support Graduate Distance Learning*. AFIT/GIR/ENV/08-M19. Faculty Advisor: Dr. David R. Jacques. Sponsor: AFIT/SC.

SOTOROPOLIS, THEODORE J., *Selecting the Best Thermal Building Insulation Using a Multi-Attribute Decision Model*. AFIT/GEM/ENV/08-M17. Faculty Advisor: Dr. Alfred E. Thal, Jr. Sponsor: N/A.

TOWNSEND, BRADLEY R., *Space Based Satellite Tracking and Characterization Utilizing Non-Imaging Passive Sensors*. AFIT/GA/ENV/08-M06. Faculty Advisor: Lt Col Nathan A. Titus. Sponsor: N/A.

TRAMEL, BILLY D., *Factors that May Affect Retention of Enlisted Explosive Ordinance Disposal Airmen*. AFIT/GEM/ENV/08-J02. Faculty Advisor: Dr. Alan R. Heminger. Sponsor: N/A.

VAN DYK, STEFANIE L., *Forecasting Flying Hour Costs of the B-1, B-2, and B-52 Bomber Aircraft*. AFIT/GCA/ENV/08-M02. Faculty Advisor: Lt Col Eric J. Unger. Sponsor: N/A.

WALLACE, RONALD S., *How a Multidimensional View of Perceived Organizational Support Impacts Self-Efficacy and Task Understanding During Training for Boundary Spanning Tasks*. AFIT/GEM/ENV/08-M21. Faculty Advisor: Lt Col Alexander J. Barelka. Sponsor: N/A.

WELTY, NATHAN F., See ROACH, NEAL R.

WERLING, JOSEPH B., *An Exploratory Examination of Social Website Quality*. AFIT/GIR/ENV/08-M23. Faculty Advisor: Lt Col Alexander J. Barelka. Sponsor: N/A.

WEVER, PAUL S., *A System Dynamic Model of Leader Emergence*. AFIT/GEM/ENV/08-M22. Faculty Advisor: Lt Col Kent C. Halverson. Sponsor: N/A.

WILLIAMS, DANIEL J., *An Analysis of the Factors Affecting Training Transfer within the Work Environment*. AFIT/GIR/ENV/08-M25. Faculty Advisor: Dr. Michael T. Rehg. Sponsor: N/A.

ZAMORA, EDGARD I., *High Performing Teams: The Moderating Effects of Communication Channels*. AFIT/GIR/ENV/08-M27. Faculty Advisor: Maj Jason M. Turner. Sponsor: N/A.

4.2.5. AIR FORCE MATERIEL COMMAND

BURNWORTH, TODD C., *Simulated Multi-Echelon Readiness-Based Inventory Leveling with Lateral Resupply*. AFIT/GOR/ENS/08M-23. Faculty Advisor: Dr. John O. Miller. Sponsor: AFMC/A9A.

CHESSMAN, JOHN A., *A Delphi Study of HIPAA Compliance to Battlefield Medical Evacuation*. AFIT/GIR/ENV/08-M03. Faculty Advisor: Dr. Alan R. Heminger. Sponsor: 88 MDSS/SGSN.

GOEHRING, SIDNEY W., *An Analysis of Competencies for Managing Science and Technology Programs*. AFIT/GRD/ENV/08-M06. Faculty Advisor: Dr. Dennis D. Strouble. Sponsor: HQ AFMC/A5S.

HEPLER, AARON J., *Balanced Scorecard: Evaluation of Air Force Material Command's Implementation and Use*. AFIT/GLM/ENS/08-03. Faculty Advisor: Lt Col Bradley E. Anderson. Sponsor: AFMC 554 ELSG/SBI.

KENDALL, KELLY D., *AFMC Customer Satisfaction Study at the Air Logistics Centers*. AFIT/GLM/ENS/08-5. Faculty Advisor: Dr. William A. Cunningham. Sponsor: AFMC/A4SP.

POINDEXTER, JESSICA L., *Nano-Mechanical Properties of Heat Inactivated Bacillus Anthracis and Bacillus Thuringiensis Spores*. AFIT/GAP/ENP/08-M07. Faculty Advisor: Dr. Larry W. Burggraf. Sponsor: AFMC/CX.

ROSNER, JAMES W., *An Analysis of the Design-Build Delivery Method in Air Force Military Construction*. AFIT/GEM/ENV/08-M16. Faculty Advisor: Lt Col Christopher J. West. Sponsor: AFMC MSO/A7M and ACC/CCTT.

AERONAUTICAL SYSTEMS CENTER

BECHTLOFF, RYAN D., *An Analysis of Information Assurance Risk Management Methods for Use in Embedded Weapons Systems*. AFIT/GIR/ENV/08-M02. Faculty Advisor: Dr. Michael R. Grimaila. Sponsor: ASC/ENAS.

BROWN, RICHARD A., CARTWRIGHT, ARTHUR D., and MCCLAIN, BRYON E., *Evaluation of Joint Precision Airdrop System Aircraft Integration Concepts Utilizing Activity-Based Methodology*. AFIT/GSE/ENV/08-M04. Faculty Advisor: Dr. Joseph W. Carl. Sponsor: ASC/516 AESW/JPD.

CARTWRIGHT, ARTHUR D., See BROWN, RICHARD A.

COWAN, ROBERT M., *An Application and Assessment of Attack and Protection Tree Methodologies In The Evaluation of Risk in an Embedded Weapon System*. AFIT/GIR/ENV/08-M04. Faculty Advisor: Dr. Michael R. Grimaila. Sponsor: ASC/ENAS.

HAAN, NICHOLAS W., *Examination of Insider Threat Detection within a Generic Unmanned Aerial Vehicle System*. AFIT/GIR/ENV/08-M09. Faculty Advisor: Dr. Michael R. Grimaila. Sponsor: ASC/ENAS.

MCCLAIN, BRYON E., See BROWN, RICHARD A.

AIR FORCE RESEARCH LABORATORY [AFRL]

SOLOMON, CHARLES D., *An Analysis of Methodologies & Best Practices for Rapidly Acquiring Technologies to Meet Urgent Warfighter Needs*. AFIT/GRD/ENV/08-M11. Faculty Advisor: Dr. Alfred E. Thal, Jr. Sponsor: HQ AFRL/XPT.

AFRL: AIR FORCE OFFICE OF SCIENTIFIC RESEARCH

ARMBRUSTER, DAVID R., *Production and Characterization of Femtosecond-Laser-Induced Air Plasma*. AFIT/GAP/ENP/08-M01. Faculty Advisor: Lt Col Matthew J. Bohn. Sponsor: AFOSR.

BELUE, JOHN M., *Network Visualization Design using Prefuse Visualization Framework*. AFIT/GCS/ENG/08-03. Faculty Advisor: Lt Col Stuart H. Kurkowski. Sponsor: AFOSR.

CAKIROGLU, BORA, *Construction and Testing of Broadband High Impedance Ground Planes (HIGP) for Surface Mount Antennas*. AFIT/GE/ENG/08-02. Faculty Advisor: Dr. Andrew J. Terzuoli. Sponsor: AFOSR.

CHMIEL, AARON J., *Finite Element Simulation Methods for Dry Sliding Wear*. AFIT/GAE/ENY/08-M03. Faculty Advisor: Dr. Anthony N. Palazotto. Sponsor: AFOSR.

COYNE, MARK E., *Hot Swapping Protocol Implementations in the OPNET Modeler Development Environment*. AFIT/GCS/ENG/08-05. Faculty Advisor: Maj Scott R. Graham. Sponsor: AFOSR.

CULLEN, ANDREW J., *A Multi-Objective Linear Program Model to Test Hub-and-Spoke Networks as a Potential Air Force Deployment Alternative*. AFIT/GEM/ENS/08-M01. Faculty Advisor: Dr. James T. Moore. Sponsor: AFOSR/NM and AF/A7.

DINES, DAVID M., *A Hybrid Communications Network Simulation-Independent Toolkit*. AFIT/GCS/ENG/08-08. Faculty Advisor: Dr. Kenneth M. Hopkinson. Sponsor: AFOSR.

DOGRUL, MURAT, *Design and Optimization of Broadband High Impedance Ground Planes (HIGP) for Surface Mount Antennas*. AFIT/GE/ENG/08-08. Faculty Advisor: Dr. Peter J. Collins. Sponsor: AFOSR/EOARD.

EADDIE, MAMITA T., *Dialable Cryptography for Wireless Networks*. AFIT/GCO/ENG/08-02. Faculty Advisor: Dr. Kenneth M. Hopkinson. Sponsor: AFOSR.

FONDREN, TERESA J., *Time Resolution of Collapse Events During the Propagation of Ultraviolet Filaments*. AFIT/GAP/ENP/08-M03. Faculty Advisor: Maj Thomas A. Niday. Sponsor: AFOSR.

GRUEN, GREGGORY J., *Time Dependent Annealing Study of Silicon Implanted Aluminum Gallium Nitride*. AFIT/GMS/ENP/08-J01. Faculty Advisor: Dr. Yung Kee Yeo. Sponsor: AFOSR.

HANKINS, TERRY B., *Laser Diagnostic System Validation and Ultra-Compact Combustor Characterization*. AFIT/GAE/ENY/08-M14. Faculty Advisor: Lt Col Richard D. Branam. Sponsor: AFOSR.

JAMES, MOSES C., *Obfuscation Framework Based on Functionally Equivalent Combinatorial Logic Families*. AFIT/GCS/ENG/08-12. Faculty Advisor: Lt Col J. Todd McDonald. Sponsor: AFOSR.

JANG, BO YEON, *An Investigation into the Advantages, Mechanisms, and Developmental Challenges of Scripted Mobile Routing*. AFIT/GCS/ENG/08-13. Faculty Advisor: Maj Scott R. Graham. Sponsor: AFOSR.

LAKUSTA, PATRICK J., *Laser-Induced Fluorescence and Performance Analysis of the Ultra-Compact Combustor*. AFIT/GAE/ENY/08-J03. Faculty Advisor: Lt Col Richard D. Branam. Sponsor: AFRL/RZ and AFOSR.

LIN, ALAN C., *Software Obfuscation with Symmetric Cryptography*. AFIT/GCS/ENG/08-15. Faculty Advisor: Lt Col J. Todd McDonald. Sponsor: AFOSR.

NORMAN, KENNETH E., *Algorithms for White-box Obfuscation Using Randomized Subcircuit Selection and Replacement*. AFIT/GCS/ENG/08-17. Faculty Advisor: Lt Col J. Todd McDonald. Sponsor: AFOSR.

OTTO, ANTHONY R., *Scripted Mobile Network Routing in a Contested Environment*. AFIT/GIR/ENG/08-03. Faculty Advisor: Maj Scott A. Graham. Sponsor: AFOSR/NM.

PECARINA, JOHN M., *Creating an Agent Based Framework to Maximize Information Utility*. AFIT/GCS/ENG/08-19. Faculty Advisor: Dr. Kenneth M. Hopkinson. Sponsor: AFOSR.

ROBERTS, GREGORY R., *Evaluating Security and Quality of Service Considerations in Critical Infrastructure Communication Networks*. AFIT/GCO/ENG/08-05. Faculty Advisor: Dr. Kenneth M. Hopkinson. Sponsor: AFOSR.

SAVIDGE, KEVIN J., *Priority Based Buffering over Multiple Lossy Links Using TCP Aware Layer Buffering*. AFIT/GCE/ENG/08-10. Faculty Advisor: Maj Scott A. Graham. Sponsor: AFOSR.

WILLIAMSON, DEREK L., *Inland Resupply Without a Road or Runway: Airdrop Solutions Including High-Altitude Precision Systems*. AFIT/GLM/ENS/08-15. Faculty Advisor: Maj Shane N. Hall. Sponsor: AFOSR/NM and AF/A8XC.

AFRL: AIR VEHICLES DIRECTORATE

CLAYCOMB, ABRAM E., *Extending CFD Modeling to Near-Continuum Flows Using Enhanced Thermophysical Modeling*. AFIT/GAE/ENY/08-M04. Faculty Advisor: Dr. Robert B. Greendyke. Sponsor: AFRL/RB.

ERICSON, DOUGLAS A., *Systems Engineering Analysis for the Development of the Fleeting Target*. AFIT/GSE/ENY/08-M06. Faculty Advisor: Dr. David R. Jacques. Sponsor: AFRL/RV and AFRL/RB.

FREDBERG, DANIEL E., *PIV-Based Examination of Deep Stall on an Oscillating Air Foil*. AFIT/GAE/ENY/08-M09. Faculty Advisor: Dr. Mark F. Reeder. Sponsor: AFRL/RB.

GARDENIER, HUGH E., *An Experimental Technique for Developing Intermediate Strain Rates in Ductile Metals*. AFIT/GAE/ENY/08-M10. Faculty Advisor: Dr. Anthony N. Palazotto. Sponsor: AFRL/RB.

- GREENE, BARTT G., *Characterization and Control of Carbon Dioxide Seed Particle Image Velocimetry*. AFIT/GAE/ENY/08-M12. Faculty Advisor: Dr. Mark F. Reeder. Sponsor: AFRL/RB.
- HANSEN, JOHN H., *Optimal Guidance of a Relay MAV for ISR Support Beyond Line-of-Sight*. AFIT/GAE/ENG/08-01. Faculty Advisor: Dr. Meir Pachter. Sponsor: AFRL/RB.
- HARIHARAN, ANIL N., LOUIE, ALAN K., and RIVERA, SCOTT V., *Long Range Strike 2035: An Analysis of Functional Autonomy*. AFIT/GSE/ENV/08-M05. Faculty Advisor: Lt Col Joerg D. Walter. Sponsor: AFRL/RB.
- KLEEMAN, MARK P., *Extending CFD Modeling to Near-Continuum Flows Using Enhanced Thermophysical Modeling*. AFIT/GAE/ENY/08-M04. Faculty Advisor: Dr. Robert B. Greedyke. Sponsor: AFRL/RB.
- LOUIE, ALAN K., see HARIHARAN, ANIL N.
- PACIENCIA, TODD J., *Multi-Objective Optimization of Mixed-Variable, Stochastic Systems Using Single-Objective Formulations*. AFIT/GOR/ENS/08-17. Faculty Advisor: Dr. James W. Chrissis. Sponsor: AFRL/RB.
- PITCHER, NATHAN A., *A Static Aeroelastic Analysis of a Flexible Wing Mini Unmanned Aerial Vehicle*. AFIT/GAE/ENY/08-M23. Faculty Advisor: Lt Col Raymond C. Maple. Sponsor: AFRL/RB.
- RIVERA, SCOTT V., see HARIHARAN, ANIL N.
- SAKRYD, GREGORY A., *Systems Engineering Analysis for the Development of the Fleeting Target*. AFIT/GSE/ENV/08-M06. Faculty Advisor: Dr. David R. Jacques. Sponsor: AFRL/RB and AFRL/RB.
- SERVIDIO, JOSEPH A., *Process Time Refinement for Reusable Launch Vehicle Regeneration Modeling*. AFIT/GLM/ENS/08-11. Faculty Advisor: Dr. Alan W. Johnson. Sponsor: AFRL/RB.
- SHAHADY, DAVID E., *Understanding the Emergence of Disruptive Innovation in the Air Force Science and Technology Organizations*. AFIT/GRD/ENV/08-M10. Faculty Advisor: Dr. Alfred E. Thal, Jr. Sponsor: AFRL/RB and AFRL/RB.
- SHELNUTT, PAUL J., *Collision Avoidance for UAVs Using Optic Flow Measurement With Line of Sight Rate Equalization and Looming*. AFIT/GE/ENG/08-26. Faculty Advisor: Dr. Meir Pachter. Sponsor: AFRL/RB.
- SVANBERG, CRAIG E., *Biomimetic Micro Air Vehicle Testing Development and Small Scale Flapping-Wing Analysis*. AFIT/GAE/ENY/08-M27. Faculty Advisor: Dr. Mark F. Reeder. Sponsor: AFRL/RB.
- TERNING, NATE A., *Real-Time Navigation and Flight Path Generation for Tracking Stop-and-Go Targets with Miniature Air Vehicles*. AFIT/GAE/ENY/08-M28. Faculty Advisor: Dr. Richard G. Cobb. Sponsor: AFRL/RB and AFRL/RB.
- VANTREASE, TROY H., *Development and Employment of a Semi-Autonomous Cursor on Target Navigation System for Micro Air Vehicles*. AFIT/GAE/ENY/08-J06. Faculty Advisor: Dr. Richard G. Cobb. Sponsor: AFRL/RB and AFRL/RB.

AFRL: DIRECTED ENERGY DIRECTORATE

- BLASY, BRYAN D., *Neutron Detection Utilizing Gadolinium Doped Hafnium Oxide Films*. AFIT/GNE/ENP/08-M02. Faculty Advisor: LTC David A. LaGraffe. Sponsor: AFRL/RD.
- EVANS, EMILY C., *A Simulation Optimization Approach to the Design of Unmanned Aircraft Systems*. AFIT/GOR/ENS/08-22. Faculty Advisor: Maj Shane N. Hall. Sponsor: AFRL/RD.
- GROB, DARRELL L., *Uncorrelated Track Avoidance*. AFIT/GA/ENY/08-M10. Faculty Advisor: Dr. William E. Wiesel. Sponsor: AFRL/RD.

PLOURDE, MICHAEL D., *Limitations of Segmented Wavefront Control Devices in Emulating Optical Turbulence*. AFIT/GEO/ENG/08-02. Faculty Advisor: Maj Jason D. Schmidt. Sponsor: AFRL/RD.

RODGERS, LUKE P., *Collision Broadening Using Alkali-Filled, Hollow Core Fibers*. AFIT/GAP/ENP/07-S01. Faculty Advisor: Maj Timothy H. Russell. Sponsor: AFRL/RD.

VITAYAUDOM, KEVIN P., *Analysis of Non-Uniform Gain for Control of a Deformable Mirror in an Adaptive-Optics System*. AFIT/GE/ENG/08-35. Faculty Advisor: Maj Jason D. Schmidt. Sponsor: AFRL/RD.

AFRL: 711th HUMAN EFFECTIVENESS WING

CLARKE, BRIAN M., *In Vitro Toxicity and Inflammation Response Induced by Copper Nanoparticles in Rat Alveolar Macrophages*. AFIT/GES/ENV/08-M01. Faculty Advisor: Dr. Charles A. Bleckmann. Sponsor: AFRL/RH.

DIAS, SANDRA J., *Characterization of a Fluorescent Protein Reporter System*. AFIT/GRD/ENV/08-M04. Faculty Advisor: Dr. Charles A. Bleckmann. Sponsor: AFRL/RH.

HANSEN, ANDREW P., *Cyber Flag: A Realistic Cyberspace Training Construct*. AFIT/GCS/ENG/08-10. Faculty Advisor: Maj Paul D. Williams. Sponsor: AFRL/RH.

HELLESEN, DENZIL L., *An Analysis of Information Asset Valuation (IAV) Quantification Methodology for Application with Cyber Information Mission Impact Assessment (CIMIA)*. AFIT/GIR/ENV/08-M11. Faculty Advisor: Dr. Michael R. Grimaila. Sponsor: AFRL/RH.

HOWELL, RYAN A., *Bibliometrically Mapping Team Cognition Literature: A Co-citation Analysis*. AFIT/GEM/ENV/08-M10. Faculty Advisor: Lt Col Christopher J. West. Sponsor: AFRL/RH.

MCCORMACK-BROWN, STEPHANIE D., *In Vitro Toxicity of Aluminum Nanoparticles in Human Keratinocytes*. AFIT/GIH/ENV/08-M01. Faculty Advisor: Maj Jeremy M. Slagely. Sponsor: AFRL/RH.

POLICARPIO, TIMOTHY R., *Feasibility Study of Encoding Operational Mission Metadata into IPv6 Packet Headers*. AFIT/GE/ENG/08-23. Faculty Advisor: Dr. Robert F. Mills. Sponsor: AFRL/RH.

SCHEERES, JAMISON W., *Establishing the Human Firewall: Reducing an Individual's Vulnerability to Social Engineering Attacks*. AFIT/GIR/ENG/08-04. Faculty Advisor: Dr. Robert F. Mills. Sponsor: AFRL/RH.

SCHNEIDER, DANIEL J., *Three Models of Anthrax Toxin Effects on the MAP-Kinase Pathway and Macrophage Survival*. AFIT/GIH/ENV/08-M02. Faculty Advisor: Maj Jeremy M. Slagely. Sponsor: AFRL/RH.

SKARDA, BRYAN E., *Operationalizing Offensive Social Engineering for the Air Force*. AFIT/GCO/ENG/08-07. Faculty Advisor: Dr. Robert F. Mills. Sponsor: AFRL/RH.

SORRELS, DAVID M., *A System Architecture for Cyber Incident Mission Impact Assessment*. AFIT/GIR/ENV/08-M20. Faculty Advisor: Dr. Michael R. Grimaila. Sponsor: AFRL/RH.

SPRECHER, AARON J., *Microfluidic Power Generation*. AFIT/GE/ENG/08-29. Faculty Advisor: Maj LaVern A. Starman. Sponsor: AFRL/RH.

TRIPLETT, JOHNNY E., *The Effects of Commercial Video Game Playing: A Comparison of Skills and Abilities for the Predator UAV*. AFIT/GIR/ENV/08-M22. Faculty Advisor: Maj Jason M. Turner. Sponsor: AFRL/RH.

VERMILLION, RICK E., *Comparative Kinetics and Distribution to Target Tissues of Organophosphates Using Physiologically-Based Pharmacokinetic Modeling*. AFIT/GEM/ENV/08-M20. Faculty Advisor: Dr. Michael L. Shelley. Sponsor: AFRL/RH.

AFRL: INFORMATION DIRECTORATE

AVITIA, SERAFIN, *Developing Network Situational Awareness Through Visualization of Fused Intrusion Detection System Alerts*. AFIT/GCS/ENG/08-23. Faculty Advisor: Lt Col Stuart H. Kurkowski. Sponsor: AFRL/RI.

HUNT, SHANNON E., *Developing a Reference Framework for Cybercraft Trust Evaluation*. AFIT/GCS/ENG/08-11. Faculty Advisor: Lt Col J. Todd McDonald. Sponsor: AFRL/RI.

MARKS, HUNTER A., *Robust Sensitivity Analysis of Courses of Action Using an Additive Value Model*. AFIT/GOR/ENS/08-14. Faculty Advisor: Maj Shane J. Knighton. Sponsor: AFRL/RI.

AFRL: MATERIALS AND MANUFACTURING DIRECTORATE

BROWN, JASON L. and HANSON, TRAVIS J., *A Systems Engineering Process for an Integrated Structural Health Monitoring System for Aging Aircraft III*. AFIT/GSE/ENV/08-M03. Faculty Advisor: Dr. Som R. Soni. Sponsor: AFRL/RX.

CALLAHAN, JOHN M., *A Study of the Irradiance-and-Temperature-Dependence of Mid-Wave-Infrared (MWIR) Absorption in Indium Antimonide (InSb)*. AFIT/GEO/ENP/08-S01. Faculty Advisor: Dr. Michael A. Marciniak. Sponsor: AFRL/RX.

HANSON, TRAVIS J., See BROWN, JASON L.

RASMUSSEN, JOSHUA D., *Image-Based Laser Jam Detection in Infrared Focal Plane Array Detectors*. AFIT/GEO/ENP/08-M05. Faculty Advisor: Dr. Michael A. Marciniak. Sponsor: AFRL/RX.

AFRL: MUNITIONS DIRECTORATE

CHABAK, KELSON D., *Conceptual Study of Rotary-Wing Microbotics*. AFIT/GE/ENG/08-03. Faculty Advisor: Maj LaVern A. Starman. Sponsor: AFRL/RW.

HOPP, STEPHEN J., *Coexistent Performance Characterization of the Simulated TTNT GMSK Waveform*. AFIT/GE/ENG/08-12. Faculty Advisor: Dr. Michael A. Temple. Sponsor: AFRL/RW.

LEE, JASON K., *Analysis of Multi-Layered Materials Under High Velocity Impact Using CTH*. AFIT/GAE/ENY/08-M19. Faculty Advisor: Dr. Anthony N. Palazotto. Sponsor: AFRL/RW.

NIELSEN, MICHAEL B., *Development and Flight of a Robust Optical-Inertial Navigation System Using Low-Cost Sensors*. AFIT/GE/ENG/08-19. Faculty Advisor: Dr. John F. Raquet. Sponsor: AFRL/RW.

SEDAT, EBCIN, *Tightly Integrating Optical and Inertial Sensors for Navigation Using the UKF*. AFIT/GE/ENG/08-09. Faculty Advisor: Lt Col Michael J. Veth. Sponsor: AFRL/RW.

SWANSON, SEVERIN M., *Evaluation of an OPNET Model for Tactical Targeting Network Technology (TTNT) Airborne Network*. AFIT/GE/ENG/08-32. Faculty Advisor: Dr. Barry E. Mullins. Sponsor: AFRL/RW.

AFRL: PROPULSION DIRECTORATE

ARGUELLO, MICHAEL A., *The Concept Design of a Split Flow Liquid Hydrogen Turbopump*. AFIT/GAE/ENY/08-M01. Faculty Advisor: Lt Col Richard D. Branam. Sponsor: AFRL/RZ.

BOHNERT, ALEX M., *Thermal Characterization of a Hall Effect Thruster*. AFIT/GA/ENY/08-M01. Faculty Advisor: Lt Col Richard D. Branam. Sponsor: AFRL/RZ.

ELLIOTT, STEVEN J., *Thermodynamic Modeling of the Meyer Nutating Engine*. AFIT/GAE/ENY/08-M07. Faculty Advisor: Dr. Paul I. King. Sponsor: AFRL/RZ.

EVANS, DAVE S., *The Impact of Heat Release in Turbine Film Cooling*. AFIT/GAE/ENY/08-J02. Faculty Advisor: Dr. Paul I. King. Sponsor: AFRL/RZ.

GENELIN, CHRISTOPHER L., *Effects of Environment on Creep Behavior of Nextel 720/Alumina-Mullite Ceramic Composite at 1200°C*. AFIT/GAE/ENY/08-M11. Faculty Advisor: Dr. Marina B. Ruggles-Wrenn. Sponsor: AFRL/RZ.

GIVENS, RYAN N., *Demonstration of a Strategy to Perform Two-Dimensional Diode Laser Tomography*. AFIT/GAP/ENP/08-M04. Faculty Advisor: Dr. William F. Bailey. Sponsor: AFRL/RZ.

HAUSMAN, ALEXANDER R., *Direct Initiation through Detonation Branching in a Pulsed Detonation Engine*. AFIT/GAE/ENY/08-M17. Faculty Advisor: Dr. Paul I. King. Sponsor: AFRL/RZ.

KARASZ, WILLIAM J., *Optimal Re-entry Trajectory Terminal State Due to Variation in Waypoint Locations*. AFIT/GA/ENY/08-M11. Faculty Advisor: Dr. Richard G. Cobb. Sponsor: AFRL/RZ.

KESENEK, CEYLAN, *Contamination Study of Micro Pulsed Plasma Thrusters*. AFIT/GA/ENY/08-M03. Faculty Advisor: Lt Col Richard D. Branam. Sponsor: AFRL/RZ.

KLATT, NATHAN D., *On-Board Thermal Management of Waste Heat from a High-Energy Device*. AFIT/GAE/ENY/08-M18. Faculty Advisor: Dr. Paul I. King. Sponsor: AFRL/RZ.

LAKUSTA, PATRICK J., *Laser-Induced Fluorescence and Performance Analysis of the Ultra-Compact Combustor*. AFIT/GAE/ENY/08-J03. Faculty Advisor: Lt Col Richard D. Branam. Sponsor: AFRL/RZ and AFOSR.

MARTIN, DAVID F., *Computational Design of Upperstage Chamber, Aerospike, and Cooling Jacket for Dual-Expander Rocket Engine*. AFIT/GAE/ENY/08-M20. Faculty Advisor: Lt Col Richard D. Branam. Sponsor: AFRL/RZ.

MASON, JONATHAN R., *Heat Transfer Due to Unsteady Effects as Investigated in a High-Speed, Full-Scale, Fully-Cooled Turbine Vane and Rotor Stage*. AFIT/GAE/ENY/08-J04. Faculty Advisor: Dr. Mark F. Reeder. Sponsor: AFRL/RZ.

MEENTS, STEVEN M., *Filtered Rayleigh Scattering Measurements in a Buoyant Flow Field*. AFIT/GAE/ENY/08-M22. Faculty Advisor: Dr. Mark F. Reeder. Sponsor: AFRL/RZ.

NAGLEY, ERIC A., *Fuel Composition Analysis of Endothermically Heated JP-8 Fuel for Use in a Pulse Detonation Engine*. AFIT/GAE/ENY/08-J08. Faculty Advisor: Dr. Paul I. King. Sponsor: AFRL/RZ.

PEARSON, LINDELL E., *Vibration Analysis of Commercial Thermal Barrier Coatings*. AFIT/GAE/ENY/08-J05. Faculty Advisor: Dr. Anthony N. Palazotto. Sponsor: AFRL/RZ.

ROLAND, ISAAC, *An Experimental Investigation of Effect of Dimples on Turbine Adiabatic Film Cooling*. AFIT/GAE/ENY/08-M24. Faculty Advisor: Dr. Paul I. King. Sponsor: AFRL/RZ.

STRAIN, WILLIAM S., *Design of an Oxygen Turbopump for a Dual Expander Cycle Rocket Engine*. AFIT/GAE/ENY/08-M26. Faculty Advisor: Lt Col Richard D. Branam. Sponsor: AFRL/RZ.

THURMAN, JAMES T., *Hall Thruster Plume Diagnostics Utilizing Microwave Interferometry*. AFIT/GAE/ENY/08-S03. Faculty Advisor: Lt Col Richard D. Branam. Sponsor: AFRL/RZ.

TIRSI, SAKIR, *Characterizing the Exhaust Plume of the Micro Pulsed Plasma Thrusters by High Speed Imagery*. AFIT/GA/ENY/08-M05. Faculty Advisor: Lt Col Richard D. Branam. Sponsor: AFRL/RZ.

WARNER, DUSTIN J., *Advanced Cathodes for Next Generation Electric Propulsion Technology*. AFIT/GA/ENY/08-M07. Faculty Advisor: Lt Col Richard D. Branam. Sponsor: AFRL/RZ.

AFRL: SENSORS DIRECTORATE

ASHE, ERIC M., *An Analysis of Critical Technology Identification and AntiTamper Protection in Department of Defense Acquisition Programs*. AFIT/GIR/ENV/08-M01. Faculty Advisor: Dr. Michael R. Grimaila. Sponsor: AFRL/RZ.

BONHOFF, GEROD M., *Using Hierarchical Temporal Memory for Detecting Anomalous Network Activity*. AFIT/GCS/ENG/08-04. Faculty Advisor: Dr. Robert F. Mills. Sponsor: AFRL/RZ.

BRADY, JENNIFER L., *Limitations of a True Random Number Generator in a Field Programmable Gate Array*. AFIT/GE/ENG/08-01. Faculty Advisor: Dr. Rusty O. Baldwin. Sponsor: AFRL/RZ.

CHIASSON, MARC A., *Passive Infrared Polarimetric Detection of an Airborne Target*. AFIT/GE/ENP/08-M01. Faculty Advisor: Dr. Michael A. Marciniak. Sponsor: AFRL/RZ.

CROUCH, JAMES W., *Digital Fingerprinting of Field Programmable Gate Arrays*. AFIT/GE/ENG/08-06. Faculty Advisor: Dr. Yong C. Kim. Sponsor: AFRL/RZ.

DUFFY, JEFFREY P., *Dynamic Behavior Sequencing in a Hybrid Robot Architecture*. AFIT/GCE/ENG/08-03. Faculty Advisor: Dr. Gilbert L. Peterson. Sponsor: AFRL/RZ.

EBCIN, SEDAT, *Tightly Integrating Optical and Inertial Sensors for Navigation Using the UKF*. AFIT/GE/ENG/08-09. Faculty Advisor: Lt Col Michael J. Veth. Sponsor: AFRL/RZ.

ERICSON, DOUGLAS A., *Systems Engineering Analysis for the Development of the Fleeting Target*. AFIT/GSE/ENY/08-M06. Faculty Advisor: Dr. David R. Jacques. Sponsor: AFRL/RZ and AFRL/RB.

FETZEK, CHARLES A., *Behavior-Based Power Management in Autonomous Mobile Robots*. AFIT/GCE/ENG/08-05. Faculty Advisor: Dr. Gilbert L. Peterson. Sponsor: AFRL/RZ.

FULTON, THOMAS F., *Change Detection for Processing of Angel Fire Imagery*. AFITGCS/ENG/08-09. Faculty Advisor: Lt Col Juan R. Vasquez. Sponsor: AFRL/RZ.

GOLDEN, ERIC M., *Modulation Response of Twin Optically Coupled Diode Lasers*. AFIT/GAP/ENP/08-M05. Faculty Advisor: Maj Thomas A. Niday. Sponsor: AFRL/RZ.

GOODSPEED, ALLISON S., *Measuring Dispersion in Laser Cavity Mirrors using White-Light Interferometry*. AFIT/GAP/ENP/08-M06. Faculty Advisor: Lt Col Matthew J. Bohn. Sponsor: AFRL/RZ.

GRUENTHER, ALEXANDER C., *An Image Based Bidirectional Reflectivity Distribution Function Experiment*. AFIT/GEO/ENG/08-M03. Faculty Advisor: Dr. Barry E. Mullins. Sponsor: AFRL/RZ.

HAGG, MICHAEL T., *An Image Based Bidirectional Reflectivity Distribution Function Experiment*. AFIT/GEO/ENP/08-M03. Faculty Advisor: Dr. Michael A. Marciniak. Sponsor: AFRL/RZ.

HANCEY, BENJAMIN D., *Characterization and Implementation of a Real-World Tracking Algorithm on Field Programmable Gate Arrays with Kalman Filter Test Case*. AFIT/GE/ENG/08-10. Faculty Advisor: Dr. Yong C. Kim. Sponsor: AFRL/RZ.

HOOPER, DAYLOND J., *A Hybrid Multi-Robot Control Architecture*. AFIT/GCS/ENG/08-02. Faculty Advisor: Dr. Gilbert L. Peterson. Sponsor: AFRL/RZ.

HUMPHREYS, CLAY J., MAILLOUX, LOGAN O., and SPEAR, GRANT E., *Systems Engineering Analysis for Transition of the Ground Hardness Technology Demonstrator*. AFIT/GSE/ENV/08-M02. Faculty Advisor: Dr. David R. Jacques. Sponsor: AFRL/R.Y.

JUDGE, MATTHEW G., *SHI(EL)DS: A Novel Hardware-Based Security Backplane to Enhance Security with Minimal Impact to System Operation*. AFIT/GCE/ENG/08-07. Faculty Advisor: Maj Paul D. Williams. Sponsor: AFRL/R.Y.

KENT, JASON T., *Comparative Classification of Low/High Value Receivers*. AFIT/GE/ENG/08-14. Faculty Advisor: Dr. Michael A. Temple. Sponsor: AFRL/R.Y.

LENZ, THOMAS A., *Feature Aided Tracking in the Urban Environment*. AFIT/GE/ENG/08-16. Faculty Advisor: Lt Col Juan R. Vasquez. Sponsor: AFRL/R.Y.

LIDDLE, ADAM J., *Sensitivity Analysis of AlGaIn/GaN HEMTs to Process Variation*. AFIT/GE/ENG/08-17. Faculty Advisor: Lt Col James A. Fellows. Sponsor: AFRL/R.Y.

LIEFER, NATHANIEL C., *Signal Processing Design of Low Probability of Intercept Waveforms*. AFIT/GE/ENG/08-18. Faculty Advisor: Dr. Richard K. Martin. Sponsor: AFRL/R.Y.

MAILLOUX, LOGAN O., See HUMPHREYS, CLAY J.

McATEE, KYLE R., *Survey of Contrast and Gain Control Techniques for Infrared Focal Planes under Laser Illumination*. AFIT/GEO/ENP/08-M04. Faculty Advisor: Dr. Michael A. Marciniak. Sponsor: AFRL/R.Y.

McELROY, KELLY K., *Applying Automated Theorem Proving to Computer Security*. AFIT/GCS/ENG/08-16. Faculty Advisor: Dr. Rusty O. Baldwin. Sponsor: AFRL/R.Y.

NOWAK, DUSTIN J., *Exploitation of Self Organization in UAV Swarms for Optimization in Combat Environments*. AFIT/GCS/ENG/08-18. Faculty Advisor: Dr. Gary B. Lamont. Sponsor: AFRL/R.Y.

ONTIVEROS, FERNANDO, *Development of a Night Vision Goggle Heads Up Display for Paratrooper Guidance*. AFIT/GCS/ENG/08-24. Faculty Advisor: Dr. John F. Raquet. Sponsor: AFRL/R.Y.

OZDEMIR, HALIL IBRAHIM, *Constellation Design of Geosynchronous Navigation Satellites Which Maximizes Availability and Accuracy Over a Specified Region of the Earth*. AFIT/GSS/ENG/08-01. Faculty Advisor: Dr. John F. Raquet. Sponsor: AFRL/R.Y.

PIERCE, SCOTT J., *Context-Aided Tracking and Track Prediction in Aerial Video Surveillance*. AFIT/GE/ENG/08-21. Faculty Advisor: Lt Col Juan R. Vasquez. Sponsor: AFRL/R.Y.

POHL, ADAM J., *Multi-Objective UAV Mission Planning Using Evolutionary Computation*. AFIT/GE/ENG/08-22. Faculty Advisor: Dr. Gary B. Lamont. Sponsor: AFRL/R.Y.

SAKRYD, GREGORY A., *Systems Engineering Analysis for the Development of the Fleeting Target*. AFIT/GSE/ENV/08-M06. Faculty Advisor: Dr. David R. Jacques. Sponsor: AFRL/R.Y. and AFRL/RB.

SCHEXNAYDER, CHRISTOPHER M., *Effects of Multipath and Oversampling on Navigation Using Orthogonal Frequency Division Multiplexed Signals of Opportunity*. AFIT/GE/ENG/08-25. Faculty Advisor: Dr. John F. Raquet. Sponsor: AFRL/R.Y.

SHAHADY, DAVID E., *Understanding the Emergence of Disruptive Innovation in the Air Force Science and Technology Organizations*. AFIT/GRD/ENV/08-M10. Faculty Advisor: Dr. Alfred E. Thal, Jr. Sponsor: AFRL/RB and AFRL/R.Y.

SHIRLEY, JASON W., *Hardware Algorithm Implementation for Mission Specific Processing*. AFIT/GE/ENG/08-27. Faculty Advisor: Dr. Yong C. Kim. Sponsor: AFRL/RV.

SOLIMAN, NEIL A., *Hyperspectral-Augmented Target Tracking*. AFIT/GE/ENG/08-28. Faculty Advisor: Maj Michael J. Mendenhall. Sponsor: AFRL/RV.

SPEAR, GRANT E., See HUMPHREYS, CLAY J.

STONE, SAMUEL J., *Anti-Tamper Method for Field Programmable Gate Arrays Through Dynamic Reconfiguration and Decoy Circuits*. AFIT/GE/ENG/08-30. Faculty Advisor: Dr. Yong C. Kim. Sponsor: AFRL/RV.

SUSKI, WILLIAM C., *Radio Frequency (RF) Fingerprinting Applied to Transient Signal Features from Commercial Communication Devices*. AFIT/GE/ENG/08-31. Faculty Advisor: Dr. Michael A. Temple. Sponsor: AFRL/RV.

TAMAYO, ALFRED A., *Applying Frequency-Domain Equalization to Code-Division Multiple Access and Transform-Domain Communications Systems*. AFIT/GE/ENG/08-33. Faculty Advisor: Dr. Richard K. Martin. Sponsor: AFRL/RV.

TERNING, NATE A., *Real-Time Navigation and Flight Path Generation for Tracking Stop-and-Go Targets with Miniature Air Vehicles*. AFIT/GAE/ENY/08-M28. Faculty Advisor: Dr. Richard G. Cobb. Sponsor: AFRL/RV and AFRL/RB.

TOWNSEND, JAMES D., *Improvement of ECM Techniques through Implementation of a Genetic Algorithm*. AFIT/GE/ENG/08-34. Faculty Advisor: Maj Michael A. Saville. Sponsor: AFRL/RV.

VANTREASE, TROY H., *Development and Employment of a Semi-Autonomous Cursor on Target Navigation System for Micro Air Vehicles*. AFIT/GAE/ENY/08-J06. Faculty Advisor: Dr. Richard G. Cobb. Sponsor: AFRL/RV and AFRL/RB.

WAY, RAYMOND S., *A Formal Specification and Proof of System Safety Using the Schematic Protection Model*. AFIT/GCS/ENG/08-21. Faculty Advisor: Dr. Rusty O. Baldwin. Sponsor: AFRL/RV.

ZIMMERMAN, MATTHEW A., *Mitigating Reversing Vulnerabilities in .NET Applications Using Virtualized Software Protection*. AFIT/GCO/ENG/08-09. Faculty Advisor: Dr. Richard A. Raines. Sponsor: AFRL/RV.

AFRL: SPACE VEHICLES DIRECTORATE

GEISEL, CHRISTOPHER D., *Navigation Solutions to Enable Space Superiority Through the Repeated Intercept Mission from Highly Elliptical Orbits*. AFIT/GAE/ENY/08-M02. Faculty Advisor: Lt Col Nathan A. Titus. Sponsor: AFRL/RV.

HOCKENBERRY, EUGENE B., *Hardware, Software and Data Analysis Techniques for SRAM-Based Field Programmable Gate Array Circuits*. AFIT/GE/ENG/08-11. Faculty Advisor: Dr. Yong C. Kim. Sponsor: AFRL/RV.

SALMOIRAGHI, AMANDA J., *Mission Planning Analysis for Selection of Optimal Constrained Relative Orbit Geometrics*. AFIT/GAE/ENY/08-D01. Faculty Advisor: Dr. Richard G. Cobb. Sponsor: AFRL/RV.

WOJNAR, OLGIERD P., *A Constraint Based Approach for Building Operationally Responsive Satellites*. AFIT/GAE/ENY/08-M31. Faculty Advisor: Maj Eric D. Swenson. Sponsor: AFRL/RV.

WRIGHT, JONATHAN W., *Minimizing Secular J2 Perturbation Effects on Satellite Formations*. AFIT/GA/ENY/08-M08. Faculty Advisor: Lt Col Nathan A. Titus. Sponsor: AFRL/RV.

4.2.6. AIR MOBILITY COMMAND

STONE, BRIAN B., *Developing an Excel Decision Support System Using In-Transit Visibility to Decrease DoD Transportation Delays*. AFIT/GOR/ENS/08-20. Faculty Advisor: Dr. James T. Moore. Sponsor: AMC/A9.

4.2.7. AIR FORCE SPACE COMMAND

CHISM, JASON C., *Space Doctrine and Supporting Space Situational Awareness Tools*. AFIT/GSS/ENY/08-J01. Faculty Advisor: Dr. Richard G. Cobb. Sponsor: AFSPC.

RUSNOCK, CHRISTINA F., *Predicting Cost and Schedule Growth for Military and Civil Space Systems*. AFIT/GRD/ENC/08M-01. Faculty Advisor: Dr. Edward D. White, III. Sponsor: AFSPC/SMC.

24th AIR FORCE (P)

KOLBE, MICHAEL B., *An Analysis of Critical Infrastructure Control Systems and Vulnerabilities*. AFIT/GCO/ENG/08-04. Faculty Advisor: Maj Paul D. Williams. Sponsor: AFCYBER (P).

WILKIN, DORSEY C., *Cyber Ostfriesland: An Operation Against Critical Infrastructure*. AFIT/GCS/ENG/08-22. Faculty Advisor: Dr. Richard A. Raines. Sponsor: AFCYBER (P).

4.2.8. USAF FIELD OPERATING AGENCIES

AIR FORCE CENTER FOR ENVIRONMENTAL EXCELLENCE

CORBIN, REBECCA S., *An Analysis of Groundwater Flow Patterns in a Constructed Treatment Wetland Cell*. AFIT/GEM/ENV/08-M04. Faculty Advisor: Dr. Michael L. Shelley. Sponsor: AF/A7 and AFCEE.

NYIKOS, DAVID M., *Sustainable Design Policy and Leadership in Energy and Environmental Design Certification*. AFIT/GEM/ENV/08-M14. Faculty Advisor: Dr. Alfred E. Thal, Jr. Sponsor: AFCEE/TBD.

STUMME, LUKE D., *Optimal Adoption of Green Roofs: Hydrology and Public Finance Applications*. AFIT/GEM/ENV/08-M18. Faculty Advisor: Dr. Alfred E. Thal, Jr. Sponsor: AFCEE/TBD.

THOMAS, BENJAMIN J., *Mining Association Rules Between Credits in the Leadership in Energy and Environmental Design for New Construction (LEED-NC) Green Building Assessment System*. AFIT/GEM/ENV/08-M19. Faculty Advisor: Dr. Alfred E. Thal, Jr. Sponsor: AFCEE.

THOMPSON, IAN F., *Oxygenation of the Root Zone and TCE Remediation: A Plant Model of Rhizosphere Dynamics*. AFIT/GES/ENV/08-M07. Faculty Advisor: Dr. Michael L. Shelley. Sponsor: AF/A7 and AFCEE/ERD.

AIR FORCE CIVIL ENGINEER SUPPORT AGENCY

CRABTREE, DONALD C., *Factors Leading to Effectiveness and Satisfaction in Civil Engineer Information Systems*. AFIT/GEM/ENV/08-M05. Faculty Advisor: Dr. Dennis D. Strouble. Sponsor: AFCESA.

GRIFFIN, JAMES S., *Impacts of Weather Variations on Energy Consumption Efforts at U.S. Air Force Installations*. AFIT/GEM/ENV/08-M08. Faculty Advisor: Dr. Alfred E. Thal, Jr. Sponsor: AFCESA.

AIR FORCE INFORMATION OPERATIONS CENTER

ASCHENBRENNER, BRIAN D., *Identification of Command and Control Information Requirements for the Cyberspace Domain*. AFIT/GIR/ENG/08-01. Faculty Advisor: Dr. Robert F. Mills. Sponsor: AFIOC/IO.

DeYOUNG, MARK E., *Dynamic Protocol Reverse Engineering: A Grammatical Inference Approach*. AFIT/GCS/ENG/08-06. Faculty Advisor: Dr. Robert F. Mills. Sponsor: AFIOC.

ERICKSON, THEODORE J., *Digital Signal Processing Leveraged for Intrusion Detection*. AFIT/GCE/ENG/08-04. Faculty Advisor: Dr. Barry E. Mullins. Sponsor: AFIOC.

GRIFFIN, JANE J., *DoD Role for Securing United States Cyberspace*. AFIT/GCO/ENG/08-03. Faculty Advisor: Dr. Robert F. Mills. Sponsor: AFIOC.

AIR FORCE NUCLEAR WEAPONS AND COUNTERPROLIFERATION AGENCY

HAWKINS, LESLIE S., *Micro-Etched Platforms for Thermal Inactivation of Bacillus Anthracis and Bacillus Thuringiensis Spores*. AFIT/GWM/ENP/08-M01. Faculty Advisor: Dr. Larry W. Burggraf. Sponsor: AF/A3S and AFNWCA(AT).

AIR FORCE OPERATIONALLY RESPONSIVE SPACE OFFICE

KAHRAMAN, MESUT OZKAN, *A Constraint Based Approach for Building Operationally Responsive Satellites*. AFIT/GSS/ENY/08-S02. Faculty Advisor: Maj Eric D. Swenson. Sponsor: AF Operationally Responsive Space Office.

AIR FORCE PERSONNEL CENTER

WILLIS, WARD G., *Risk Propensity and Knowledge Sharing Intentions of Individuals in a Downsized Organization*. AFIT/GIR/ENV/08-M26. Faculty Advisor: Lt Col Alexander J. Barelka. Sponsor: AFPC/DPS.

AIR FORCE PETROLEUM AGENCY

VANN, LANCE A., *Feasibility of JP-8 to Jet a Fuel Conversion at U. S. Military Facilities*. AFIT/GLM/ENS/08-13. Faculty Advisor: Lt Col Bradley E. Anderson. Sponsor: AFPET/AFF.

AIR FORCE SERVICES AGENCY

MILLER, TROY J., *It is Time the United States Air Force Changes the Way it Feeds its Airmen. Six Universities Perspectives on Outsourcing*. AFIT/GLM/ENS/08-10. Faculty Advisor: Lt Col Bradley E. Anderson. Sponsor: Air Force Services Agency, T2.

AIR FORCE TEST PILOT SCHOOL (AF TPS)

MCLAREN, SCOTT A., *Velocity Estimate Following Air Data System Failure*. AFIT/GAE/ENY/08-M21. Faculty Advisor: Maj Paul A. Blue. Sponsor: AFTPS/ED.

SPEARES, STEVEN W., *Handling Qualities Evaluation of a Supersonic Tailless Air Vehicle*. AFIT/GAE/ENY/08-M25. Faculty Advisor: Maj Paul A. Blue. Sponsor: AFTPS/ED.

4.2.9. DEPARTMENT OF DEFENSE

GALLUP, HEATHER L., *Blending the Battlefield: An Analysis of Using Private Military Companies to Support Military Operations in Iraq*. AFIT/GRD/ENV/08-M05. Faculty Advisor: Dr. Dennis D. Strouble. Sponsor: National Defense University.

SEAMAN, GREGORY G., *Optimization of Therapeutic Strategies for Organophosphate Poisoning*. AFIT/GES/ENV/08-M06. Faculty Advisor: Dr. Michael L. Shelley. Sponsor: AF Surgeon General and DoD Joint Program Executive Office for Chemical and Biological Defense.

DEFENSE ACQUISITION UNIVERSITY

GARDNER, CHRISTOPHER P., *Balancing Government Risks with Contractor Incentives in Performance-Based Logistics Contracts*. AFIT/GLM/ENS/08-2. Faculty Advisor: Dr. Jeffrey A. Odgen. Sponsor: DAU.

GRIGORIAN, REZA A., *Assessment of the Current Cultural Awareness and Training for the Air Force Contingency Contracting Officer*. AFIT/GRD/ENV/08-M07. Faculty Advisor: Dr. Michael T. Rehg. Sponsor: DAU/Midwest Region.

DEFENSE INSTITUTE OF SECURITY ASSISTANCE MANGEMENT

HARRIS, RANDY M., *An Analysis of the Effectiveness of the International Military Education and Training Program*. AFIT/GIR/ENV/08-M10. Faculty Advisor: Dr. Michael T. Rehg. Sponsor: DISAM/DI.

ENVIRONMENTAL SECURITY TECHNOLOGY CERTIFICATE PROGRAM

CRAIG, DANIEL A., *Development of a Screening Tool to Facilitate Technology of an Innovative Technology to Treat Perchlorate-Contaminated Water*. AFIT/GEM/ENV/08-M06. Faculty Advisor: Dr. Mark N. Goltz. Sponsor: ESTCP.

HIGH ENERGY LASER JOINT TECHNOLOGY OFFICE

SPRING, JUSTIN B., *Modeling of SBS Phase Conjugation in Multimode Step Index Fibers*. AFIT/GAP/ENP/08-M09. Faculty Advisor: Maj Timothy H. Russell. Sponsor: HEL/JTO.

JOINT IMPROVISED EXPLOSIVE DEVICE DEFEAT ORGANIZATION

DAWLEY, LYLE M., LONG, ALICE M. and MARENTETTE, LENORE A., *Developing a Decision Model for Joint Improvised Explosive Device Defeat Organization (JIEDDO) Proposal Selection*. AFIT/GSE/ENV/08-J01. Faculty Advisor: Maj Shane A. Knighton. Sponsor: JIEDDO.

LONG, ALICE M., See DAWLEY, LYLE M.

MARENTETTE, LENORE A., See DAWLEY, LYLE M.

NATIONAL SECURITY SPACE OFFICE

LUPA, JOSEPH S., *Simulation of National Intelligence Process with Fusion*. AFIT/GOR/ENS/08-13. Faculty Advisor: Dr. John O. Miller. Sponsor: NSSO.

OFFICE OF THE SECRETARY OF DEFENSE

FOGG, PAUL N., II, *Forensics Image Background Matching Using Scale Invariant Feature (SIFT) Transform and Speeded Up Robust Features (SURF)*. AFIT/GCE/ENG/08-02. Faculty Advisor: Dr. Gilbert L. Peterson. Sponsor: DoD Cyber Crime Center.

UNITED STATES STRATEGIC COMMAND

KAPPEDAL, RYAN D., *Intelligence Surveillance and Reconnaissance Asset Assignment for Optimal Mission Effectiveness*. AFIT/GOR/ENC/08-10. Faculty Advisor: Maj August G. Roesener. Sponsor: USSTRATCOM.

STEINBERGER, JESSICA A., *A Survey of Satellite Communications System Vulnerabilities*. AFIT/GA/ENG/08-01. Faculty Advisor: Dr. Richard A. Raines. Sponsor: USSTRATCOM.

UNITED STATES CENTRAL COMMAND

TANNEHILL, BRYAN R., *Forecasting Instability Indicators in the Horn of Africa Region*. AFIT/GOR/ENS/08-21. Faculty Advisor: Dr. Richard F. Deckro. Sponsor: USCENTCOM J8-ARB.

UNITED STATES NAVY

BROWNING, DAVID W., *Analysis of the EA-6B Power Trim Indicator (PTI) System*. AFIT/GAE/ENY/08-D04. Faculty Advisor: Dr. Paul I. King. Sponsor: NAVAIR.

4.2.10. DEPARTMENT OF ENERGY

ALEXANDER, JEFF A., CHARLES-VICKERS, MARTHA, SMITH, TALBOT L., and VICKERS, MICHAEL S., *Operationally Responsive Space: An Architecture and Enterprise Model for Adaptive Integration, Test and Logistics*. AFIT/GSE/ENV/08-J01DL. Faculty Advisor: Dr. Joseph W. Carl. Sponsor: Sandia National Laboratory.

BETHEA, DAVID M., *Improving Mixed Variable Optimization of Computational and Model Parameters Using Multiple Surrogate Functions*. AFIT/GOR/ENC/08-01. Faculty Advisor: Lt Col Mark A. Abramson. Sponsor: Los Alamos National Laboratory.

CHARLES-VICKERS, MARTHA, See ALEXANDER, JEFF A.

SMITH, TALBOT L., See ALEXANDER, JEFF A.

VICKERS, MICHAEL S., See ALEXANDER, JEFF A.

4.2.11. OTHER FEDERAL AGENCIES

DEPARTMENT OF HOMELAND SECURITY

RAKES, KELLY D., *Evaluating the Response of Polyvinyl Toluene Scintillators Used in Portal Detectors*. AFIT/GNE/ENP/08-M04. Faculty Advisor: Dr. James C. Petrosky. Sponsor: DHS/DNDO.

SMITH, BRIANA J., *Near-Time Characterization of a Domestic Nuclear Event Using Gamma Spectroscopy*. AFIT/GNE/ENP/08-M06. Faculty Advisor: Dr. Charles J. Bridgman. Sponsor: DHS/DNDO.

ENVIRONMENTAL PROTECTION AGENCY

WHEELDON, JACK G., *An Evaluation and Implementation Guide for Current Groundwater Mass Flux Measurement Practices*. AFIT/GEM/ENV/08-M23. Faculty Advisor: Dr. Mark N. Goltz. Sponsor: US EPA-NRMRL-GWERD.

4.2.12. NON-FEDERAL SPONSORS

BAHRAIN DEFENSE FORCE

AL-NOAIMI, ABDULLA A., *Investigation Into Fretting Fatigue Under Cyclic Contact Load and in Conjunction with Fatigue of Titanium Alloy*. AFIT/GAE/ENY/08-M30. Faculty Advisor: Dr. Shankar Mall. Sponsor: Bahrain Defense Force.

OKLAHOMA STATE UNIVERSITY

MOSELEY, MICHAEL W., *A Case-Based Exploration of Task/Technology Fit in a Knowledge Management Context*. AFIT/GIR/ENV/08-M14. Faculty Advisor: Maj Jason M. Turner. Sponsor: Oklahoma State University Spears School of Business.

WHITFIELD, JOHN F., *An Empirical Investigation of Factors Influencing Knowledge Management System Success*. AFIT/GIR/ENV/08-M24. Faculty Advisor: Maj Jason M. Turner. Sponsor: Oklahoma State University Spears School of Business.

TURKISH AIR FORCE

ALKANAT, OMER, *Determining the Surface-to-Air Missile Requirement for Western and Southern Part of the Turkish Air Defense System*. AFIT/GOR/ENS/08-01. Faculty Advisor: Dr. James T. Moore. Sponsor: Turkish Air Force.

CANDIR, AHMET AYDIN, *Discrete Event Simulation of a Suppression of Enemy Air Defenses (SEAD) Mission*. AFIT/GOR/ENS/08-03. Faculty Advisor: Dr. John O. Miller. Sponsor: Turkish Air Force.

GOKCEN, OSMAN BAHADIR, *Robust Aircraft Squadron Scheduling in the Face of Absenteeism*. AFIT/GOR/ENS/08-06. Faculty Advisor: Maj Shane J. Knighton. Sponsor: Turkish Air Force.

OKAL, ADEM, *Simulation Modeling and Analysis of F-16 Pilot Training Squadron*. AFIT/GOR/ENS/08-15. Faculty Advisor: Dr. John O. Miller. Sponsor: Turkish Air Force.

WRIGHT STATE UNIVERSITY

KOCHERSBERGER, JONATHAN P., *Linking Embeddedness and Macroinvertebrate in Two Southwest Ohio Streams*. AFIT/GES/ENV/08-M03. Faculty Advisor: Lt Col David A. Smith. Sponsor: Wright State University Dept of Earth and Environmental Sciences.

MONTGOMERY COUNTY (OH) POLICE DEPARTMENT

LOEFFELHOLZ, BERNARD J., *Street Gangs: A Modeling Approach to Evaluation of "At Risk" Youth*. AFIT/GOR/ENS/08-24. Faculty Advisor: Dr. Richard F. Deckro. Sponsor: Montgomery County (OH) Police Department.

4.3. GRADUATE RESEARCH PAPERS

Note: Students in non-thesis graduate programs at AFIT may write graduate research papers.

4.3.1. OFFICE OF THE SECRETARY OF THE AIR FORCE

DEVOE, DANIEL A., *When Precision Becomes Precise: What it Takes to Achieve 10 Meter Accuracy with the Joint Precision Airdrop System*. AFIT/IMO/ENS/08-03. Faculty Advisor: Dr. James T. Moore. Sponsor: SAF/AQQ.

4.3.2. HEADQUARTERS UNITED STATES AIR FORCE

EASTLAND, KEVIN M., *Has the Expeditionary Mobility Task Force (EMTF) Organization Outlived Its Usefulness?* AFIT/IMO/ENS/08-06. Faculty Advisor: Dr. Alan R. Heminger. Sponsor: USAF EC/CC.

HALL, JAMES B., *Assessing the Productivity of the Air Force Flying Training Process: Proposing a New Measurement of Success*. AFIT/IMO/ENS/08-07. Faculty Advisor: Lt Col Donald E. Duckro. Sponsor: 18 AF/CV.

MARENTETTE, KENNETH A., *An Objective Decision Tool for Use in Considering Air Force Specialty Code Pairs for Consolidation*. AFIT/ILM/ENS/08-06. Faculty Advisor: Dr. Alan W. Johnson. Sponsor: AF/A1PF.

MUEHE, TARA J., *Developing Future Air Force Cyber Leaders*. AFIT/ICW/ENG/08-06. Faculty Advisor: Maj Paul D. Williams. Sponsor: AF/A2F.

TURNER, JOBIE S., *Fly What You Want, Log What You Need: A New Currency System for USAF Mobility Aircrew*. AFIT/IMO/ENS/08-15. Faculty Advisor: Lt Col Donald E. Duckro. Sponsor: 18 AF/CV.

4.3.3. AIR COMBAT COMMAND

ELLER, JOHN W., HAZEL, BRIAN and ROONEY, BRENDAN D., *Global Persistent Attack: A Systems Architecture, Process Modeling, and Risk Analysis Approach*. AFIT/ISE/ENV/08-J04. Faculty Advisor: Maj Jeffrey D. Havlicek. Sponsor: HQ ACC/A5SC.

HAZEL, BRIAN, See ELLER, JOHN W.

MURPHY, SEAN D., *Air Force Cyber Education: A Critical Analysis*. AFIT/ICW/ENG/08-07. Faculty Advisor: Dr. Richard A. Raines. Sponsor: HQ/8AF.

ORTH, PAUL, *Measuring the Operational Readiness of an Air Force Network Warfare Squadron*. AFIT/ICW/ENG/08-09. Faculty Advisor: Dr. Robert F. Mills. Sponsor: 315th NWS/CC.

ROONEY, BRENDAN D., See ELLER, JOHN W.

4.3.4. AIR EDUCATION AND TRAINING COMMAND

DUDLEY, PAUL J., *Is the Euro-NATO Joint Jet Pilot Training Program Viable in the Post Cold War Era?* AFIT/IMO/ENS/08-05. Faculty Advisor: Dr. Alan R. Heminger. Sponsor: AETC/A5.

AIR FORCE INSTITUTE OF TECHNOLOGY

NOTE: Although no external sponsor is identified, in most cases, AFIT faculty sponsored the below projects due to their relevance to current or future USAF, DoD and/or Homeland Security requirements.

COSNOWSKI, CHARLES, *Defeating 802.11 Wireless Networks*. AFIT/ICW/ENG/08-01. Faculty Advisor: Dr. Robert F. Mills. Sponsor: N/A.

GOOD, MICHAEL J., *Chinese National Strategy of Total War*. AFIT/ICW/ENG/08-02. Faculty Advisor: Dr. Robert F. Mills. Sponsor: N/A.

GRANT, SCOTT D., *Improving the Tanker Employment Model*. AFIT/ILM/ENS/08-02. Faculty Advisor: Dr. Alan W. Johnson. Sponsor: N/A.

HACKLER, GEORGE C., *Goal Programming Tanker Beddown Decisions*. AFIT/ILM/ENS/08-03. Faculty Advisor: Dr. Alan W. Johnson. Sponsor: N/A.

KIMBROUGH, JAMES M., *Examining US Irregular Warfare Doctrine*. AFIT/ILM/ENS/08-04. Faculty Advisor: Dr. Richard F. Deckro. Sponsor: N/A.

NEWBILL, RAYMOND R., *Intelligence Sharing, Fusion Centers, and Homeland Security*. AFIT/ICW/ENG/08-08. Faculty Advisor: Dr. Robert F. Mills. Sponsor: N/A.

RAUCH, DANIEL E., *Electronic Warfare for Cyber Warriors*. AFIT/ICW/ENG/08-10. Faculty Advisor: Dr. Robert F. Mills. Sponsor: N/A.

WHITING, MICHAEL D., *The Great Firewall of China: Critical Analysis*. AFIT/ICW/ENG/08-12. Faculty Advisor: Dr. Robert F. Mills. Sponsor: N/A.

4.3.5. AIR FORCE MATERIEL COMMAND

KOVICH, MATTHEW D., *Developing a Predictive Model for Unscheduled Maintenance Requirements on United States Air Force Installations*. AFIT/ILM/ENS/08-05. Faculty Advisor: Lt Col Stanley E. Griffis. Sponsor: HQ AFMC/A7.

NORTON, JOHN D., *Developing a Predictive Model for Unscheduled Maintenance Requirements on United States Air Force Installations*. AFIT/ILM/ENS/08-05. Faculty Advisor: Lt Col Stanley E. Griffis. Sponsor: AFMC/A7.

AERONAUTICAL SYSTEMS CENTER

BORNEJKO, TRINA L., GLASSCOCK, CHARLES G. and SPRENKLE, DENNIS R., *Creating a Discrete Event Simulation to Determine the Military Worth of Developing an Electronic Warfare Battle Manager Function within an Airborne Electronic Attack System of Systems Architecture*. AFIT/ISE/ENV/08-J05. Faculty Advisor: Dr. David R. Jacques. Sponsor: ASC/XRS.

GLASSCOCK, CHARLES G., see BORNEJKO, TRINA L.

SPRENKLE, DENNIS R., see BORNEJKO, TRINA L.

AIR FORCE RESEARCH LABORATORY

HUNSBERGER, MICHAEL G., *A Methodology for Cybercraft Requirement Definition and Initial System Design*. AFIT/ICW/ENG/08-03. Faculty Advisor: Lt Col J. Todd McDonald. Sponsor: AFRL/RI.

O'MALLEY, DAVID R., and ZALL, JONATHAN E., *Architecting Cognition Within the Department of Defense Architecture Framework*. AFIT/ISE/ENV/08-J06. Research Advisor: Dr. John M. Colombi. Sponsor: AFRL/RH.

ZALL, JONATHAN E., see O'MALLEY, DAVID R.

4.3.6. AIR MOBILITY COMMAND

BUFORD, TRAVIS P., *Contingency Response Groups: How Many Do We Really Need?*
AFIT/IMO/ENS/08-01. Faculty Advisor: Dr. James T. Moore. Sponsor: 621 COSG/CD.

CLARK, WILL, *Optimal Cargo Compartment Size for the Advanced Joint Combat System.*
AFIT/IMO/ENS/08-02. Faculty Advisor: Lt Col Pamela S. Donovan. Sponsor: AMC/A8X.

DEVOS, BROCK E., *Airfield Operations and Airbase Opening.* AFIT/IMO/ENS/08-04. Faculty Advisor:
Dr. Alan R. Heminger. Sponsor: AMC/A3.

HANSON, JEREMY R., *Moving the Force: The Impact of Large Scale Brigade Combat Team Deployments.*
AFIT/IMO/ENS/08-08. Faculty Advisor: Dr. James T. Moore. Sponsor: AMC/A3.

HOWLAND, ERIC J., *A Lean Look at the C-17 Home Station Departure Process.* AFIT/IMO/ENS/08-09.
Faculty Advisor: Dr. Alan W. Johnson. Sponsor: 437 OG/CC.

KIELTY, ROBERT A., *A Multinational Perspective on Aircraft Spares Cross Servicing for the Mobility Air
Forces.* AFIT/IMO/ENS/08-10. Faculty Advisor: Lt Col Stanley E. Griffis. Sponsor: AMC/A4.

LACY, JOHN A., *Application of AFSO21 Principles to Navigator Training at the C-130 Formal Training
Unit.* AFIT/IMO/ENS/08-11. Faculty Advisor: Dr. Alan R. Heminger. Sponsor: 314 OG/CC.

MITCHELL, LAWRENCE W.S., *Fee for Service Air Refueling: A Summary Market Analysis.*
AFIT/IMO/ENS/08-12. Faculty Advisor: Dr. James T. Moore. Sponsor: AMC/CR.

NULTON, JASON D., *Assessing Air Force Logistics Reengineering (LogR) Against Process in the Supply
Chain.* AFIT/IMO/ENS/08-14. Faculty Advisor: Dr. Alan R. Heminger. Sponsor: AMC/A4.

ZEINER, ZACHARY B., *Intra-Theater Airlift Cost Analysis.* AFIT/IMO/ENS/08-16. Faculty Advisor: Dr.
James T. Moore. Sponsor: AF/A9.

4.3.7. AIR FORCE SPACE COMMAND

REPIK, KEITH, *Defeating Adversary Network Intelligence Efforts with Active Cyber Defense Techniques.*
AFIT/ICW/08-11. Faculty Advisor: Maj Paul D. Williams. Sponsor: AFCYBER.

4.3.8. AIR FORCE RESERVE COMMAND

BROWN, KYLE D., LITTLE, ADAM W., and MUHA, MATTHEW T., *Capital Investment Management for
Air Force Reserve Command (AFRC) Information Technology (IT).* AFIT/ISE/ENV/08-J03. Research
Advisor: Dr. John M. Colombi. Sponsor: HQ AFRC.

LITTLE, ADAM W., see BROWN, KYLE D.

MUHA, MATTHEW T., see BROWN, KYLE D.

4.3.9. DEPARTMENT OF DEFENSE

NICHOL, JAMES P., *Analysis of AFRICOM Theater Airlift Distribution Network.* AFIT/IMO/ENS/08-13. Faculty
Advisor: Dr. James T. Moore. Sponsor: AFRICOM/J3.

PETTUS, EVAN L. and STEELE, RICHARD V., *Air Dominance in an Anti-Access Environment.*
AFIT/ILM/ENS/08-08. Faculty Advisor: Lt Col Bradley E. Anderson. Sponsor: DoD Policy Planning.

STEELE, RICHARD V., See Pettus, Evan L.

**5. ACADEMIC DEPARTMENT PUBLICATIONS AND FUNDING
INFORMATION**

5.1. DEPARTMENT OF AERONAUTICS AND ASTRONAUTICS

Access Phone: 937-255-3069, DSN 785-3069

Fax: 937-656-7621, DSN 986-7621

Homepage: <http://www.afit.edu/en/eny/>

5.1.1	<u>DOCTORAL DISSERTATIONS</u>	43
5.1.2	<u>MASTER'S THESES</u>	43
5.1.3	<u>FUNDED RESEARCH PROJECTS</u>	47
5.1.4	<u>REFEREED JOURNAL PUBLICATIONS</u>	49
5.1.5	<u>REFEREED CONFERENCE PUBLICATIONS</u>	52
5.1.6	<u>SUBSTANTIAL CONSULTATIONS</u>	56
5.1.7	<u>OTHER PRESENTATIONS PUBLICATIONS AND PROFESSIONAL ACTIVITIES</u>	56

5.1.1. DOCTORAL DISSERTATIONS

- BOND, VANESSA L., *Flexible Twist for Pitch Control in a High Altitude Long Endurance Aircraft with Nonlinear Response*. AFIT/DS/ENY/08-D11. Faculty Advisor: Dr. Robert A. Canfield. Sponsor: AFRL/RZ.
- DOSTER, JASON C., *Hypermixer Pylon Fuel Injection for Scramjet Combustors*. AFIT/DS/ENY/08-02. Faculty Advisor: Dr. Paul I. King. Sponsor: AFRL/RZ.
- FREEBORN, ANDREW B., *Pylon Effects on a Scramjet Cavity Flameholder Flowfield*. AFIT/DS/ENY/08-04. Faculty Advisor: Dr. Paul I. King. Sponsor: AFRL/RZ.
- HOPPER, DAVID R., *Direct Initiation of Multiple Tubes by Detonation Branching in a Pulsed Detonation Engine*. AFIT/DS/ENY/08-05. Faculty Advisor: Dr. Paul I. King. Sponsor: AFRL/RZ.
- LARSON, REID A., *A Novel Method Characterizing the Impact Response of Functionally Graded Plates*. AFIT/DS/ENY/08-06. Faculty Advisor: Dr. Anthony N. Palazotto. Sponsor: AFRL/RB.
- MCCLUNG, AMBER J.W., *Extension of Viscoplasticity Based on Overstress to Capture the Effects of Prior Aging on the Time Dependent Deformation Behavior of a High-Temperature Polymer: Experiments and Modeling*. AFIT/DS/ENY/08-D15. Faculty Advisor: Dr. Marina B. Ruggles-Wrenn. Sponsor: AFOSR.
- REED, SHAD A., *Development of Experimental, Analytical, and Numerical Approximations Appropriate for Nonlinear Damping Coatings*. AFIT/DS/ENY/08-01. Faculty Advisor: Dr. Anthony N. Palazotto. Sponsor: AFRL/RZ.
- STEVENS, ROBERT E., *Optimal Control of Electrodynamical Tethers*. AFIT/DS/ENY/08-13. Faculty Advisor: Dr. William E. Wiesel. Sponsor: USNA.

5.1.2. MASTER'S THESES

5.1.2.1. AERONAUTICAL ENGINEERING (GAE)

- AL-NOAIMI, ABDULLA A., *Investigation Into Fretting Fatigue Under Cyclic Contact Load and in Conjunction with Fatigue of Titanium Alloy*. AFIT/GAE/ENY/08-M30. Faculty Advisor: Dr. Shankar Mall. Sponsor: Bahrain Defense Force.
- ARGUELLO, MICHAEL A., *The Concept Design of a Split Flow Liquid Hydrogen Turbopump*. AFIT/GAE/ENY/08-M01. Faculty Advisor: Lt Col Richard D. Branam. Sponsor: AFRL/RZ.
- BARTOWITZ, MICHAEL E., *Determination of Static and Dynamic Stability Derivatives*. AFIT/GAE/ENY/08-M02. Faculty Advisor: Lt Col Raymond C. Maple. Sponsor: AFSEO.
- BOYER, BARTH H., *Creep-Rupture and Fatigue Behavior of a Notched Oxide/Oxide Ceramic Matrix Composite at Elevated Temperature*. AFIT/GAE/ENY/08-J01. Faculty Advisor: Dr. Shankar Mall. Sponsor: N/A.
- BROWNING, DAVID W., *Analysis of the EA-6B Power Trim Indicator (PTI) System*. AFIT/GAE/ENY/08-D04. Faculty Advisor: Dr. Paul I. King. Sponsor: NAVAIR.
- CHMIEL, AARON J., *Finite Element Simulation Methods for Dry Sliding Wear*. AFIT/GAE/ENY/08-M03. Faculty Advisor: Dr. Anthony N. Palazotto. Sponsor: AFOSR.
- CLAYCOMB, ABRAM E., *Extending CFD Modeling to Near-Continuum Flows Using Enhanced Thermophysical Modeling*. AFIT/GAE/ENY/08-M04. Faculty Advisor: Dr. Robert B. Greendyke. Sponsor: AFRL/RB.
- CROWE, DARRELL S., *Improving Beggar Interpolation Decisions Using Cell Volumes*. AFIT/GAE/ENY/08-M05. Faculty Advisor: Lt Col Raymond C. Maple. Sponsor: AFSEO.

DAVIDSON, RYAN J., *A Comparison Of Moiré Interferometry And Digital Image Correlation*. AFIT/GAE/ENY/08-M06. Faculty Advisor: Dr. Anthony N. Palazotto. Sponsor: AFRL/RX.

ELLIOTT, STEVEN J., *Thermodynamic Modeling of the Meyer Nutating Engine*. AFIT/GAE/ENY/08-M07. Faculty Advisor: Dr. Paul I. King. Sponsor: AFRL/RZ.

EVANS, DAVE S., *The Impact of Heat Release in Turbine Film Cooling*. AFIT/GAE/ENY/08-J02. Faculty Advisor: Dr. Paul I. King. Sponsor: AFRL/RZ.

FREDBERG, DANIEL E., *PIV-Based Examination of Deep Stall on an Oscillating Air Foil*. AFIT/GAE/ENY/08-M09. Faculty Advisor: Dr. Mark F. Reeder. Sponsor: AFRL/RB.

GARDENIER, HUGH E., *An Experimental Technique for Developing Intermediate Strain Rates in Ductile Metals*. AFIT/GAE/ENY/08-M10. Faculty Advisor: Dr. Anthony N. Palazotto. Sponsor: AFRL/RB.

GEISEL, CHRISTOPHER D., *Navigation Solutions to Enable Space Superiority Through the Repeated Intercept Mission from Highly Elliptical Orbits*. AFIT/GAE/ENY/08-M02. Faculty Advisor: Lt Col Nathan A. Titus. Sponsor: AFRL/RV.

GENELIN, CHRISTOPHER L., *Effects of Environment on Creep Behavior of Nextel 720/Alumina-Mullite Ceramic Composite at 1200°C*. AFIT/GAE/ENY/08-M11. Faculty Advisor: Dr. Marina B. Ruggles-Wrenn. Sponsor: AFRL/RZ.

GREENE, BARTT G., *Characterization and Control of Carbon Dioxide Seed Particle Image Velocimetry*. AFIT/GAE/ENY/08-M12. Faculty Advisor: Dr. Mark F. Reeder. Sponsor: AFRL/RB.

HALL, DAVID M., *Demonstrative Maneuvers for Aircraft Agility Predictions*. AFIT/GAE/ENY/08-M13. Faculty Advisor: Lt Col Christopher M. Shearer. Sponsor: NASIC.

HANKINS, TERRY B., *Laser Diagnostic System Validation and Ultra-Compact Combustor Characterization*. AFIT/GAE/ENY/08-M14. Faculty Advisor: Lt Col Richard D. Branam. Sponsor: AFOSR.

HAUSMAN, ALEXANDER R., *Direct Initiation through Detonation Branching in a Pulsed Detonation Engine*. AFIT/GAE/ENY/08-M17. Faculty Advisor: Dr. Paul I. King. Sponsor: AFRL/RZ.

JOHNSON, MICHAEL D., *Dynamic Supersonic Base Store Ejection Simulation Using Begger*. AFIT/GAE/ENY/08-D01. Faculty Advisor: Lt Col Raymond C. Maple. Sponsor: N/A.

KLATT, NATHAN D., *On-Board Thermal Management of Waste Heat from a High-Energy Device*. AFIT/GAE/ENY/08-M18. Faculty Advisor: Dr. Paul I. King. Sponsor: AFRL/RZ.

LAKUSTA, PATRICK J., *Laser-Induced Fluorescence and Performance Analysis of the Ultra-Compact Combustor*. AFIT/GAE/ENY/08-J03. Faculty Advisor: Lt Col Richard D. Branam. Sponsor: AFRL/RZ and AFOSR.

LEE, JASON K., *Analysis of Multi-Layered Materials Under High Velocity Impact Using CTH*. AFIT/GAE/ENY/08-M19. Faculty Advisor: Dr. Anthony N. Palazotto. Sponsor: AFRL/RW.

MARTIN, DAVID F., *Computational Design of Upperstage Chamber, Aerospike, and Cooling Jacket for Dual-Expander Rocket Engine*. AFIT/GAE/ENY/08-M20. Faculty Advisor: Lt Col Richard D. Branam. Sponsor: AFRL/RZ.

MASON, JONATHAN R., *Heat Transfer Due to Unsteady Effects as Investigated in a High-Speed, Full-Scale, Fully-Cooled Turbine Vane and Rotor Stage*. AFIT/GAE/ENY/08-J04. Faculty Advisor: Dr. Mark F. Reeder. Sponsor: AFRL/RZ.

MCLAREN, SCOTT A., *Velocity Estimate Following Air Data System Failure*. AFIT/GAE/ENY/08-M21. Faculty Advisor: Maj Paul A. Blue. Sponsor: TPS/ED.

MEENTS, STEVEN M., *Filtered Rayleigh Scattering Measurements in a Buoyant Flow Field*. AFIT/GAE/ENY/08-M22. Faculty Advisor: Dr. Mark F. Reeder. Sponsor: AFRL/RZ.

NAGLEY, ERIC A., *Fuel Composition Analysis of Endothermically Heated JP-8 Fuel for Use in a Pulse Detonation Engine*. AFIT/GAE/ENY/08-J08. Faculty Advisor: Dr. Paul I. King. Sponsor: AFRL/RZ.

PEARSON, LINDELL E., *Vibration Analysis of Commercial Thermal Barrier Coatings*. AFIT/GAE/ENY/08-J05. Faculty Advisor: Dr. Anthony N. Palazotto. Sponsor: AFRL/RZ.

PITCHER, NATHAN A., *A Static Aeroelastic Analysis of a Flexible Wing Mini Unmanned Aerial Vehicle*. AFIT/GAE/ENY/08-M23. Faculty Advisor: Lt Col Raymond C. Maple. Sponsor: AFRL/RB.

ROLAND, ISAAC, *An Experimental Investigation of Effect of Dimples on Turbine Adiabatic Film Cooling*. AFIT/GAE/ENY/08-M24. Faculty Advisor: Dr. Paul I. King. Sponsor: AFRL/RZ.

SALMOIRAGHI, AMANDA J., *Mission Planning Analysis for Selection of Optimal Constrained Relative Orbit Geometrics*. AFIT/GAE/ENY/08-D01. Faculty Advisor: Dr. Richard G. Cobb. Sponsor: AFRL/RV.

SHARMA, VIPUL, *Effects of Temperature and Steam Environment on Fatigue Behavior of Three SiC/SiC Ceramic Matrix Composites*. AFIT/GAE/ENY/08-S02. Faculty Advisor: Dr. Marina B. Ruggles-Wrenn. Sponsor: AFRL/RX.

SPEARES, STEVEN W., *Handling Qualities Evaluation of a Supersonic Tailless Air Vehicle*. AFIT/GAE/ENY/08-M25. Faculty Advisor: Maj Paul A. Blue. Sponsor: TPS/ED.

STRAIN, WILLIAM S., *Design of an Oxygen Turbopump for a Dual Expander Cycle Rocket Engine*. AFIT/GAE/ENY/08-M26. Faculty Advisor: Lt Col Richard D. Branam. Sponsor: AFRL/RZS.

SVANBERG, CRAIG E., *Biomimetic Micro Air Vehicle Testing Development and Small Scale Flapping-Wing Analysis*. AFIT/GAE/ENY/08-M27. Faculty Advisor: Dr. Mark F. Reeder. Sponsor: AFRL/RB.

TERNING, NATE A., *Real-Time Navigation and Flight Path Generation for Tracking Stop-and-Go Targets with Miniature Air Vehicles*. AFIT/GAE/ENY/08-M28. Faculty Advisor: Dr. Richard G. Cobb. Sponsor: AFRL/RV and AFRL/RB.

THURMAN, JAMES T., *Hall Thruster Plume Diagnostics Utilizing Microwave Interferometry*. AFIT/GAE/ENY/08-S03. Faculty Advisor: Lt Col Richard D. Branam. Sponsor: AFRL/RZ.

UNDERWOOD, ROMAN T., *Damage Detection Analysis Using Lamb Waves in Restricted Geometry for Aerospace Applications*. AFIT/GAE/ENY/08-M29. Faculty Advisor: Dr. Som R. Soni. Sponsor: DAGSI/AFRL.

VANTREASE, TROY H., *Development and Employment of a Semi-Autonomous Cursor on Target Navigation System for Micro Air Vehicles*. AFIT/GAE/ENY/08-J06. Faculty Advisor: Dr. Richard G. Cobb. Sponsor: AFRL/RV and AFRL/RB.

VILLARREAL, VAUGHN A., *Near Real-Time Battle Damage Assessment*. AFIT/GAE/ENY/08-J07. Faculty Advisor: Dr. David R. Jacques. Sponsor: 86thFWS.

WOJNAR, OLGIERD P., *A Constraint Based Approach for Building Operationally Responsive Satellites*. AFIT/GAE/ENY/08-M31. Faculty Advisor: Maj Eric D. Swenson. Sponsor: AFRL/RV.

5.1.2.2. ASTRONAUTICAL ENGINEERING (GA)

BOHNERT, ALEX M., *Thermal Characterization of a Hall Effect Thruster*. AFIT/GA/ENY/08-M01. Faculty Advisor: Lt Col Richard D. Branam. Sponsor: AFRL/RZ.

DERBIS, RACHEL M., *Modeling GPS Satellite Orbits Using KAM Tori*. AFIT/GA/ENY/08-M09. Faculty Advisor: Dr. William E. Wiesel. Sponsor: N/A.

GROB, DARRELL L., *Uncorrelated Track Avoidance*. AFIT/GA/ENY/08-M10. Faculty Advisor: Dr. William E. Wiesel. Sponsor: AFRL/RD.

KARASZ, WILLIAM J., *Optimal Re-entry Trajectory Terminal State Due to Variation in Waypoint Locations*. AFIT/GA/ENY/08-M11. Faculty Advisor: Dr. Richard G. Cobb. Sponsor: AFRL/RZ.

KESENEK, CEYLAN, *Contamination Study of Micro Pulsed Plasma Thrusters*. AFIT/GA/ENY/08-M03. Faculty Advisor: Lt Col Richard D. Branam. Sponsor: AFRL/RZ.

OWNBY, JOHN F., *The Effect of Elevated Temperature on the Fretting Fatigue Behavior of Nickel Alloy IN-100*. AFIT/GA/ENY/08-M04. Faculty Advisor: Dr. Shankar Mall. Sponsor: N/A.

SCHMUNK, MATTHEW M., *Initial Determination of Low Earth Orbits Using Commercial Telescopes*. AFIT/GA/ENY/08-M11. Faculty Advisor: Dr. Richard G. Cobb. Sponsor: NASIC.

TIRSI, SAKIR, *Characterizing the Exhaust Plume of the Micro Pulsed Plasma Thrusters by High Speed Imagery*. AFIT/GA/ENY/08-M05. Faculty Advisor: Lt Col Richard D. Branam. Sponsor: AFRL/RZ.

TOWNSEND, BRADLEY R., *Space Based Satellite Tracking and Characterization Utilizing Non-Imaging Passive Sensors*. AFIT/GA/ENY/08-M06. Faculty Advisor: Lt Col Nathan A. Titus. Sponsor: N/A.

WARNER, DUSTIN J., *Advanced Cathodes for Next Generation Electric Propulsion Technology*. AFIT/GA/ENY/08-M07. Faculty Advisor: Lt Col Richard D. Branam. Sponsor: AFRL/RZ.

WRIGHT, JONATHAN W., *Minimizing Secular J2 Perturbation Effects on Satellite Formations*. AFIT/GA/ENY/08-M08. Faculty Advisor: Lt Col Nathan A. Titus. Sponsor: AFRL/RV.

YELESER, TUFAN, *Creep Behavior of Oxide/Oxide Composites with Monazite Fiber Coating at 1100°C in Air and in Steam Environments*. AFIT/GA/ENY/08-S01. Faculty Advisor: Dr. Marina B. Ruggles-Wrenn. Sponsor: AFRL/RX.

5.1.2.3. MATERIALS AND SCIENCE ENGINEERING (GMS)

HARDER, BENJAMIN T., *Evaluation of Nanocomposites as Lightweight Electronic Enclosures for Satellites' Applications*. AFIT/GMS/ENY/08-J01. Faculty Advisor: Dr. Shankar Mall. Sponsor: N/A.

5.1.2.4. SPACE SYSTEMS (GSS)

CERNY, TROYA., *Discrete Event Simulation of a Suppression of Enemy Air Defenses (SEAD) Mission*. AFIT/GSS/ENV/08-M01. Faculty Advisor: Lt Col Kent C. Halverson. Sponsor: N/A.

CHISM, JASON C., *Space Doctrine and Supporting Space Situational Awareness Tools*. AFIT/GSS/ENY/08-J01. Faculty Advisor: Dr. Richard G. Cobb. Sponsor: AFSPC.

GULMUS, MESUT, *Determining the Capability Requirements for a Space Based Optical Sensor to Determine the Trajectory of an Incoming Antisatellite Weapon*. AFIT/GSS/ENY/08-M03. Faculty Advisor: Lt Col Kerry D. Hicks. Sponsor: N/A.

KAHRAMAN, MESUT OZKAN, *A Constraint Based Approach for Building Operationally Responsive Satellites.* AFIT/GSS/ENY/08-S02. Faculty Advisor: Maj Eric D. Swenson. Sponsor: N/A.

KAYA, EMRE, *Crew Exploration Vehicle (CEV) Skip Entry Trajectory.* AFIT/GSS/ENY/08-M06. Faculty Advisor: Lt Col Kerry D. Hicks. Sponsor: N/A.

5.1.2.5. SYSTEMS ENGINEERING (GSE)

ERICSON, DOUGLAS A., *Systems Engineering Analysis for the Development of the Fleeting Target.* AFIT/GSE/ENY/08-M06. Faculty Advisor: Dr. David R. Jacques. Sponsor: AFRL/RV and AFRL/RB.

5.1.3. FUNDED RESEARCH PROJECTS

Note: Research Center affiliations are listed in [] if applicable.

BLACK, JONATHAN T.

“Hybrid Laser/Video 3D Non-Contact Motion Capture and Analysis.” Sponsor: AFOSR. Funding: \$120,000.

BLUE, PAUL A., Maj

“Planning, Guidance, and Control for Multiple UAV Cooperative Operations.” Sponsor: AFRL/RB. Funding: \$35,000. [ANT]

BRANAM, RICHARD D., Lt Col

“AFIT Space and Rocket Propulsion Research.” Sponsor: AFRL/RZ. Funding: \$75,000.

“Coaxial Rocket Injection Instability.” Sponsor: AFOSR. Funding: \$7,020.

“Synthetic Jet Fuel in the Ultra Compact Combustor.” Sponsor: AFRL/RZ. Funding: \$40,000.

“Ultra Compact Combustor Cavity Vane Interactions.” Sponsor: AFOSR. Funding: \$42,469.

CANFIELD, ROBERT A.

“F-16 Ventral Fin Buffet Alleviation Using Piezoelectric Actuators.” Sponsor: USAF TPS. Funding: \$70,634.

“Large Scale Optimization via Reduced Sub-Space Multipoint Approximations.” Sponsor: AFOSR. Funding: \$26,987.

“Nonlinear Gust Response via Direct, Least-Squares Formulation.” Sponsor: AFRL/RB. Funding: \$18,000.

“Tools for Conceptual Design and Engineering Analysis of Micro Air Vehicles.” Sponsor: DAGSI. Funding: \$18,700.

COBB, RICHARD G.

“Systems Engineering Support for Urgent Needs Efforts.” Sponsor: AFRL/RV. Funding: \$35,000. [ANT]

GREENDYKE, ROBERT B.

“Development of Couple Flowfield – Radiation Solution Methods in Ablative Environments.” Sponsor: AFOSR. Funding: \$19,499.

“Reusable Launch Vehicle Flight Aerodynamics with High Fidelity Hypersonic Flowfield Solvers.” Sponsor: AFRL/RB. Funding: \$35,000.

HUFFMAN, RICHARD E., Maj

“Airborne Application of Gravity Gradiometry for Navigation.” Sponsor: AFRL/RW. Funding: \$7,500. [ANT]

“Airborne Application of Gravity Gradiometry for Navigation.” Sponsor: AFRL/RW. Funding: \$7,500. [ANT]

KING, PAUL I.

“Pulse Detonation Engine Wave Propagation Studies.” Sponsor: AFRL/RZ. Funding: \$10,000.

KUNZ, DONALD L.

“Dynamics Modeling and Simulation of Automated Aerial Refueling.” Sponsor: AFRL/RB. Funding: \$18,000.

“High-Fidelity Aeroelastic Analysis for Flexible-Wing MAV’s.” Sponsor: AFOSR. Funding: \$19,125.

“Physics-Based Approach to Helicopter Rotor Smoothing.” Sponsor: US ARMY RDECOM. Funding: \$15,000.

MALL, SHANKAR

“Nanocomposites as Lightweight Electronic Enclosures for Satellites’ Applications.” Sponsor: SAF. Funding: \$24,000.

MAPLE, RAYMOND C., Lt Col

“Computational Modeling of Store Trajectories.” Sponsor: 746 SK. Funding: \$15,000.

“Fluid-Structure Interaction in Low Reynolds Number Flapping Wing Flight.” Sponsor: AFRL/RB. Funding: \$8,515.

PALAZOTTO, ANTHONY N.

“Development of a New Technique for Determining the Strain Dependent Damping and Stiffness Characteristics of Hard Coatings.” Sponsor: AFRL/RZ. Funding: \$31,000.

“Evaluation of Nonlinear Movement in Micro Air Vehicles.” Sponsor: AFRL/RB. Funding: \$29,500.

“Hypervelocity Impact Gouge Mitigation and Wear Prediction.” Sponsor: AFOSR. Funding: \$100,000.

REEDER, MARK F.

“Characterization of Flapping-Wing Micro Air Vehicle Kinematics.” Sponsor: AFRL/RB. Funding: \$30,000.

“Continued Investigation of ‘Clean Seeding’ Methods for Particle Image Velocimetry in Closed Circuit Wind Tunnels.” Sponsor: AFRL/RB. Funding: \$5,000.

“Low Temperature Ablation Experiments and Analysis.” Sponsor: AFRL/RB. Funding: \$22,500.

RUGGLES-WRENN, MARINA B.

“Effect of Dense Monazite Fiber Coating on Mechanical Behavior of an Oxide-Oxide Ceramic Matrix Composite at Elevated Temperatures in Air and Steam Environment.” Sponsor: AFRL/RZ. Funding: \$7,000.

“Effects of Steam Environment on Mechanical Behavior of SiC/SiC Ceramic Matrix Composites at Elevated Temperatures.” Sponsor: AFRL/RX. Funding: \$10,000.

“Fiber Metal Laminate (FML) as Replacement Structure for Sustainment.” Sponsor: AFRL/RB. Funding: \$34,456.

“Time (Rate) – Dependent Behavior of a Shape Memory Polymer Matrix Composite at Elevated Temperatures.” Sponsor: AFRL/RX. Funding: \$5,000.

SHEARER, CHRISTOPHER M., Lt Col

“Flight Dynamics and Control of High Altitude Long Endurance Aircraft.” Sponsor: AFRL/RB. Funding: \$15,000.

5.1.4. REFEREED JOURNAL PUBLICATIONS

Note: Research Center affiliations are listed in [] if applicable.

BLACK, JONATHAN T.

Black, Jonathan T.; Smith, Suzanne Weaver; Leifer, Jack; and Larry J. Bradford, “Local Testing and Reduced Model Validation of Thermal-Formed Thin Film Polyimide Panels,” *Mechanical Systems and Signal Processing*, Vol. 22, Iss. 6, Aug. 2008, pp. 1412–1426.

Black, Jonathan T.; Smith, Suzanne Weaver; Leifer, Jack; and Larry J. Bradford, “Experimental Characterization and Modeling of Dynamic Behavior of Semi-Rigid Thin Film Polyimide Panels,” *Journal of Guidance, Control, and Dynamics*, Vol. 31, No. 3, May – Jun. 2008, pp. 490-500.

Leifer, Jack; Black, Jonathan T.; Smith, Suzanne Weaver; Ma, Ning; and Janet K. Lumpp, “Measurement of In-Plane Motion of Thin-Film Structures Using Videogrammetry,” *Journal of Spacecraft and Rockets*, Vol. 44, No. 6, Nov. – Dec. 2007, pp. 1317-1325.

CANFIELD, ROBERT A.

Kim, Y. I.; Park, G. J.; Kolonay, R. M.; Blair, M.; and Canfield, R.A. (2008), “Nonlinear Response Structural Optimization of a Joined-Wing Using Equivalent Loads,” *AIAA Journal*, Vol. 46, No. 11, November 2008.

Canfield, Robert A.; Morgenstern, Shawn D.; and Kunz, Donald L. (2008), “Alleviation of Buffet-Induced Vibration Using Piezoelectric Actuators,” *International Journal of Computers & Structures*, (<http://dx.doi.org/10.1016/j.compstruc.2007.02.027>), Volume 86, Issues 3-5, February 2008, Pages 281–291.

Rasmussen, Cody C.; Canfield, Robert A.; and Blair, Maxwell, “Optimization Process for Configuration of Flexible Joined-Wing,” accepted December 2007, in press for *Journal of Structural and Multidisciplinary Optimization*.

COBB, RICHARD G.

Jorris, T. R. and Cobb, R. G. “Multiple Method 2-D Trajectory Optimization Satisfying Waypoints and No-Fly Zone Constraints”, *AIAA Journal of Guidance, Control and Dynamics*, Vol 31, No 3, pp 543-553, May-June 2008.

Jorris, T. R. and Cobb, R. G. “3-D Trajectory Optimization Satisfying Waypoints and No-Fly Zone Constraints”, Accepted for publication in *AIAA Journal of Guidance, Control and Dynamics*, July 2008.

Shepherd, M. J., Cobb, R. G., Palazotto, A. N, and Baker, W. P., “Modal Transformation Method for Deformable Membrane Mirrors”, Accepted for publication in *AIAA Journal of Guidance, Control and Dynamics*, Apr 2008.

KING, PAUL I.

Johnson, J.J., King, P.I., Clark, J.P., “Low-Heat-Load-Vane Profile Optimization, Part I: Code Validation and Airfoil Redesign,” *AIAA Jnl. Propulsion and Power*, Vol. 24, No. 3, May-June 2008, pp.395-402.

Johnson, J.J., King, P.I., Clark, J.P., Flanagan, M.J. and Lemaire, R.P., "Low-Heat-Load-Vane Profile Optimization, Part II: Short-Duration Shock-Tunnel Experiments," *AIAA Jnl. Propulsion and Power*, Vol. 24, No. 3, May-June 2008, pp. 403-409.

Gruber, M.R., Carter, C.D., Montes, D.R., Haubelt L.C., King, P.I., and Hsu, K-Y, "Experimental Studies of Pylon-Aided Fuel Injection into a Supersonic Crossflow," *AIAA Jnl. Propulsion and Power*, Vol. 24, No. 3, May-June 2008, pp. 460-409.

KUNZ, DONALD L.

Miller, N.A. and Kunz, D.L., "A Comparison of Main Rotor Smoothing Adjustments Using Linear and Neural Network Algorithms," *Journal of Sound and Vibration*, Vol. 311, No. 3-5, April 2008, pp. 991-1003.

Canfield, R.A., Morganstern, S.D. and Kunz, D.L., "Alleviation of Buffet-Induced Vibration Using Piezoelectric Actuators," *Computers and Structures*, Vol. 86, No. 3-4, February 2008, pp. 281-291.

LOFTHOUSE, ANDREW J., Maj

A. J. Lofthouse, L. C. Scalabrin and I. D. Boyd, "Velocity Slip and Temperature Jump in Hypersonic Aerothermodynamics," *J. Thermophys. Heat Trans.*, 22(1), p. 38, Jan 2008.

MALL, SHANKAR

Mall, S., Jin, O., Yuskel, H. and Calcaterra, J. R., "Fretting Fatigue Behavior of Shot-Peened Ti-6Al-4V," *The Arabian Journal for Science and Engineering*, Vol. 31, 49-62, 2007.

Mall, S. and Cunningham, S. R., "Fatigue Behavior of Integrally Fabricated Joints between Titanium Matrix Composite and Titanium alloy", *Composite Structures*, Vol. 80, 65-72, 2007.

Sabelkin, V., Mall, S., Hansen, M. A., Vandawaker, R. M. and M. Derriso, M., "Investigation into Cracked Aluminum Plate Repaired with Bonded Composite Patch", *Composite Structures*, Vol. 79, 55-66, 2007.

Sabelkin, V. and Mall, S., "Elastic-Plastic Multi-Asperity Contact Analysis of Cylinder-on-Flat Configuration", *Journal of Tribology*, Vol. 129, 292-304, 2007.

Lee, H., Mall, S., Sanders, J. H., Sharma S. K. and Magaziner, R. S., "Characterization of Fretting Wear Behavior of Cu-Al Coating on Ti-6Al-4V Substrate," *Tribol. Int.*, Vol. 40, 1301-1310, 2007.

Lee, H., Mall, S., He, P., Shi, D., Narasimhadevara, S., Yun, Y., Shanov, V. and M. Schulz, M., "Characterization of Carbon Nanotube/nanofiber Reinforced Polymer Composites using an Instrumented Indentation Technique," *Composites Part B*, Vol. 38, 58-65, 2007.

Wang, R. H., Jain V. K. and Mall, S., "A Non-Uniform Friction Distribution Model for Partial Slip Fretting Contact", *Wear*, Vol. 262, 607-616, 2007.

Sabelkin, V. and Mall, S., "Investigation into Cylinder-on-Flat Adhesion Elastic-Plastic Micro-Contact under Repeated Loading and Unloading Condition", *International Journal of Mechanics and Materials in Design*, Vol. 3-4, 373-388, 2007.

Lee, H., Mall, S., and Murray, "Fretting Wear Behavior of Cu-Al Coating on Ti-6Al-4V Substrate under Dry and Wet Contact Condition", *Tribology Letters*, Vol. 1028, 19-25, 2007.

Chen, L., Lee, H., Guo, Z.J., McGruer, N.E., Gilbert, K.W., Mall, S., Leedy, K.D., Adams, G.G., "Contact Resistance Study of Noble Metals and Alloy Films using a Scanning Probe Microscope Test Station", *Journal of Applied Physics*, Vol. 102, 102-109, 2007.

Jin, O., Mall, S., Sanders, J. H. and Sharma, S. K., C.H. Hager, "Fretting Fatigue Behavior of Cu-Al Coated Ti-6Al-4V", *Tribology Transactions*, Vol. 50, 1-10, 2007.

PALAZOTTO, ANTHONY N.

Yin, S. and Palazotto, A., "Damage Mechanics Incorporating Two Back Stress Kinematic Hardening Constitutive Models", *J. Engr. Fracture Mechanics*, Vol. 74, pp 2844-2863, 2007.

Pai, F. and Palazotto, A., "Two-dimensional Sublamination Theory for Analysis of Functionally Graded Plates", *J. of Sound and Vibration*, Vol. 308, pp 164-189, 2007.

Shepherd, M. Cobb, R., Peterson, G., and Palazotto, A., "Quasi-static Optics Based Surface Control of an In-Plane Actuated Membrane Mirror", *AIAA J. of Spacecraft and Rockets*, Vol. 44, No. 4, pp 953-963, 2007.

Fredrickson, B., Schoeppner, G., Mollenhauer, D., and Palazotto, A., "Application of Three-dimensional Spline Variational Analysis for Composite Repair", *J. of Composite Structures*, Vol. 83, pp. 119-130, 2008.

Cinnamon, J., Palazotto, A. and Szmerekovsky, A., "Further Refinement and Validation of Material Models for Hypervelocity Gouging Impacts", *AIAA Journal*, Vol. 46, No. 2, pp 317-327, 2008.

Voyiadjis, G., Abu Al-Rub, R., and Palazotto, A., "Constitutive Modeling and Simulation of Perforation of Targets by Projectiles", *AIAA Journal*, Vol. 46, No. 2, pp 304-316, 2008.

Yin, S. and Palazotto, A., "Plastic Deformation Under Cyclic Loading Using Two Back Stress Hardening Models", *Intl. J. of Fatigue*, Vol. 30, pp 473-482, 2008.

Pai, F. and Palazotto, A., "Detection and Identification of Nonlinearities by Amplitude and Frequency Modulation Analysis", *J. Mechanical Systems and Signal Processing*, Vol. 22, pp 1107-1132, 2008.

Cameron, G., and Palazotto, A., "An Evaluation of High Velocity Wear", *J. of Wear*, Vol. 265, pp 1066- 1075, 2008.

Voyiadjis, G., Aknasru, A., and Palazotto, A., "A Physically Based Constitutive Model for FCC Metals with Applications to Dynamic Hardness", published in *Continuum Models and Discrete Systems*, editors Dominique Jeulin and Samuel Forest, Mines Paristech Les Presses , pp 213-222, 2008.

REEDER, MARK F.

Rivera Parga, J., Reeder, M.F., Leveron, T., Blackburn, K., "An Experimental Study of a Micro Air Vehicle with a Rotatable Tail," *AIAA Journal of Aircraft*, Vol. 44, No. 6, pp. 1761-1768, November 2007.

Reeder, M.F., Allen, W., Phillips, J.M., & Dimmick, R., "Wind Tunnel Measurements of the E- 8C Modeled With and Without Winglets," *AIAA Journal of Aircraft*, Vol. 45, No. 1, pp. 345-348, January 2008.

RUGGLES-WRENN, MARINA B.

Ruggles-Wrenn, M.B., Siegert, G.T., and S. S. Baek, "Creep Behavior of Nextel™720/Alumina Ceramic Composite with ±45° Fiber Orientation at 1200 °C", *Composites Science and Technology*, Vol. 68, No. 6, 2008, pp. 1588-1595.

Ruggles-Wrenn, M.B., Hetrick, G., and S. S. Baek, "Effects of Frequency and Environment on Fatigue Behavior of an Oxide-Oxide Ceramic Composite at 1200 °C", *International Journal of Fatigue*, Vol. 30, No. 3, 2008, pp. 502-516.

Ruggles-Wrenn, M. B., and Braun, J. C., "Effects of Steam Environment on Creep Behavior of Nextel™720/ Alumina Ceramic Composite at Elevated Temperature", *Materials Science and Engineering A*, Vol. 497, No. 1-2, 2008, pp. 101-110.

McClung, A. J. W., and Ruggles-Wrenn, M. B., “The Rate (Time) – Dependent Mechanical Behavior of the PMR-15 Thermoset Polymer at Elevated Temperature”, *Polymer Testing*, Vol. 27, 2008, pp. 908-914.

Ruggles-Wrenn, M. B., Radzicki, A. T., Baek, S. S., and Keller, K. A., “Effect of Loading Rate on the Monotonic Tensile Behavior and Tensile Strength of Oxide-Oxide Ceramic Matrix Composite at 1200 °C”, *Materials Science and Engineering A*, Vol. 492, No. 1-2, 2008, pp. 88-94.

Ruggles-Wrenn, M. B., and Laffey, P. D., “Creep Behavior in Interlaminar Shear of Nextel™720/ Alumina Ceramic Composite at Elevated Temperature in Air and in Steam”, *Composites Science and Technology*, Vol. 68, No. 10-11, 2008, pp. 2260-2266.

Ruggles-Wrenn, M. B., Koutsoukos, P., and Baek, S. S., “Effects of Environment on Creep Behavior of Two Oxide-Oxide Ceramic Matrix Composites at 1200 °C”, *Journal of Materials Science*, Vol. 43, No. 20, 2008, pp. 6734-6746.

Ruggles-Wrenn, M. B., and Broeckert, J. L., “Effects of Prior Aging at 288 °C in Air and in Argon Environments on Creep Response of PMR-15 Neat Resin”, *Journal of Applied Polymer Science*, Vol. 111, No. 1, 2008, pp. 228-236.

Ruggles-Wrenn, M. B., and Szymczak, N. R., “Effects of Steam Environment on Compressive Creep Behavior of Nextel™720/Alumina Ceramic Composite at 1200 °C”, *Composites Part A: Applied Science and Manufacturing*, in press, available on journal website 19 September 2008.

TORVIK, PETER J.

Nashif, A., P. Torvik, U. Desai, J. Hansel, and J. Henderson, “Increasing Gas Turbine Blade Damping through Inclusion of Cavities filled with Viscoelastic Materials,” *Journal of Propulsion and Power (AIAA)*, Vol. 24, No. 4, pp. 741-750, July-August 2008.

5.1.5. REFEREED CONFERENCE PUBLICATIONS

Note: Research Center affiliations are listed in [] if applicable.

CONFERENCE PAPERS ACCEPTED ON THE BASIS OF FULL PAPER REVIEW

REEDER MARK F.

Polanka, M., Anthony, R., Bogard, D., and Reeder, M., “Determination of Cooling Parameters for a High Speed, True Scale, Metallic Turbine Vane Ring,” GT2008-50281, ASME Gas Turbine Technical Congress and Exposition 2008, Berlin, Germany, 9-13 June 2008.

RUGGLES-WRENN, MARINA B.

Genelin, C. L., and Ruggles-Wrenn, M. B., “Effects of Environment on Creep Behavior of Nextel™720/Alumina-Mullite Ceramic Composite at 1200 °C”, *Proceedings of the Materials Science and Technology (MS&T) 2008 Conference and Exhibition*, October 6-9, 2008, Pittsburgh, PA, USA.

McClung, A. J. W., and Ruggles-Wrenn, M. B., “Strain Rate Dependence and Short-Term Relaxation Behavior of a Thermoset Polymer at Elevated Temperature: Experiment and Modeling”, *Proceedings of the ASME 2008 Pressure Vessel and Piping Conference*, July 27-31, 2008, Chicago IL, USA.

Szymczak, N. R., and Ruggles-Wrenn, M. B., “Compressive Creep Behavior of Nextel™720/Alumina Ceramic Composite at 1200 °C in Air and in Steam Environment”, *Proceedings of the 32nd International Conference & Exposition on Advances Ceramics & Composites*, January 27- February 1, 2008, Daytona Beach FL, USA.

Braun, J. C., and Ruggles-Wrenn, M. B., “Effects of Temperature and Environment on Creep Behavior of an Oxide-Oxide Ceramic Composite”, *Proceedings of the 32nd International Conference & Exposition on Advances Ceramics & Composites*, January 27- February 1, 2008, Daytona Beach FL, USA.

Siegert, G.T., Ruggles-Wrenn, M. B., Baek, S. S., "Effects of Environment on Creep Behavior of an Oxide-Oxide Ceramic Composite with $\pm 45^\circ$ Fiber Orientation at 1200 °C", *Mechanical Properties and Performance of Engineering Ceramics and Composites III*, E. Lara-Curzio, J. Salem and D. Zhu, eds., ACERS, Wiley Interscience, 2007, pp. 163-177.

Hetrick, G., Ruggles-Wrenn, M. B., Baek, S. S., "Effects of Frequency on Fatigue Behavior of an Oxide-Oxide Ceramic Composite at 1200 °C", *Mechanical Properties and Performance of Engineering Ceramics and Composites III*, E. Lara-Curzio, J. Salem and D. Zhu, eds., ACERS, Wiley Interscience, 2007, pp. 119-134.

SHEARER, CHRISTOPHER M., Lt Col

Hall, D., Shearer, C.M., "Demonstrative Maneuvers for Aircraft Agility Prediction," *AIAA Guidance, Navigation, and Control Conference and Exhibit*, 18-21 Aug, 2008, Honolulu, HI, USA.

Devuono, A., Shearer, C.M., "Flight Dynamic Response of HALE Aircraft to KC-135 Flowfield," *AIAA Guidance, Navigation, and Control Conference and Exhibit*, 18-21 Aug, 2008, Honolulu, HI, USA.

CONFERENCE PAPERS ACCEPTED ON THE BASIS OF REVIEWED ABSTRACT

BLACK, JONATHAN T.

Black, J.T., Swenson, E.D., and L. George, "Extracting 3D Mode Shapes of FalconSAT-5 Structural Engineering Model," 49th AIAA/ASME/ASCE/AHS/ASC Conference on Structures, Structural Dynamics and Materials, Schaumburg, IL, Apr. 2008, AIAA Paper 2008-1851.

Black, J., Leifer, J., and S.W. Smith, "Global Static Testing and Model Validation of Thermal-Formed Thin Film Polyimide Panels," 49th AIAA/ASME/ASCE/AHS/ASC Conference on Structures, Structural Dynamics and Materials, 8th Gossamer Spacecraft Forum, Schaumburg, IL, Apr. 2008, AIAA Paper 2008-2137.

Black, J., Leifer, J., and S.W. Smith, "Global Static Testing and Model Validation of Thermal-Formed Thin Film Polyimide Panel-Arrays," 49th AIAA/ASME/ASCE/AHS/ASC Conference on Structures, Structural Dynamics and Materials, 8th Gossamer Spacecraft Forum, Schaumburg, IL, Apr. 2008, AIAA Paper 2008-2215.

BRANAM, RICHARD D., Lt Col

McCall, J. and Branam, R., "Effect of Radial Curvature in Rockets on Film Cooling Adiabatic Effectiveness and Jet Width," Proceedings of ASME 2008 International Mechanical Engineering Congress and Exposition, October 31-November 6, 2008, Boston, USA.

Kesenek, C. and R. Branam. "Contamination Study of Micro Pulsed Plasma Thrusters," AIAA Aerospace Sciences Conference, Reno, NV 7-10 January 2008.

Tirsi, S. and R. Branam. "Characterizing the Exhaust Plume of the Micro Pulsed Plasma Thrusters by High Speed Imagery," AIAA Aerospace Sciences Conference, Reno, NV 7-10 January 2008.

Warner, D. and R. Branam. "Comparison of Plasma Properties for a Dispenser and Lanthanum Hexaboride Hollow Cathode," AIAA Aerospace Sciences Conference, Reno, NV 7-10 January 2008.

Claycomb A., Carr R., Camberos, J. Branam, R. and Greendyke, R. "Extending the Validity of the Navier-Stokes Equations by Modifying the Constitutive Relations for Non-Equilibrium," AIAA Aerospace Sciences Conference, Reno, NV 7-10 January 2008.

Carr, R., Camberos, J. and Branam, R., "Modifying the Continuum Constitutive Relations for Non-Equilibrium Using Entropy Generation," DSMC: Theory, Methods and Applications, Santé Fe, NM 30 September – 3 October 2007.

CANFIELD, ROBERT A.

- Bond, Vanessa; Canfield, Robert A.; Blair, Maxwell; and Suleman, Afzal, "Aeroelastic Scaling of the Goland Wing for Verification on a Joined-Wing Aircraft," AIAA-2008-6073, 12th AIAA/ISSMO Multidisciplinary Analysis and Optimization Conference, Victoria, British Columbia, September 12, 2008.
- Roberts, Ronald; and Canfield, Robert A., "Large- Scale Multidisciplinary Validation of Enriched Multipoint Cubic Approximations," AIAA-2008-5800, 12th AIAA/ISSMO Multidisciplinary Analysis and Optimization Conference, Victoria, British Columbia, September 11, 2008.
- Wickert, Douglas; Canfield, Robert A.; and Reddy J.N., "Continuous Sensitivity Analysis of Fluid-Structure Interaction Problems using Least-Squares Finite Elements," AIAA-2008-5931, 12th AIAA/ISSMO Multidisciplinary Analysis and Optimization Conference, Victoria, British Columbia, September 11, 2008.
- Rasmussen, Cody; Canfield, Robert A.; and Reddy J.N., "Advantages and Disadvantages of a Simultaneously Coupled Least-Squares Finite Element Formulation for Fluid- Structure Interaction," AIAA-2008-5859, 12th AIAA/ISSMO Multidisciplinary Analysis and Optimization Conference, Victoria, British Columbia, September 10, 2008.
- Bond, Vanessa; Canfield, Robert A.; Cooper, Jonathan; and Blair, Maxwell, "Aeroelastic Scaling for a Static Nonlinear Response of a Joined- Wing Aircraft ," AIAA-2008-5849, 12th AIAA/ISSMO Multidisciplinary Analysis and Optimization Conference, Victoria, British Columbia, September 10, 2008.
- Rasmussen, Cody; Canfield, Robert; and Reddy, J.N., "Nonlinear Transient Gust Response Using a Fully-Coupled Least- Squares Finite Element Formulation," AIAA-2008-1821, 49th AIAA/ASME/ASCE/AHS/ASC Structures, Structural Dynamics, and Materials Conference, Schaumburg, Illinois, April 7–10, 2008.
- Wickert, Doug; Roberts, Ronald; and Canfield, Robert, "Least-Squares Continuous Sensitivity Equations for a Plate with an Elliptical Hole," AIAA-2008-1797, 49th AIAA/ASME/ASCE/AHS/ASC Structures, Structural Dynamics, and Materials Conference, Schaumburg, Illinois, April 7–10, 2008.
- Wickert, Doug; and Canfield, Robert, "Least-Squares Continuous Sensitivity Calculations of a Nonlinear, Transient Aeroelastic Problem," AIAA-2008-1896, 49th AIAA/ASME/ASCE/AHS/ASC Structures, Structural Dynamics, and Materials Conference, Schaumburg, Illinois, April 7–10, 2008.
- Roberts, Ronald; and Canfield, Robert, "Enriched Multipoint Cubic Approximations for Large Scale Optimization," AIAA-2008-2146, 49th AIAA/ASME/ASCE/AHS/ASC Structures, Structural Dynamics, and Materials Conference, Schaumburg, Illinois, April 7–10, 2008.
- Park, G.J.; Kim, Y.; Kolonay, Raymond; Blair, Maxwell; and Canfield, Robert, "Nonlinear Dynamic Response Structural Optimization of a Joined- Wing Using Equivalent Static Loads," AIAA-2008-2159, 49th AIAA/ASME/ASCE/AHS/ASC Structures, Structural Dynamics, and Materials Conference, Schaumburg, Illinois, April 7–10, 2008.

GREENDYKE, ROBERT B.

- Claycomb, A., Greendyke, R.B., "Extending CFD Modeling to the Transition Regime by Enhanced Thermophysical Modeling," 40th AIAA Thermophysics Conference, Seattle, WA, June 2008.
- Camberos, J.A., Greendyke, R.B., Lambe, L.A., "On Direct Simulation Quasi-Monte Carlo Methods", 40th AIAA Thermophysics Conference, Seattle, WA, June 2008.
- Callaway, D.W., Reeder, M.F., Greendyke, R.B., "Experimental Studies of Low Temperature Ablation Using Dry Ice", 15th AIAA International Space Planes and Hypersonic Systems and Technologies Conference, Dayton, OH, April, 2008.

Claycomb, A., Greendyke, R., Carr, R., Camberos, J., and Branam, R. "Extending the Validity of the Navier-Stokes Equations by Modifying the Constitutive Relations for Nonequilibrium," AIAA Paper 2008-1264, Reno, NV, January 2008.

KUNZ, DONALD L.

Kunz, D.L. and Newkirk, M.C., "A Generalized Dynamic Balancing Procedure for the AH-64 Tail Rotor," AHS International 64th Annual Forum and Technology Display, Montreal, Quebec, Canada, April 2008.

Kunz, D.L. "Validation of a Generalized Direct Approach for Analysis of Multibody Dynamic Systems," 49th AIAA/ASME/ASCE/AHS/ASC Structures, Structural Dynamics, and Materials Conference, Schaumburg, Illinois, April 2008.

McClung, A.M., Maple, R.C., Kunz, D.L., and Beran, P.S., "Examining the Influence of Structural Flexibility on Flapping Wing Propulsion," 49th AIAA/ASME/ASCE/AHS/ASC Structures, Structural Dynamics, and Materials Conference, Schaumburg, Illinois, April 2008.

Newkirk, M.C. and Kunz, D.L., "Investigation of AH-64 Tail Rotor Balancing Issues," AHS Specialists' Conference on Aeromechanics, San Francisco, California, January 2008.

MALL, SHANKAR

Mall, S. and Lee, H., Fretting Fatigue Wear Behavior of Cu-Al Coating on Titanium alloy Substrate, Proceedings of the STLE/ASME International Joint Tribology Conference, October 22-24, 2007, San Diego, CA.

Mall, S., Ng, J. L. and Madhi, E., "Fretting Fatigue Behavior of Shot-Peened Ti-6Al-4V and IN100", Seventh International ASTM/ESIS Symposium on Fatigue and Fracture Mechanics to be held in Tampa, Florida, USA, on November 14-16, 2007.

Mall, S., Ahn, J-M., "Effects of Cyclic Frequency on the Fatigue Behavior of an Oxide/oxide Composite", 32nd International Conference and Exposition on Advanced Ceramics and Composites, January 27 - 31, 2008, Daytona Beach, Florida.

Katwyk, D. W., Mall, S., Bolick, R., Kelkar, A. D. and Davis, D. C., "Tension-Compression Fatigue Behavior of IM7/Epon 862 Fabricated using VARTM Process", Proceeding of AIAA/ASME/ASCE/AHS/ASC, Structures, Structural Dynamics and Material Conference, 4-9 April 2008, Chicago, IL.

REEDER, MARK F.

Callaway, D., Reeder, M., Greendyke, R., Experimental Studies of Low Temperature Ablation Using Dry Ice, AIAA Paper 2008-2554, 15th AIAA International Space Planes and Hypersonic Systems and Technologies Conference, Dayton, OH April 28-May 1, 2008.

Greene, B., Reeder, M., Crafton, J., Characterizing Dry Ice Particle Response for Clean Seeding PIV Applications, 26th AIAA Aerodynamic Measurement Technology and Ground Testing Conference, Seattle, WA, 23-26 June 2008.

SWENSON, ERIC, D., Lt Col

Roman T. Underwood, Eric D. Swenson, and Som R. Soni, "Structural Health Monitoring of Aerospace Applications with Restricted Geometry," Proceedings of SPIE's 15th International Symposium on Smart Structures and Materials, March 2008, San Diego, CA.

Jonathan T. Black, Lynnane George, and, Eric D. Swenson, "Measuring and Modeling 3D Mode Shapes of FalconSAT-5 Structural Engineering Model", 49th AIAA/ASME/ASCE/AHS/ASC Structures, Structural Dynamics, and Materials, 7 - 10 April 2008, Schaumburg, IL.

TORVIK, PETER J.

Tovik, P. J., "Coatings for Enhanced Passive Damping," (invited paper) *Proceedings, 32nd International Conference & Exposition on Advanced Ceramics & Composites*, Daytona Beach, Jan 27-Feb 1, 2008.

WIESEL, WILLIAM E.

W. Wiesel, "KAM Tori Construction Algorithms", *Advanced Maui Optical Space Surveillance Conference*, Wiliea, Maui, Hawaii, September 2008.

5.1.6. SUBSTANTIAL CONSULTATIONS

HARMON, FREDERICK G., Lt Col

Harmon, Frederick G, Heavy Fuel Engine testing, AFRL/Center for Rapid Product Development (CRPD), assisted CRPD in fabricating wiring harnesses and a test stand to run initial tests on a D-Star Engineering heavy fuel engine, an undergraduate intern (Ohio Space Grant) helped with the testing in the summer of 2008.

Harmon, Frederick G., Route Surveillance team, AFRL/Center for Rapid Product Development (CRPD), one of the faculty "advisors" for the route surveillance team. The team consists of aeronautical engineering, electrical engineering, and systems engineering students. Helped support the flight tests in May 08 at Camp Atterbury.

HUFFMAN Jr., RICHARD E., Maj

Huffman Jr., Richard E., "Ejection Seat Contract Requirements Research for the F-35," ASC/ENFC, 28-29 Aug 2008.

KUNZ, DONALD L.

Kunz, Donald L., Subject Matter Expert, Technology Readiness Assessment, Independent Review Panel, (subject of this panel may not be disclosed), Jan-Oct. 2008.

LIEBST, BRADLEY S.

Liebst, Bradley S., "Technical Expert Advisor to Gen Mark Matthews (SIB President)," Safety Investigation Board (SIB) for 31 July 2008 F-15 Accident at Nellis AFB, 21 Aug - 4 Sep 2008.

SHEARER, CHRISTOPHER M., Lt Col

Shearer, Christopher M., "Very Flexible Aircraft Flight Dynamics and Control, Computational and Experimental Advisor," Defense Advanced Research Projects Agency, Vulture Program, Aug 2008 - present.

SWENSON, ERIC, D., Lt Col

Swenson, Eric D. and Black, Jonathan T., "FalconSat V Redesign due to Significant Changes in Payload Design," Jan-May, 2008.

5.1.7. OTHER PRESENTATIONS, PUBLICATIONS AND PROFESSIONAL ACTIVITIES

BLACK, JONATHAN T.

Welty, N.F., Rohe, W.C., Roach, N.R., Black, J.T., and J. Walter, "Systems Engineering Approach to Development of a Research Testbed for Spacecraft Dynamics," 33rd AIAA Dayton-Cincinnati Aerospace Sciences Symposium, Dayton, OH, Mar. 2008.

CANFIELD, ROBERT A.

General Program Chair, *12th AIAA/ISSMO Symposium on Multidisciplinary Analysis and Optimization*, Victoria, British Columbia, September 10–12, 2008.

“Large-Scale Optimization and Continuous Sensitivity Equations for Coupled Aero-Structural Systems,” AFOSR Computational and Applied Math Program Review, Arlington, Virginia, August 13, 2008.

“Distributed Actuation System for a Flexible In-plane Morphing Wing,” NATA RTA Advanced Course on Morphing Aircraft: Materials, Mechanisms and Systems, *Instituto Superior Técnico*, Lisbon, Portugal, 20 November 2008.

COBB, RICHARD G.

Crouse, J. D., Blue P. A., Cobb, R. G., and Mears, M., “Cursor-on-Target Control for Semi-autonomous UAS”, AIAA Guidance, Navigation, and Control Conference, HI, Aug 2008.

PALAZOTTO, ANTHONY N.

Reed, S. and Palazotto, A., “Determining material properties of nonlinear materials from transient response”, presented at the Intl. Mechanical Engineering Congress and Exposition, Seattle, WA. November 11-15, 2007.

Abu Al-Rub, R., Voyiadjis, G., Palazotto, A., ‘Microdamage constitutive model and numerical simulation of perforation targets by projectiles’, presented at the Intl. Mechanical Engineering Congress and Exposition, Seattle, WA. November 11-15, 2007.

Gardenier. and Palazotto, A., ‘ An experimental technique for property evaluation of metals at intermediate strain rates’, presented at the 33rd annual Dayton- Cincinnati Aerospace Science Symposium, Dayton, Ohio, March 4, 2008.

Chmiel, A., and Palazotto, A.,” Material based finite element wear simulations”, presented at the 33rd annual Dayton-Cincinnati Aerospace Science Symposium, Dayton, Ohio, March 4, 2008.

Lee., and Palazotto, A., “Analysis of multi-layered materials under high velocity impact using CTH”, presented at the 33rd annual Dayton- Cincinnati Aerospace Science Symposium, Dayton, Ohio, March 4, 2008.

Hale, C. and Palazotto, A., “Consideration of wear at velocities greater than 200m/sec”, presented at the 33rd annual Dayton- Cincinnati Aerospace Science Symposium, Dayton, Ohio, March 4, 2008.

Davidson, R., and Palazotto, A.,” Sensitivity of digital image correlation to subset and step sizes”, presented at the 33rd annual Dayton- Cincinnati Aerospace Science Symposium, Dayton, Ohio, March 4, 2008.

Larson, R., Palazotto, A., and Baker ,W., “Analysis of wave propagation in monolithic and functionally graded Ti-TiB plates subject to impact loading”, presented at the AIAA SDM conference, Schaumburg, Ill., April 7-10, 2008.

Hale, C., and Palazotto, A., “ Consideration of wear at velocities greater than 200m/sec”, presented at the AIAA SDM conference, Schaumburg, Ill., April 7-10, 2008.

Pai, F., and Palazotto, A., “Amplitude frequency modulation method for identification of nonlinear structural vibration”, presented at the AIAA SDM conference, Schaumburg, Ill., April 7-10, 2008.

TORVIK, PETER J.

Torvik, P. J., *On the Determination of Material Damping*, Prepared for Universal Technology Corporation, May 2008, 143 pp. Also to appear as AFRL Technical Report.

5.2. DEPARTMENT OF ELECTRICAL AND COMPUTER ENGINEERING

Access Phone: 937-255-2024, DSN 785-2024

Fax: 937-656-7061, DSN 986-7061

Homepage: <http://www.afil.edu/en/eng/>

5.2.1	<u>DOCTORAL DISSERTATIONS</u>	59
5.2.2	<u>MASTER'S THESES</u>	60
5.2.3	<u>GRADUATE RESEARCH PAPERS</u>	64
5.2.4	<u>FUNDED RESEARCH PROJECTS</u>	65
5.2.5	<u>FUNDED EDUCATIONAL PROJECTS</u>	68
5.2.6	<u>REFEREED JOURNAL PUBLICATIONS</u>	68
5.2.7	<u>REFEREED CONFERENCE PUBLICATIONS</u>	72
5.2.8	<u>SUBSTANTIAL CONSULTATIONS</u>	79
5.2.9	<u>BOOKS & CHAPTERS IN BOOKS</u>	81
5.2.10	<u>OTHER PRESENTATIONS, PUBLICATIONS AND PROFESSIONAL ACTIVITIES</u>	82

5.2.1. DOCTORAL DISSERTATIONS

5.2.1.1. COMPUTER ENGINEERING (DCE)

HUBENKO, VICTOR P., *A Secure and Efficient Communications Architecture for Global Information Grid Users Via Cooperating Space Assets*. AFIT/DCE/ENG/08-02. Faculty Advisor: Dr. Richard A. Raines. Sponsor: N/A.

SAMBORA, MATTHEW D., *Statistical Methods for Image Registration and Denoising*. AFIT/DCE/ENG/08-14. Faculty Advisor: Dr. Richard K. Martin. Sponsor: AFRL/RI.

5.2.1.2. COMPUTER SCIENCE (DCS)

AUGERI, CHRISTOPHER J., *On Graph Isomorphism and the Page Rank Algorithm*. AFIT/DCS/ENG/08-08. Faculty Advisor: Dr. Barry E. Mullins. Sponsor: AFCA.

COUSIN, KEVIN, *A Unified Framework for Solving Multiagent Task Assignment Problems*. AFIT/DCS/ENG/08-01. Faculty Advisor: Dr. Gilbert L. Peterson. Sponsor: AFRL/RV.

5.2.1.3. ELECTRICAL ENGINEERING (DEE)

BEARD, TODD W., *Application of Optimization Techniques to Spectrally Modulated, Spectrally Encoded Waveform Design*. AFIT/DEE/ENG/08-16. Faculty Advisor: Dr. Michael A. Temple. Sponsor: AFRL/RV.

GIRARD, JASON A., *Material Perturbations to Enhance Performance of the Theile Half-Width Leaky Mode Antenna*. AFIT/DEE/ENG/08-04. Faculty Advisor: Dr. Michael J. Havrilla. Sponsor: AFRL/RV.

JOHNSON, STEVEN E., *Range Precision of LADAR Systems*. AFIT/DEE/ENG/08-15. Faculty Advisor: Dr. Stephen C. Cain. Sponsor: N/A.

KADING, GLEN A., *Piezo-Electrochemical Transducer Effect Intercalated Graphite Micro-Electromechanical Actuators*. AFIT/DEE/ENG/08-03. Faculty Advisor: Maj LaVern A. Starman. Sponsor: AFRL/RX.

LEMASTER, DANIEL A., *Statistical Methods for Polarimetric Imagery*. AFIT/DEE/ENG/08-18. Faculty Advisor: Dr. Stephen C. Cain. Sponsor: AFRL/RD.

MARSH, DAVID W., *Composable Distributed Access Control and Integrity Policies for Query-Based Wireless Sensor Networks*. AFIT/DEE/ENG/08-06. Faculty Advisor: Dr. Rusty O. Baldwin. Sponsor: AFRL/RV.

PHILLIPS, JAMES D., *Joint Image and Pupil Plane Reconstruction Algorithm based on Bayesian Techniques*. AFIT/DEE/ENG/08-07. Faculty Advisor: Dr. Stephen C. Cain. Sponsor: N/A.

RODRIGUEZ, BENJAMIN M., II, *JPEG Steganography Embedding Methods*. AFIT/DEE/ENG/08-20. Faculty Advisor: Dr. Gilbert L. Peterson. Sponsor: AFRL/RI.

TURNER, REGINALD J., *A Wide Area Bipolar Cascade Resonant Cavity Light Emitting Diode for a Hybrid Range Intensity*. AFIT/DEE/ENG/08-12. Faculty Advisor: Maj LaVern A. Starman. Sponsor: AFRL/RV.

VENEMA, TODD M., *Closed-Loop Adaptive Optics Control in Strong Atmospheric Turbulence*. AFIT/DEE/ENG/08-21. Faculty Advisor: Lt Col Juan R. Vasquez. Sponsor: N/A.

5.2.2. MASTER'S THESES

5.2.2.1. AERONAUTICAL ENGINEERING (GAE)

HANSEN, JOHN H., *Optimal Guidance of a Relay MAV for ISR Support Beyond Line-of-Sight*. AFIT/GAE/ENG/08-01. Faculty Advisor: Dr. Meir Pachter. Sponsor: AFRL/RB.

KLEEMAN, MARK P., *Extending CFD Modeling to Near-Continuum Flows Using Enhanced Thermophysical Modeling*. AFIT/GAE/ENY/08-M04. Faculty Advisor: Dr. Robert B. Greendyke. Sponsor: AFRL/RB.

5.2.2.2. COMPUTER ENGINEERING (GCE)

DUFFY, JEFFREY P., *Dynamic Behavior Sequencing in a Hybrid Robot Architecture*. AFIT/GCE/ENG/08-03. Faculty Advisor: Dr. Gilbert L. Peterson. Sponsor: AFRL/RB.

ERICKSON, THEODORE J., *Digital Signal Processing Leveraged for Intrusion Detection*. AFIT/GCE/ENG/08-04. Faculty Advisor: Dr. Barry E. Mullins. Sponsor: AFIOC.

FETZEK, CHARLES A., *Behavior-Based Power Management in Autonomous Mobile Robots*. AFIT/GCE/ENG/08-05. Faculty Advisor: Dr. Gilbert L. Peterson. Sponsor: AFRL/RB.

FOGG, PAUL N., II, *Forensics Image Background Matching Using Scale Invariant Feature (SIFT) Transform and Speeded Up Robust Features (SURF)*. AFIT/GCE/ENG/08-02. Faculty Advisor: Dr. Gilbert L. Peterson. Sponsor: DoD Cyber Crime Center.

JUDGE, MATTHEW G., *SHI(EL)DS: A Novel Hardware-Based Security Backplane to Enhance Security with Minimal Impact to System Operation*. AFIT/GCE/ENG/08-07. Faculty Advisor: Maj Paul D. Williams. Sponsor: AFRL/RB.

PHILLIPS, ADRIAN N., *A Secure Group Communication Architecture for a Swarm of Autonomous Unmanned Aerial Vehicles*. AFIT/GCE/ENG/08-09. Faculty Advisor: Dr. Barry E. Mullins. Sponsor: USAFA/DFEC.

SAVIDGE, KEVIN J., *Priority Based Buffering over Multiple Lossy Links Using TCP Aware Layer Buffering*. AFIT/GCE/ENG/08-10. Faculty Advisor: Maj Scott Graham. Sponsor: AFRL/AFOSR.

5.2.2.3. CYBER OPERATIONS (GCO)

CARROLL, SEAN C., *Mission Impact Analysis Visualization for Enhanced Situational Awareness*. AFIT/GCO/ENG/08-01. Faculty Advisor: Lt Col Stuart H. Kurkowski. Sponsor: N/A.

EADDIE, MAMITA T., *Dialable Cryptography for Wireless Networks*. AFIT/GCO/ENG/08-02. Faculty Advisor: Dr. Kenneth M. Hopkinson. Sponsor: AFOSR.

GRIFFIN, JANE J., *DoD Role for Securing United States Cyberspace*. AFIT/GCO/ENG/08-03. Faculty Advisor: Dr. Robert F. Mills. Sponsor: AFIOC.

KOLBE, MICHAEL B., *An Analysis of Critical Infrastructure Control Systems and Vulnerabilities*. AFIT/GCO/ENG/08-04. Faculty Advisor: Maj Paul D. Williams. Sponsor: AFCYBER (P).

ROBERTS, GREGORY R., *Evaluating Security and Quality of Service Considerations in Critical Infrastructure Communication Networks*. AFIT/GCO/ENG/08-05. Faculty Advisor: Dr. Kenneth M. Hopkinson. Sponsor: AFOSR.

ROQUE, PAUL N., *Performance Analysis of Effective Range and Orientation of UHF Passive RFID*. AFIT/GCO/ENG/08-06. Faculty Advisor: Dr. Richard A. Raines. Sponsor: CCR.

SKARDA, BRYAN E., *Operationalizing Offensive Social Engineering for the Air Force*. AFIT/GCO/ENG/08-07. Faculty Advisor: Dr. Robert F. Mills. Sponsor: AFRL/RH.

ZIMMERMAN, MATTHEW A., *Mitigating Reversing Vulnerabilities in .NET Applications Using Virtualized Software Protection*. AFIT/GCO/ENG/08-09. Faculty Advisor: Dr. Richard A. Raines. Sponsor: AFRL/RH.

5.2.2.4. COMPUTER SCIENCE/COMPUTER SYSTEMS (GCS)

AVITIA, SERAFIN, *Developing Network Situational Awareness Through Visualization of Fused Intrusion Detection System Alerts*. AFIT/GCS/ENG/08-23. Faculty Advisor: Lt Col Stuart H. Kurkowski. Sponsor: AFRL/RI.

BELUE, JOHN M., *Network Visualization Design using Prefuse Visualization Framework*. AFIT/GCS/ENG/08-03. Faculty Advisor: Lt Col Stuart H. Kurkowski. Sponsor: AFOSR.

BONHOFF, GEROD M., *Using Hierarchical Temporal Memory for Detecting Anomalous Network Activity*. AFIT/GCS/ENG/08-04. Faculty Advisor: Dr. Robert F. Mills. Sponsor: AFRL/RH.

COYNE, MARK E., *Hot Swapping Protocol Implementations in the OPNET Modeler Development Environment*. AFIT/GCS/ENG/08-05. Faculty Advisor: Maj Scott R. Graham. Sponsor: AFOSR.

DeYOUNG, MARK E., *Dynamic Protocol Reverse Engineering: A Grammatical Inference Approach*. AFIT/GCS/ENG/08-06. Faculty Advisor: Dr. Robert F. Mills. Sponsor: AFIOOC.

DINES, DAVID M., *A Hybrid Communications Network Simulation-Independent Toolkit*. AFIT/GCS/ENG/08-08. Faculty Advisor: Dr. Kenneth M. Hopkinson. Sponsor: AFOSR.

FULTON, THOMAS F., *Change Detection for Processing of Angel Fire Imagery*. AFIT/GCS/ENG/08-09. Faculty Advisor: Juan R. Vasquez. Sponsor: AFRL/RH.

HANSEN, ANDREW P., *Cyber Flag: A Realistic Cyberspace Training Construct*. AFIT/GCS/ENG/08-10. Faculty Advisor: Maj Paul D. Williams. Sponsor: AFRL/RH.

HOOVER, DAYLOND J., *A Hybrid Multi-Robot Control Architecture*. AFIT/GCS/ENG/08-02. Faculty Advisor: Dr. Gilbert L. Peterson. Sponsor: AFRL/RH.

HUNT, SHANNON E., *Developing a Reference Framework for Cybercraft Trust Evaluation*. AFIT/GCS/ENG/08-11. Faculty Advisor: Lt Col J. Todd McDonald. Sponsor: AFRL/RI.

JAMES, MOSES C., *Obfuscation Framework Based on Functionally Equivalent Combinatorial Logic Families*. AFIT/GCS/ENG/08-12. Faculty Advisor: Lt Col J. Todd McDonald. Sponsor: AFOSR.

JANG, BO YEON, *An Investigation into the Advantages, Mechanisms, and Developmental Challenges of Scripted Mobile Routing*. AFIT/GCS/ENG/08-13. Faculty Advisor: Maj Scott R. Graham. Sponsor: AFOSR.

LIDOWSKI, ROBERT L., *A Novel Communications Protocol Using Geographic Routing for Swarming UAVs Performing a Search Mission*. AFIT/GCS/ENG/08-14. Faculty Advisor: Dr. Barry E. Mullins. Sponsor: USAFA.

LIN, ALAN C., *Software Obfuscation with Symmetric Cryptography*. AFIT/GCS/ENG/08-15. Faculty Advisor: Lt Col J. Todd McDonald. Sponsor: AFOSR.

McELROY, KELLY K., *Applying Automated Theorem Proving to Computer Security*. AFIT/GCS/ENG/08-16. Faculty Advisor: Dr. Rusty O. Baldwin. Sponsor: AFRL/RH.

NORMAN, KENNETH E., *Algorithms for White-box Obfuscation Using Randomized Subcircuit Selection and Replacement*. AFIT/GCS/ENG/08-17. Faculty Advisor: Lt Col J. Todd McDonald. Sponsor: AFOSR.

NOWAK, DUSTIN J., *Exploitation of Self Organization in UAV Swarms for Optimization in Combat Environments*. AFIT/GCS/ENG/08-18. Faculty Advisor: Dr. Gary B. Lamont. Sponsor: AFRL/RV.

ONTIVEROS, FERNANDO, *Development of a Night Vision Goggle Heads Up Display for Paratrooper Guidance*. AFIT/GCS/ENG/08-24. Faculty Advisor: Dr. John F. Raquet. Sponsor: AFRL/RV.

PECARINA, JOHN M., *Creating an Agent Based Framework to Maximize Information Utility*. AFIT/GCS/ENG/08-19. Faculty Advisor: Dr. Kenneth M. Hopkinson. Sponsor: AFOSR.

WAY, RAYMOND S., *A Formal Specification and Proof of System Safety Using the Schematic Protection Model*. AFIT/GCS/ENG/08-21. Faculty Advisor: Dr. Rusty O. Baldwin. Sponsor: AFRL/RV.

WILKIN, DORSEY C., *Cyber Ostfriesland: An Operation Against Critical Infrastructure*. AFIT/GCS/ENG/08-22. Faculty Advisor: Dr. Richard A. Raines. Sponsor: AFCYBER (P).

5.2.2.5. ELECTRICAL ENGINEERING (GE)

BRADY, JENNIFER L., *Limitations of a True Random Number Generator in a Field Programmable Gate Array*. AFIT/GE/ENG/08-01. Faculty Advisor: Dr. Rusty O. Baldwin. Sponsor: AFRL/RV.

CAKIROGLU, BORA, *Construction and Testing of Broadband High Impedance Ground Planes (HIGPS) for Surface Mount Antennas*. AFIT/GE/ENG/08-02. Faculty Advisor: Dr. Andrew J. Terzuoli. Sponsor: AFOSR.

CHABAK, KELSON D., *Conceptual Study of Rotary-Wing Microbotics*. AFIT/GE/ENG/08-03. Faculty Advisor: Maj LaVern A. Starman. Sponsor: AFRL/RW.

COSTELLO, CHRISTOPHER S., *Multi-Reference Frame Image Registration for Rotation, Translation, and Scale*. AFIT/GE/ENG/08-05. Faculty Advisor: Dr. Richard K. Martin. Sponsor: NASIC.

CROUCH, JAMES W., *Digital Fingerprinting of Field Programmable Gate Arrays*. AFIT/GE/ENG/08-06. Faculty Advisor: Dr. Yong C. Kim. Sponsor: AFRL/RV.

DELICAN, SABAN ATINC, *Electrically Steerable Diffraction Gratings for Hyperspectral Imaging: A Microelectromechanical System Design and Fabrication*. AFIT/GE/ENG/08-01. Faculty Advisor: Dr. Guna Seetharaman. Sponsor: N/A.

DOGRUL, MURAT, *Design and Optimization of Broadband High Impedance Ground Planes (HIGP) for Surface Mount Antennas*. AFIT/GE/ENG/08-08. Faculty Advisor: Dr. Peter J. Collins. Sponsor: AFOSR/EOARD.

EBCIN, SEDAT, *Tightly Integrating Optical and Inertial Sensors for Navigation Using the UKF*. AFIT/GE/ENG/08-09. Faculty Advisor: Lt Col Michael J. Veth. Sponsor: AFRL/MN.

HANCEY, BENJAMIN D., *Characterization and Implementation of a Real-World Tracking Algorithm on Field Programmable Gate Arrays with Kalman Filter Test Case*. AFIT/GE/ENG/08-10. Faculty Advisor: Dr. Yong C. Kim. Sponsor: AFRL/RV.

HOCKENBERRY, EUGENE B., *Hardware, Software and Data Analysis Techniques for SRAM-Based Field Programmable Gate Array Circuits*. AFIT/GE/ENG/08-11. Faculty Advisor: Dr. Yong C. Kim. Sponsor: AFRL/RV.

HOPP, STEPHEN J., *Coexistent Performance Characterization of the Simulated TTNT GMSK Waveform*. AFIT/GE/ENG/08-12. Faculty Advisor: Dr. Michael A. Temple. Sponsor: AFRL/RW.

KENT, JASON T., *Comparative Classification of Low/High Value Receivers*. AFIT/GE/ENG/08-14. Faculty Advisor: Dr. Michael A. Temple. Sponsor: AFRL/RV.

LENZ, THOMAS A., *Feature Aided Tracking in the Urban Environment*. AFIT/GE/ENG/08-16. Faculty Advisor: Lt Col Juan R. Vasquez. Sponsor: AFRL/RV.

LIDDLE, ADAM J., *Sensitivity Analysis of AlGaIn/GaN HEMTs to Process Variation*. AFIT/GE/ENG/08-17. Faculty Advisor: Lt Col James A. Fellows. Sponsor: AFRL/RV.

LIEFER, NATHANIEL C., *Signal Processing Design of Low Probability of Intercept Waveforms*. AFIT/GE/ENG/08-18. Faculty Advisor: Dr. Richard K. Martin. Sponsor: AFRL/RV.

NIELSEN, MICHAEL B., *Development and Flight of a Robust Optical-Inertial Navigation System Using Low-Cost Sensors*. AFIT/GE/ENG/08-19. Faculty Advisor: Dr. John F. Raquet. Sponsor: AFRL/RW.

OZER, SONER, *Increasing Combat Aircraft Survivability Through Coherent Self-Protection Jammers*. AFIT/GE/ENG/08-20. Faculty Advisor: Maj Michael A. Saville. Sponsor: AFIT/CCR.

PIERCE, SCOTT J., *Context-Aided Tracking and Track Prediction in Aerial Video Surveillance*. AFIT/GE/ENG/08-21. Faculty Advisor: Lt Col Juan R. Vasquez. Sponsor: AFRL/RV.

POHL, ADAM J., *Multi-Objective UAV Mission Planning Using Evolutionary Computation*. AFIT/GE/ENG/08-22. Faculty Advisor: Dr. Gary B. Lamont. Sponsor: AFRL/RV.

POLICARPIO, TIMOTHY R., *Feasibility Study of Encoding Operational Mission Metadata into IPv6 Packet Headers*. AFIT/GE/ENG/08-23. Faculty Advisor: Dr. Robert F. Mills. Sponsor: AFRL/RH.

SCHEXNAYDER, CHRISTOPHER M., *Effects of Multipath and Oversampling on Navigation Using Orthogonal Frequency Division Multiplexed Signals of Opportunity*. AFIT/GE/ENG/08-25. Faculty Advisor: Dr. John F. Raquet. Sponsor: AFRL/RV.

SEDAT, EBCIN, *Tightly Integrating Optical and Inertial Sensors for Navigation Using the UKF*. AFIT/GE/ENG/08-09. Faculty Advisor: Lt Col Michael J. Veth. Sponsor: AFRL/RW.

SHELNUTT, PAUL J., *Collision Avoidance for UAVs Using Optic Flow Measurement With Line of Sight Rate Equalization and Looming*. AFIT/GE/ENG/08-26. Faculty Advisor: Dr. Meir Pachter. Sponsor: AFRL/RB.

SHIRLEY, JASON W., *Hardware Algorithm Implementation for Mission Specific Processing*. AFIT/GE/ENG/08-27. Faculty Advisor: Dr. Yong C. Kim. Sponsor: AFRL/RV.

SOLIMAN, NEIL A., *Hyperspectral-Augmented Target Tracking*. AFIT/GE/ENG/08-28. Faculty Advisor: Maj Michael J. Mendenhall. Sponsor: AFRL/RV.

SPRECHER, AARON J., *Microfluidic Power Generation*. AFIT/GE/ENG/08-29. Faculty Advisor: Maj LaVern A. Starman. Sponsor: AFRL/RH.

STONE, SAMUEL J., *Anti-Tamper Method for Field Programmable Gate Arrays Through Dynamic Reconfiguration and Decoy Circuits*. AFIT/GE/ENG/08-30. Faculty Advisor: Dr. Yong C. Kim. Sponsor: AFRL/RV.

SUSKI, WILLIAM C., *Radio Frequency (RF) Fingerprinting Applied to Transient Signal Features from Commercial Communication Devices*. AFIT/GE/ENG/08-31. Faculty Advisor: Dr. Michael A. Temple. Sponsor: AFRL/RV.

SWANSON, SEVERIN M., *Evaluation of an OPNET Model for Tactical Targeting Network Technology (TTNT) Airborne Network*. AFIT/GE/ENG/08-32. Faculty Advisor: Dr. Barry E. Mullins. Sponsor: AFRL/RW.

TAMAYO, ALFRED A., *Applying Frequency-Domain Equalization to Code-Division Multiple Access and Transform-Domain Communications Systems*. AFIT/GE/ENG/08-33. Faculty Advisor: Dr. Richard K. Martin. Sponsor: AFRL/RV.

TOWNSEND, JAMES D., *Improvement of ECM Techniques through Implementation of a Genetic Algorithm*. AFIT/GE/ENG/08-34. Faculty Advisor: Maj Michael A. Saville. Sponsor: AFRL/RV.

VITAYAUDOM, KEVIN P., *Analysis of Non-Uniform Gain for Control of a Deformable Mirror in an Adaptive-Optics System*. AFIT/GE/ENG/08-35. Faculty Advisor: Maj Jason D. Schmidt. Sponsor: AFRL/RD.

5.2.2.6. ELECTRO OPTICS (GEO)

GRUENTHER, ALEXANDER C., *An Image Based Bidirectional Reflectivity Distribution Function Experiment*. AFIT/GEO/ENG/08-M03. Faculty Advisor: Dr. Barry E. Mullins. Sponsor: AFRL/RV.

PLOURDE, MICHAEL D., *Limitations of Segmented Wavefront Control Devices in Emulating Optical Turbulence*. AFIT/GEO/ENG/08-02. Faculty Advisor: Maj Jason D. Schmidt. Sponsor: AFRL/RD.

5.2.2.7. SPACE SYSTEMS (GSS)

OZDEMIR, HALIL IBRAHIM, *Constellation Design of Geosynchronous Navigation Satellites Which Maximizes Availability and Accuracy Over a Specified Region of the Earth*. AFIT/GSS/ENG/08-01. Faculty Advisor: Dr. John F. Raquet. Sponsor: AFRL/RV.

5.2.3. GRADUATE RESEARCH PAPERS

5.2.3.1. INFORMATION WARFARE (ICW)

COSNOWSKI, CHARLES, *Defeating 802.11 Wireless Networks*. AFIT/ICW/ENG/08-01. Faculty Advisor: Dr. Robert F. Mills. Sponsor: N/A.

GOOD, MICHAEL J., *Chinese National Strategy of Total War*. AFIT/ICW/ENG/08-02. Faculty Advisor: Dr. Robert F. Mills. Sponsor: N/A.

HUNSBERGER, MICHAEL G., *A Methodology for Cybercraft Requirement Definition and Initial System Design*. AFIT/ICW/ENG/08-03. Faculty Advisor: Lt Col J. Todd McDonald. Sponsor: AFRL/RI.

MUEHE, TARA J., *Developing Future Air Force Cyber Leaders*. AFIT/ICW/ENG/08-06. Faculty Advisor: Maj Paul D. Williams. Sponsor: AF/A2F.

MURPHY, SEAN D., *Air Force Cyber Education: A Critical Analysis*. AFIT/ICW/ENG/08-07. Faculty Advisor: Dr. Richard A. Raines. Sponsor: HQ/8AF.

NEWBILL, RAYMOND R., *Intelligence Sharing, Fusion Centers, and Homeland Security*. AFIT/ICW/ENG/08-08. Faculty Advisor: Dr. Robert F. Mills. Sponsor: N/A.

ORTH, PAUL, *Measuring the Operational Readiness of an Air Force Network Warfare Squadron*. AFIT/ICW/ENG/08-09. Faculty Advisor: Dr. Robert F. Mills. Sponsor: 315th NWS/CC.

RAUCH, DANIEL E., *Electronic Warfare for Cyber Warriors*. AFIT/ICW/ENG/08-10. Faculty Advisor: Dr. Robert F. Mills. Sponsor: N/A.

REPIK, KEITH, *Defeating Adversary Network Intelligence Efforts with Active Cyber Defense Techniques*. AFIT/ICW/08-11. Faculty Advisor: Maj Paul D. Williams. Sponsor: AFCYBER.

WHITING, MICHAEL D., *The Great Firewall of China: Critical Analysis*. AFIT/ICW/ENG/08-12. Faculty Advisor: Dr. Robert F. Mills. Sponsor: N/A.

5.2.4. FUNDED RESEARCH PROJECTS

Note: Research Center affiliations are listed in [] if applicable.

BALDWIN, RUSTY O.

“Emerging Technologies (IA).” Sponsor: NSA. Funding: \$87,084. [CCR]

CAIN, STEPHEN C.

“Blind Deconvolution Methods for Polarimeters and Hyperspectral Imagers.” Sponsor: AFRL/RD. Funding: \$4,000.

COLLINS, PETER J.

“Enabling Technologies for Radar Scattering Measurements.” Sponsor: AFMC/A5JF. Funding: \$50,142.

“Field Emission Technology Investigations.” Sponsor: SAF. Funding: \$85,000.

“Low Frequency Synthesis through Wavelet Optimization.” Sponsor: AFMC/A5JF. Funding: \$25,000.

“RCS Methodology.” Sponsor: 746 TS. Funding: \$60,500.

GUSTAFSON, STEVEN C.

“Technical Support: Signal Processing/Pattern Recognition.” Sponsor: AFRL/RX. Funding: \$35,000.

HAVRILLA, MICHAEL J.

“Electromagnetic Analysis and Design of Non-Destructive Evaluation Systems.” Sponsor: AFRL/RX. Funding: \$115,000.

“Low Frequency High Temperature Material Characterization System.” Sponsor: AFMC/A5JF. Funding: \$50,000.

HOPKINSON, KENNETH M.

“A Context-Aware Middleware Architecture to Enable Large-Scale Networking.” Sponsor: SAF. Funding: \$107,666.

“Effective Utilization of Hybrid Communication Networks for Adaptive Military and Commercial Infrastructure.” Sponsor: AFOSR. Funding: \$38,051.

“HPC Summer Intern Support.” Sponsor: AFOSR. Funding: \$42,448.

KIM, YONG C.

“Anti-Tamper Methodology for Field Programmable Gate Arrays.” Sponsor: AFRL/RX. Funding: \$75,000.

KURKOWSKI, STUART H., Lt Col

“An Interactive Visualization Approach to Interface Network Centric Operators with Dynamic Network Infrastructure.” Sponsor: AFOSR. Funding: \$29,067.

“Toolkit for Visualizing Situation Scope.” Sponsor: AFRL/RI. Funding: \$76,738. [CCR]

MARTIN, RICHARD K.

“Fusion of Inertial Sensors and Signals of Opportunity for Unassisted Navigation.” Sponsor: AFOSR. Funding: \$34,507. [ANT]

“Technical Support: Cognitive Networks Research.” Sponsor: AFRL/RV. Funding: \$40,000.

McDONALD, J. TODD, Lt Col

“Architectural Framework for Evaluating General, Efficient, and Measurable Program Protection.” Sponsor: AFOSR. Funding: \$27,661. [CCR]

“Cyber Defense Applications Using Polymorphic Dynamic Decoy Network Topology.” Sponsor: 8AF/CYBER (P). Funding: \$50,000. [CCR]

MENDENHALL, MICHAEL J., Maj

“3D Shape Recognition Using QUEST Processing of LIDAR.” Sponsor: AFRL/RV. Funding: \$71,936.

“Hyperspectral Exploitation and HypeX Program Support.” Sponsor: AFRL/RV. Funding: \$30,000.

“Tracking Research for the Vigilant Eagle Program.” Sponsor: AFRL/RV. Funding: \$50,000.

MILLS, ROBERT F.

“Technical Support, Information/Cyber Operations.” Sponsor: AFIOC. Funding: \$25,010. [CCR]

MULLINS, BARRY E.

“Air Force Communications Systems Modeling.” Sponsor: AFCA. Funding: \$19,520. [CCR]

“Ground Mobility Objective Gateways.” Sponsor: AFRL/RW. Funding: \$25,000. [CCR]

“Technical Support: Cyber Operations.” Sponsor: AFRL/RI. Funding: \$20,000. [CCR]

PACHTER, MEIR

“Cooperative Control.” Sponsor: AFRL/RB. Funding: \$10,000.

“Cooperative Control and Estimation.” Sponsor: AFOSR. Funding: \$45,448.

“Feasibility Study of In-Situ Plant Dynamics Identification for a Satellite Payload.” Sponsor: SAF. Funding: \$45,000.

“New Navigation Techniques.” Sponsor: AFRL/RV. Funding: \$15,000. [ANT]

PETERSON, GILBERT L.

“AFIT Analysis Support to the Joint Improvised Explosive Device Defeat Organization.” Sponsor: JIEDDO. Funding: \$110,800. [COA]

“CANIS-Related Navigation Research Projects for the ANT Laboratory.” Sponsor: AFRL/RV. Funding: \$100,000. [ANT]

“Technical Support: Autonomic Infusion.” Sponsor: AFRL/RV. Funding: \$152,676. [ANT]

RAINES, RICHARD A.

“Target Discovery, Sensor Fusion, and Mitigation Analysis.” Sponsor: AFRL/RV. Funding: \$60,000. [CCR]

RAQUET, JOHN F.

“ANT Center and Laboratory Support per ANT Center Appendix of MOA.” Sponsor: AFRL/RV. Funding: \$196,000. [ANT]

“Development of High Accuracy TSPI Systems.” Sponsor: 746 TS. Funding: \$45,900. [ANT]

“Image-Aided Aerial Refueling.” Sponsor: AFRL/RV. Funding: \$35,000. [ANT]

“Overcoming Geometric Deficiencies in Pseudolite Navigation Systems.” Sponsor: AFOSR. Funding: \$99,752. [ANT]

“Vision Aided Navigation and Control.” Sponsor: AFRL/RW. Funding: \$47,232. [ANT]

SCHMIDT, JASON D., Maj

“Advanced Wavefront Control.” Sponsor: AFRL/RD. Funding: \$30,000. [CDE]

STARMAN, LAVERNE A., Maj

“Design of Microscale Safe and ARM Devices.” Sponsor: AFRL/RW. Funding: \$32,500.

TEMPLE, MICHAEL A.

“EME Characterization and Exploitation.” Sponsor: Naval Surface Warfare Center (NSWC). Funding: \$73,549. [CCR]

“Phase II Support: RF-EW Systems.” Sponsor: AFRL/RV. Funding: \$55,000.

“Technical Support: Opportunistic Channel Access.” Sponsor: Laboratory for Telecommunications Sciences. Funding: \$47,480. [CCR]

TERZUOLI, ANDREW J., Jr.

“ECM Against Passive Radar.” Sponsor: AFRL/RV. Funding: \$20,000.

“Persistent Sensor Enhancement.” Sponsor: AFRL/RV. Funding: \$10,000.

“Remote Sensing and Communication for MASINT.” Sponsor: NASIC. Funding: \$150,000. [CMSR]

“Structural Antenna Electromagnetics.” Sponsor: AFRL/RB. Funding: \$10,000.

THOMAS, RYAN W., Capt

“Balancing Network and Mission Goals: A Cognitive Research Approach.” Sponsor: AFOSR. Funding: \$22,600.

VETH, MICHAEL J., Lt Col

“Autonomous Indoor Micro Air Vehicle.” Sponsor: AFRL/RW. Funding: \$125,000. [ANT]

“Synchronized Image-Inertial Data Collection and Processing System.” Sponsor: NGA. Funding: \$30,000. [ANT]

WILLIAMS, PAUL D., Maj

“AFIT Support for AFRL Cybercraft Project.” Sponsor: AFOSR. Funding: \$50,000. [CCR]

“Support to JCTD Vulnerability Assessment.” Sponsor: JIOWC. Funding: \$25,000. [CCR]

5.2.5. FUNDED EDUCATIONAL PROJECTS

Note: Research Center affiliations are listed in [] if applicable.

RAINES, RICHARD A.

“AFIT Transformation Chair.” Sponsor: DoD/OSD. Funding: \$200,000. [CCR]

“Anti-Tamper Software Protection Initiative Education, Outreach and Research.” Sponsor: AFRL/RV. Funding: \$200,000. [CCR]

“Development of a Federal Cyber Force at the Air Force Institute of Technology.” Sponsor: NSF. Funding: \$528,424. [CCR]

“IASP Tuition and Resource Support for the AFIT Center for Cyberspace Research.” Sponsor: NSA. Funding: \$312,848. [CCR]

5.2.6. REFEREED JOURNAL PUBLICATIONS

Note: Research Center affiliations are listed in [] if applicable.

ANDEL, TODD R., Maj

Andel, T. R., and Yasinsac, A., “Surveying Security Analysis Techniques in MANET Routing Protocols,” *IEEE Communications Surveys & Tutorials*, Vol. 9, pp. 70-84, 4th Quarter CY 2007.

BALDWIN, RUSTY O.

Phillips, A. N., Mullins, B. E., Raines, R. A., and Baldwin, R. O., “A Secure Group Communication Architecture for Autonomous Unmanned Aerial Vehicles,” *Security and Communication Networks*, John Wiley and Sons, DOI: 10.1002/sec.55, pp. 1-15, 28 August 2008. [CCR]

Peterson, G. L., Raines, R. A., and Baldwin, R. O., “Digital Forensics Educational Needs in the Miami Valley Region,” *Journal of Applied Security Research*, Vol. 3, No. 3-4, pp. 429-439, June 2008. [CCR]

Jordt, G. J., Baldwin, R. O., Raquet, J. F., and Mullins, B. E., “Energy Cost and Error Performance of Range-Aware, Anchor-Free Localization Algorithms,” *Ad hoc Networks*, Vol. 6, No. 4, pp. 539-559, June 2008. [CCR]

Mann, C. R., Baldwin, R. O., Kharoufeh, J. P., and Mullins, B. E., “Energy-efficient Agent Replication for Finite-lifetime Resources in Wireless Sensor Networks with Time-constrained Queries,” *Mobile Computing and Communications Review*, Vol. 12, No. 2, pp. 31-39, April 2008. [CCR]

Dube, T. E., Birrer, B. D., Raines, R. A., Baldwin, R. O., Mullins, B. E., Bennington, R. F., and Reuter, C. E., “Hindering Reverse Engineering: Thinking Outside the Box,” *IEEE Security and Privacy*, Vol. 6, No. 2, pp. 58-65, March/April 2008. [CCR]

CAIN, STEPHEN C.

LeMaster, D., and Cain, S., “Multichannel Blind Deconvolution of Polarimetric Imagery,” *Journal of the Optical Society of America A*, Vol. 25, No. 9, pp. 2170-2176, September 2008.

Phillips, J., and Cain, S., "Joint Maximum Likelihood Estimator for Pupil and Image Plane Data," *Optical Engineering*, Vol. 47, No. 2, 026002, February 2008.

Strong, D., and Cain, S., "Maximum a Priori Estimation of Focus Aberration in Imaging Systems," *Optical Engineering*, Vol. 46, No. 12, 127006, December 2007.

COLLINS, PETER J.

Bradley, C. J., Collins, P. J., Falconer, D. G., Fortuny-Guasch, J. and Terzuoli, A. J. Jr., "Evaluation of a Near-Field Monostatic-to-Bistatic Equivalence Theorem," *IEEE Transactions On Geoscience And Remote Sensing*, Vol. 46, No. 2, February 2008.

GUSTAFSON, STEVEN C.

Like, E. C., and Gustafson, S. C., "Robust Cardinal Interpolation," *The Open Cybernetics and Systemics Journal*, Vol. 2, pp. 230-235, July 2008.

HAVRILLA, MICHAEL J.

Hyde, M., and Havrilla, M., "A Nondestructive Technique for Determining Complex Permittivity and Permeability of Magnetic Materials using Two Flanged Rectangular Waveguides," *Progress in Electromagnetic Research*, Vol. 79, pp. 367-386, January, 2008.

Stewart, J., Havrilla, M., Berrie, J., Kornbau, N., Stenholm, G., and Albert, A., "Material Characterization using a Hand-held Network Analyzer," *Journal of Applied Electromagnetics and Mechanics*, Vol. 28, No. 9, pp. 95-100, September 2008.

HOPKINSON, KENNETH M.

Coates, G. M., Hopkinson, K. M., Graham, S. R., and Kurkowski, S. H., "Collaborative, Trust-Based Security Mechanisms for a Regional Utility Intranet," *IEEE Transactions on Power Systems*, Vol. 23, No. 3, pp. 831-844, August 2008.

Tong, X.; Wang, X.; Hopkinson, K. M.; and Tang, J., "Simulation Modeling and Implementation of a Wide-Area Backup Protection Multi-Agent System," *Proceedings of the CSEE*, Vol. 28, No. 19, pp. 111-117, July 5, 2008.

KIM, YONG C.

McDonald, J. T., Kim, Y. C., and Yasinsac, A., "Software Issues in Digital Forensics," *ACM SIGOPS OS Review, Special Issue on Forensics*, Vol. 42, No. 3, April 2008.

KURKOWSKI, STUART H., Lt Col

Coates, G., Hopkinson, K., Graham, S., and Kurkowski, S., "Collaborative, Trust-Based Security Mechanisms for a Regional Utility Intranet," *IEEE Transactions on Power Systems*, Volume 23, Number 3, pp 831-844, August 2008.

Kurkowski, S., Camp, T., and Colagrosso, M. A., "Visualization and Analysis Tool for Wireless Simulations: Inspect," *ACM Mobile Computing and Communications Review (MC2R)*, Dec 2007.

Stevens, M., Williams, P. D., Peterson, G. L., and Kurkowski, S. H., "Integrating Trust into the CyberCraft Initiative via the Trust Vectors Model," *IEEE Computational Intelligence Magazine*, Vol. 3, No. 2, pp. 65-68, May 2008.

MARTIN, RICHARD K.

Sambora, M. D., and Martin, R. K., "Exploiting Correlations in Projection-Based Image Registration," *Optical Engineering*, Vol. 47, No. 7, pp. 077005-1 to 077005-12, July 2008.

McDONALD, J. TODD., Lt Col

McDonald, J. T., Kim, Y. C., and Yasinsac, A., "Software Issues in Digital Forensics," *ACM SIGOPS OS Review, Special Issue on Forensics*, Vol. 42, No. 3, April 2008. [CCR]

MENDENHALL, MICHAEL, J., Maj

Mendenhall, M. J., and Merényi, E., "Relevance-based Feature Extraction from Hyperspectral Images," *IEEE Transactions on Neural Networks*, Volume 19, Issue 4, Pg 658-672, April 2008.

Suski, W., Temple, M. A., Mendenhall, M. J., and Mills, R. F., "Radio Frequency Fingerprinting Commercial Communication Devices to Enhance Electronic Security," *International Journal of Electronic Security and Digital Forensics*, Vol. 1, No. 3, pp 301-322, 2008. [CCR]

MILLS, ROBERT F.

Suski, W., Temple, M. A., Mendenhall, M. J., and Mills, R. F., "Radio Frequency Fingerprinting Commercial Communication Devices to Enhance Electronic Security," *International Journal of Electronic Security and Digital Forensics*, Vol. 1, No. 3, pp 301-322, 2008. [CCR]

Franz, T. P., Durkin, M., Williams, P. D., Raines, R. A., and Mills, R. F., "Defining IO Forces," *Air and Space Power Journal – Chinese Edition*, Vol. 2, No. 3, Summer 2008. [CCR]

Hamill, J. T., Deckro, R. F., Chrissis, J. W., and Mills, R. F., "Layered Social Networks," *IO Sphere, Professional Journal of Joint Information Operations*, pages 27-33, Winter 2008.

Mullins, B. E., Lacey, T. H., Mills, R. F., Trechter, J. M., and Bass, S. D., "How the Cyber Defense Exercise Shaped an Information-Assurance Curriculum," *IEEE Security and Privacy*, Vol. 5, No. 5, pp 40-49, Fall 2007. [CCR]

Okolica, J. S., Peterson, G. L., and Mills, R. F., "Using PLSI-U to Detect Insider Threats by Datamining Email," *Special Issue on Network Forensics of the International Journal of Security and Networks (IJSN)*, Vol. 3, No 2, pp. 114-121, 2008. [CCR]

MULLINS, BARRY E.

Jordt, G. J., Baldwin, R. O., Raquet, J. F., and Mullins, B. E., "Energy Cost and Error Performance of Range-Aware, Anchor-Free Localization Algorithms," *Ad Hoc Networks*, Vol. 6, No. 4, pp. 539-559, June 2008. [CCR]

Mann, C. R., Baldwin, R. O., Kharoufeh, J. P., and Mullins, B. E., "Energy-efficient Search for Finite-lifetime Resources in Sensor Networks with Time-constrained Queries," *Mobile Computing and Communications Review*, Vol. 12, No. 2, pp. 31-39, April 2008. [CCR]

Dube, T. E., Birrer, B. D., Raines, R. A., Baldwin, R. O., Mullins, B. E., Bennington, R. F., and Reuter, C. E., "Hindering Reverse Engineering: Thinking Outside the Box," *IEEE Security and Privacy*, Vol. 6, No. 2, pp. 58-65, March/April 2008. [CCR]

Augeri, C. J., Mullins, B. E., Baird, L. C., Bulutoglu, D. A., and Baldwin, R. O., "An Algorithm for Determining Isomorphism Using Lexicographic Sorting and the Matrix Inverse," *Congressus Numerantium, Utilitas Mathematica Publishing*, Vol. 184, pp. 97-120, December 2007. [CCR]

PACHTER, MEIR

Kish, B., Jacques, D., and Pachter, M., "Optimal Control of Sensor Threshold for Autonomous Wide Area Search Munitions," *AIAA Journal of Guidance, Control and Dynamics*, Vol. 30, No. 5, pp. 1239-1248, September-October 2007.

Pachter, M., Chandler, P. R., and Dharba, S., "Optimal MAV Operations in an Uncertain Environment," *International Journal of Robust and Nonlinear Control*, Vol. 18, Issue 2, pp. 248-262, January 2008.

Pachter, M., Ceccarelli, N., and Chandler, P., "Vision-Based Target Geo-Location Using Micro Aerial Vehicles," *AIAA Journal of Guidance, Control and Dynamics*, Vol. 31, No 3, pp. 597-615, May-June 2008.

PETERSON, GILBERT L.

Stevens, M., Williams, P. D., Peterson, G. L., and Kurkowski, S. H., "Integrating Trust into the CyberCraft Initiative via the Trust Vectors Model," *IEEE Computational Intelligence Magazine*, Vol. 3, No. 2, pp. 65-68, May 2008.

Okolica, J. S., Peterson, G. L., and Mills, R. F., "Using Author Topic to Detect Insider Threats from Email Traffic," *Digital Investigations Journal*, Vol. 4, pp. 158-164, September 2008.

Peterson, G. L., Raines, R. A., and Baldwin, R. O., "Digital Forensics Educational Needs in the Miami Valley Region," *Journal of Applied Security Research*, Vol. 3, No. 3-4, pp. 429-439, June 2008. [CCR]

Peterson, G. L., Mayer, C. B., Kubler, T., "Ant Clustering with Locally Weighting Ant Perception and Diversified Memory," *Swarm Intelligence*, Vol. 2, No. 1, pp. 43-68, May 2008.

Peterson, G. L., and McBride, B. T., "Importance of Generalizability to Anomaly Detection," *Knowledge and Information Systems*, Vol. 14, No 3, pp. 377-392, March 2008.

Okolica, J. S., Peterson, G. L., and Mills, R. F., "Using PLSI-U to Detect Insider Threats by Datamining Email," *Special Issue on Network Forensics of the International Journal of Security and Networks (IJSN)*, Vol.3, No. 2 , pp. 114-121, 2008.

Wardell, D.C., and Peterson, G.L., "Fuzzy State Aggregation and Policy Hill Climbing for Stochastic Environments," *International Journal of Computational Intelligence and Applications*, Vol. 6, No. 3, pp. 413-428, 2007.

RAINES, RICHARD A.

Peterson, G. L., Raines, R. A., and Baldwin, R. O., "Digital Forensics Educational Needs in the Miami Valley Region," *Journal of Applied Security Research*, Vol. 3, No. 3-4, pp. 429-439, June 2008. [CCR]

Dube, T. E., Birrer, B. D., Raines, R. A., Baldwin, R. O., Mullins, B. E., Bennington, R. F., and Reuter, C. E., "Hindering Reverse Engineering: Thinking Outside the Box," *IEEE Security and Privacy*, Vol. 6, No. 2, pp 58-65, March/April 2008. [CCR]

RAQUET, JOHN F.

Jordt, G., Baldwin, R., Raquet, J., and Mullins, B., "Energy Cost and Error Performance of Range-Aware, Anchor-Free Localization Algorithms," *Ad hoc Networks*, Vol. 6, No. 4, pp. 539-559, June 2008. [ANT]

SCHMIDT, JASON D., Maj

Venema, T. M., and Schmidt, J. D., "Optical Phase Unwrapping in the Presence of Branch Points," *Opt. Express*, Vol. 16, p. 6985, May 2008. [CDE]

Louthain, J. A., and Schmidt, J. D., "Anisoplanatism in Airborne Laser Communication," *Opt. Express*, Vol. 16, p. 10769-10785. July 2008. [CDE]

TERZUOLI, ANDREW J., Jr.

Bradley, C. J., Collins, P. J., Falconer, D. G., Fortuny-Guasch, J., Terzuoli, Jr., A. J., "Evaluation of a Near-Field Monostatic to Bistatic Equivalence Theorem," *IEEE Trans. on Geoscience & Remote Sensing*, Vol. 46, No. 2, pp. 449-457, Feb 2008.

5.2.7. REFEREED CONFERENCE PUBLICATIONS

Note: Research Center affiliations are listed in [] if applicable.

CONFERENCE PAPERS ACCEPTED ON THE BASIS OF FULL PAPER REVIEW

ANDEL, TODD R., Maj

Andel, T. R., and Yasinsac, A., "Automated Evaluation of Secure Route Discovery in MANET Protocols," in 15th International SPIN Workshop on Model Checking of Software (SPIN 2008), Los Angeles, CA, Aug 10-12, 2008; Vol. 5156 LNCS, pp. 26-41.

BALDWIN, RUSTY O.

Kelly, D. J., Raines, R. A., Baldwin, R. O., Mullins, B. E., and Grimaila, M. R., "A Framework for Classifying Anonymous Networks in Cyberspace," *Proceedings of the International Conference on Information Warfare and Security (ICIW 2008)*, Athens, Greece, June 2008, pp. 221-232. [CCR]

Kelly, D. J., Raines, R. A., Baldwin, R. O., Mullins, B. E., and Grimaila, M. R., "Analyzing Anonymity in Cyberspace," *3rd International Conference on Information Warfare and Security*, Omaha NE, 24-25 April 2008, pp. 233-244. [CCR]

Gorsuch, J. E., Mullins, B. E., Raines, R. A., and Baldwin, R. O., "Analysis of Routing Worm Infection Rates on an IPv4 Network" *3rd International Conference on Information Warfare and Security*, Omaha NE, 24-25 April 2008, pp. 143-152. [CCR]

Hubenko, V. P., Raines, R. A., Baldwin, R. O., Mullins, B. E., Mills, R. F., and Grimaila, M. R., "A Secure and Efficient Satellite-based Multicast Architecture," *2008 IEEE Radio and Wireless Symposium*, Orlando, FL, January 2008, pp. 227-230. Finished 3rd place in "Best Student Paper" competition. [CCR]

CAIN, STEPHEN C.

Mantravadi, S., and Cain, S., "Analysis and Verification of Resolution Limits of a Hyperspectral Imager Using Computed Tomography," *Proceedings of the SPIE*, Vol. 7094, Aug 2008.

HAVRILLA, MICHAEL J.

Glover, B. B., Whites, K. W., Hyde, M. W., and Havrilla, M. J., "Complex Permittivity of Carbon Loaded Dielectric Sheets with Printed Metallic Square Rings," *2nd International Congress on Advanced Electromagnetic Materials in Microwaves and Optics*, pp. 762-764, Pamplona, Spain, September 2008.

Hyde, M., and Havrilla, M., "Electromagnetic Characterization of Two-Layer Dielectrics Using Two Flanged Rectangular Waveguides," *IEEE International Measurement Technology Conference Proceedings*, pp. 1648-1652, Vancouver, British Columbia, Canada, May 2008.

Havrilla, M., and Hyde M., "Dyadic Green's Function of an Imperfectly-Conducting Dual Waveguide Probe," *Asia Pacific Microwave Conference Proceedings*, pp. 741-744, Bangkok, Thailand, December 2007.

Bogle, A., Havrilla, M., Kempel, L., and Rothwell, E., "Electromagnetic Material Characterization Using a Rectangular Waveguide to Excite a Homogeneous Media in a Parallel-Plate Waveguide Using a Transverse Slot," *Antenna Measurement Techniques Association (AMTA) Conference Proceedings*, pp. 102-105, St. Louis, MO, November 2007.

McGuirk, J., Havrilla, M., Collins, P., and Hilderbrand, G., "A Three-Short Focused-Beam Calibration Technique for Material Characterization Measurements," *Antenna Measurement Techniques Association (AMTA) Conference Proceedings*, pp. 122-126, St. Louis, MO, November 2007.

HOPKINSON, KENNETH M.

Oimoen, S.C., Peterson, G.L., Hopkinson, K.M., "Network Formation Using Ant Colony Optimization – A Comparative Analysis," *IEEE Sixth International Conference on Ant Colony Optimization and Swarm Intelligence (ANTS) 2008*, Brussels, Belgium, pp. 405-406, 22-24 September 2008.

Wilkins, D.C., Kolbe, M.B., Raines R.A., Williams, P.D., Hopkinson, K., "Designing and Implementing a Critical Infrastructure Lab for Educational Research", *3rd International Conference on Information Warfare and Security*, Omaha, NE, USA., pp. 1-5. [CD], 24-25 April 2008. [CCR]

Kolbe, M.B., Wilkin, D.C., Williams, R.A., Raines, R.A., Hopkinson, K., "Taxonomy of Critical Infrastructure Control System Effects," *3rd International Conference on Information Warfare and Security*, Omaha, NE, USA., pp. 1-5. [CD], 24-25 April 2008. [CCR]

Wilkins, D.C., Kolbe, M.B., Raines R.A., Williams, P.D., Hopkinson, K., "Cyberspace Policies and Politics for Critical Infrastructure," *2nd IFIP WG 11.10 International Conference on Critical Infrastructure Protection*, Arlington, VA, USA, pp. 1-6, 16-19 March 2008. [CCR]

KIM, YONG C.

Paul, J., Stone, S., Kim, Y. C., and Bennington, R., "A Method and FPGA Architecture for Real-Time Polymorphic Reconfiguration," *IEEE International Conference on Field Programmable Technology (ICFPT November, 2007)*, pp. 65-72, Yokohama, Japan.

Crouch, J. W., Patel, H. J., Kim, Y. C., and Bennington, R. W., "Creating Unique Identifiers on Field Programmable Gate Arrays Using Natural Processing Variations," *Accepted to IEEE International Conference on Field Programmable Logic and Applications (ICFPL 2008)*, pp. 579-582, Heidelberg, Germany, September 2008.

LAMONT, GARY B.

Peterson, M., Lamont, G., and Moore, F., "Variation Operator Performance for Evolved Image Reconstruction Transforms," *IEEE International Conference on Systems, Man, and Cybernetics (SMC 2007)*, Montreal, Canada, October 2007.

Nowak, D. J., Price, I., and Lamont, G. B., "Self Organized UAV Swarm Planning Optimization for Search And Destroy Using Swarmfare Simulation," *Winter Simulation Conference*, Washington, D.C., December 2007. [ANT]

Nowak, D. J., and Lamont, G. B., "Autonomous Agent Behavior Generation Using Multiobjective Evolutionary Optimization," *ACM Genetic and Evolutionary Computation Conference (GECCO)*, Atlanta, GA, 12-16 July, 2008. [ANT]

Nowak, D. J., Lamont, G. B., and Peterson, G. L., "Emergent Architecture in Self Organized Swarm Systems for Military Applications," *ACM Genetic and Evolutionary Computation Conference (GECCO)*, Atlanta, GA, 12-16 July, 2008. [ANT]

Ozemir, H. I., Raquet, J. F., and Lamont, G. B., “*Design of a Regional Navigation Satellite System Constellation Using Genetic Algorithms*,” Savannah, GA, August, 2008. [ANT]

MARTIN, RICHARD K.

Haker, M., R. Martin, K., and Chakravarthy, V., “Comparison of Hardware Implementation of Transform Domain Communications to Theoretical Results,” in *Proc. Military Communications Conference (MILCOM)*, Orlando, FL, October 2007.

Martin, R. K., Velotta, J. S., and Raquet, J. F., “Multicarrier Modulation as a Navigation Signal of Opportunity,” in *Proc. IEEE Aerospace Conference*, Big Sky, MT, March 2008. [ANT]

Sambora, M., Martin, R. K., and Cain, S. C., “Improving the Performance of Projection-Based Image Registration,” in *Proc. IEEE Aerospace Conference*, Big Sky, MT, March 2008.

Raquet, J. F., and Martin, R. K., “Non-GNSS Radio Frequency Navigation,” in *Proceedings of International Conference on Acoustics, Speech, and Signal Processing (ICASSP)*, Las Vegas, NV, April 2008. [ANT]

Townsend, J. D., Saville, M. A., Hong, S. M., and Martin, R. K., “Simulator for Velocity Gate Pull-Off Electronic Countermeasure Techniques,” in *Proc. 2008 IEEE Radar Conf.*, Rome, Italy, May 2008.

Townsend, J. D., Saville, M. A., Hong, S. M., Martin, R. K., Simpson, C., and Mayhew, O., “Waveform Optimization for Electronic Countermeasure Technique Generation,” in *Proc. 2008 IEEE Radar Conference*, Rome, Italy, May 2008.

Ozer, S., Saville, M. A., Collins, P. J., Terzuoli, A. J., and Martin, R. K., “Modeling of a Strike Formation with Coherent Self-protection Jammers,” in *Proc. 2008 IEEE Radar Conference*, Rome, Italy, May 2008.

MILLS, ROBERT F.

Skarda, B., Mills, R.F., McDonald, J.T., and Strouble, D., “Operationalizing Social Engineering for Offensive Cyber Operations,” *13th International Command and Control Research and Technology Symposium (ICCRTS)*, Bellevue WA, (Best Student Paper: Concepts, Theory, and Policy Track), June 2008. [CCR]

Grimaila, M.R., Mills, R.F., and Fortson, L.W., “An Automated Information Asset Tracking Methodology to Enable Timely Cyber Incident Mission Impact Assessment,” *13th International Command and Control Research and Technology Symposium (ICCRTS)*, Bellevue, WA, June 2008. [CCR]

Scheeres, J.W., Mills, R.F., and Grimaila, M.R., “Establishing the Human Firewall: Improving Resistance to Social Engineering Attacks,” *3rd International Conference on Information Warfare and Security (ICIW 2008)*, Omaha NE, April 2008. [CCR]

Hansen, A., Williams, P., Mills, R., “Red Flag; A Realistic Training Environment for the Future,” *3rd International Conference on Information Warfare and Security (ICIW 2008)*, Omaha, NE, April 2008. [CCR]

Sorrels, D., Grimaila, M.R., Fortson, L.W., and Mills, R.F., “CIMIA: An Architecture for Near Real-Time Situational Awareness in Cyberspace,” *3rd International Conference on Information Warfare and Security (ICIW 2008)*, Omaha NE, April 2008. [CCR]

Hellesen, D.L., Grimaila, M.R., Fortson, L.W., and Mills, R.F., “Information Asset Value Quantification,” *3rd International Conference on Information Warfare and Security (ICIW 2008)*, Omaha NE, April 2008. [CCR]

Lacey, T.H., Mills, R.F., Raines, R.A., Williams, P.D., Oxley, M.E., Bauer, K.W., and Rogers, S.K., “A Qualia Representation of Cyberspace,” *Proceedings of the SPIE Conference*, Vol. 6964, 69640C, April 11, 2008. [CCR]

Hubenko, V.P., Raines, R.A., Baldwin, R.O., Mullins, B.E., Mills, R.F., and Grimaila, M.R., "A Secure and Efficient Satellite-based Multicast Architecture," *IEEE Radio and Wireless Symposium*, Orlando FL, 3rd Place Best Student Papers, 21-23 January, 2008. [CCR]

Roberts, M.L., Temple, M.A. and Mills, R.F., "An SMSE Implementation of CDMA with Partial Band Interference Suppression", *2007 IEEE Global Communication Conference (GLOBECOMM 07)*, Washington, DC, 26-30 Nov 2007. [CCR]

Hubenko, V.P., Raines, R.A., Baldwin, R.O., Mullins, B.E., Mills, R.F., and Grimaila, M.R., "Applying a Secure and Efficient Low Earth Orbit Satellite-Based Multicast Architecture in a Deployed Environment," *IEEE Military Communications Conference (MILCOM 07)*, Orlando FL, pp. 1-7, Oct 2007. [CCR]

Lacey, T.H., Mills, R.F., Raines, R.A., Williams, P.D., and Rogers, S.K., "A Qualia Framework for Awareness in Cyberspace," *IEEE Military Communications Conference (MILCOM 07)*, Orlando FL, Oct 2007. [CCR]

MULLINS, BARRY E.

Judge, M. G., Williams, P. D., Kim, Y. C., and Mullins, B. E., "Software Cannot Protect Software: An Argument for Dedicated Hardware in Security and a Categorization of the Trustworthiness of Information," *Workshop in Information Security Theory and Practices*, Sevilla, Spain, pp. 36-48, 13-16 May 2008. [CCR]

Gorsuch, J. E., Mullins, B. E., Raines, R. A., and Baldwin, R. O., "Analysis of Routing Worm Infection Rates on an IPv4 Network" *3rd International Conference on Information Warfare and Security*, Omaha NE, pp. 143-152, 24-25 April 2008. [CCR]

Kelly, D. J., Raines, R. A., Baldwin, R. O., Mullins, B. E., and Grimaila, M. R., "Analyzing Anonymity in Cyberspace," *3rd International Conference on Information Warfare and Security*, Omaha NE, pp. 221-232, 24-25 April 2008. [CCR]

Kelly, D. J., Raines, R. A., Baldwin, R. O., Mullins, B. E., and Grimaila, M. R., "A Framework for Classifying Anonymous Networks in Cyberspace," *3rd International Conference on Information Warfare and Security*, Omaha NE, pp. 233-244, 24-25 April 2008. [CCR]

Hubenko, V. P., Raines, R. A., Baldwin, R. O., Mullins, B. E., Mills, R. F., and Grimaila, M. R., "A Secure and Efficient Satellite-based Multicast Architecture," *IEEE Radio and Wireless Symposium 2008*, Orlando FL, pp. 227-230, Third place in Best Student papers, 21-23 January 2008. [CCR]

Hubenko, V. P., Raines, R. A., Baldwin, R. O., Mullins, B. E., Mills, R. F., and Grimaila, M. R., "Applying A Secure And Efficient Low Earth Orbit Satellite-Based Multicast Architecture in a Deployed Environment," *MILCOM 2007*, Orlando FL, pp. 1-7, October 2007. [CCR]

PACHTER, MEIR

Pachter, M., "A Game Against Nature," *International Symposium on Guidance and Differential Games: A Tribute to Professor Josef Shinar in Honor of His 75th Birthday*, the Israel Institute of Technology, Haifa, Israel, November 8, 2007.

Pachter, M., "Optimal Guidance of a Relay Air Vehicle," Tel Aviv University, Tel Aviv, Israel, July 7, 2008.

Pachter, M., "Cooperative Control and Estimation: Good and Good Lookin," AFOSR contractors meeting, Washington, DC, August 7, 2008.

RAINES, RICHARD A.

Carls, J. W., Raines, R. A., Grimaila, M. R., and Rogers, S. K., "Biometric Enhancements: Template Aging Error Score Analysis," *IEEE Biometrics Symposium*, Amsterdam, Netherlands, September 2008. [CCR]

- McDonald, J. T., Raines, R. A., Kurkowski, S., and Bennington, R. W., "Practical Methods for Software Security Education," *Faculty Workshop on Secure Software Development*, Orlando, FL, pp. 1-5 (CD), April 2008. [CCR]
- Kelly, D. J., Raines, R. A., Baldwin, R. O., Mullins, B. E., and Grimaila, M. R., "Analyzing Anonymity in Cyberspace," *3rd International Conference on Information Warfare and Security*, Omaha NE, pp 1-5 (CD), April 2008. [CCR]
- Gorsuch, J. E., Mullins, B. E., Raines, R. A., and Baldwin, R. O., "Analysis of Routing Worm Infection Rates on an IPv4 Network" *3rd International Conference on Information Warfare and Security*, Omaha NE, 24-25 April 2008. [CCR]
- Kolbe, M. B., Wilkin, D. C., Williams, P. D., Raines, R. A., and Hopkinson, K., "Taxonomy of Critical Infrastructure Control System Effects," *3rd International Conference on Information Warfare and Security*, Omaha NE, pp 1-5 (CD), April 2008. [CCR]
- Wilkin, D. C., Kolbe, M. B., Raines, R. A., Williams, P. D., and Hopkinson, K., "Designing and Implementing a Critical Infrastructure Lab for Educational Research," *3rd International Conference on Information Warfare and Security*, Omaha NE, pp 1-5 (CD), April 2008. [CCR]
- Wilkin, D. C., Raines, R. A., Williams, P. D., and Hopkinson, K., "Cyberspace Policies and Politics for Critical Infrastructure," *2nd IFIP WG 11.10 International Conference on Critical Infrastructure Protection*, Arlington VA, pp. 1-6 (CD), March 16-19, 2008. [CCR]
- Kelly, D. J., Raines, R. A., Baldwin, R. O., Mullins, B. E., and Grimaila, M. R., "A Framework for Classifying Anonymous Networks in Cyberspace," *3rd International Conference on Information Warfare and Security*, Omaha NE, pp 1-5 (CD), April 2008. [CCR]
- Carls, J. W., Raines, R. A., Grimaila, M. R., and Rogers, S. K., "Biometric Security Enhancements Through Template Aging Matching Score Analysis," *3rd International Conference on Information Warfare and Security*, Omaha NE, pp 1-5 (CD), April 2008. [CCR]
- Lacey, T. H., Mills, R. F., Raines, R. A., and Rogers, S. K., "Towards A Qualia Representation of Cyberspace," *2nd Annual Defense and Security Symposium's "Evolutionary and Bio-Inspired Computation: Theory and Application (EBICOMP) II" Conference*, February 2008. [CCR]
- Hubenko, V. P., Raines, R. A., Baldwin, R. O., Mullins, B. E., Mills, R. F., and Grimaila, M. R., "A Secure and Efficient Satellite-based Multicast Architecture," *IEEE Radio and Wireless Symposium*, 3rd Place Best Student Papers, Orlando FL, January 2008. [CCR]
- Hubenko, V. P., Raines, R. A., Baldwin, R. O., Mullins, B. E., Mills, R. F., and Grimaila, M. R., "Applying a Secure and Efficient Low Earth Orbit Satellite-Based Multicast Architecture in a Deployed Environment," *IEEE Military Communications Conference (MILCOM)*, Orlando FL, pp 1-7 (CD), October 2007. [CCR]
- Roberts, M. L., Temple, M. A., Mills, R. F., and Raines, R. A., "An SMSE Implementation of CDMA with Partial Band Interference Suppression," *2007 IEEE Global Communications Conference (GLOBECOMM)*, Washington DC, pp. 1-6 (CD), October 2007. [CCR]
- Lacey, T. H., Mills, R. F., Raines, R. A., Williams, P. D., and Rogers, S.K., "A Qualia Framework for Awareness in Cyberspace," *2007 IEEE Military Communications Conference (MILCOM)*, Orlando FL, pp 1-6 (CD), October 2007. [CCR]

RAQUET, JOHN F.

- Martin, R., Velotta, J., and Raquet, J., "Multicarrier Modulations as a Navigation Signal of Opportunity," *Proceedings of IEEE Aerospace Conference*, Big Sky, MT, Mar 2008. [ANT]

Raquet, J., and Amt, J., "Flight and Ground Testing of a Beacon-Based Precision Navigation System at non-GPS Frequencies," *Proceedings of AIAA Test & Evaluation Conference*, Los Angeles, CA, Feb 2008. [ANT]

Dainty, B., Raquet, J., and Beckman, R., "Improving Geostationary Satellite GPS Positioning Error Using Dynamic Two-Way Time Transfer Measurements," *Proceedings of 39th Annual Precise Time and Time Interval (PTTI) Systems And Applications Meeting*, Long Beach, CA, Nov 2007. [ANT]

STARMAN, LAVERN A., Maj

Starman, L., Langley, D., and Rogers, S., "Microshutter Developments for IR Applications," *Proceedings of the SPIE*, Vol. 7096, pp. 70960L-19, 2008.

Langley, D., Rogers, S., and Starman, L., "Fabrication Studies for Scaling Photonic MEMS Microshutter Designs," *Proceedings of the SPIE*, Vol. 7096, pp. 70960L-15, 2008.

Langley, D., Rogers, S., and Starman, L., "Reconfigurable-pitch Photonic MEMS Devices," *Proceedings of the SPIE*, Volume 7096, pp. 70960L-9, 2008.

TEMPLE, MICHAEL A.

Farooq, J., Temple, M. A., and Saville, M. A., "Exploiting Frequency Diverse Array Processing to Improve SAR Image Resolution," *2008 IEEE Radar Conference*, Rome Italy, 26-30 May 08.

Roberts, M. L., Temple, M. A. and Mills, R. F., "An SMSE Implementation of CDMA with Partial Band Interference Suppression," *2007 IEEE Global Communications Conference (GLOBECOM 07)*, pp. 4424-4428, November 07.

TERZUOLI, ANDREW J., JR.

Ozer, S., Saville, M. A., Collins, P. J., and Terzuoli, A. J., "Increasing the Survivability of a Strike Aircraft Formation Through Coherent Self-Protection Jammers," *Proceedings of the NATO RTO SET-130 Symposium on Military Sensing*, Orlando, FL, US Gov't Restricted to NATO Nations Only, 12-14 March 2008.

Ozer, S., Saville, M. A., Collins, P. J., and Terzuoli, A. J., "Modeling of a Strike Formation with Coherent Self-Protection Jammers," *Proceedings of the 2008 IEEE Radar Conference (RadarCon)*, Rome, Italy, 26-30 May 2008.

Cakiroglu, B., Collins, P. J., Havrilla, M. J., Sertel, K., and Terzuoli, A. J., "Fabrication of Multi-scale Triangular Patch High Impedance Ground Planes to Improve the Bandwidth of Conformal Bow-Tie Antennas for Remote Sensing," *IGARSS 2008: Proceedings of the 2008 IEEE International Geoscience and Remote Sensing Symposium*, Boston, MA, 6-11 July 2008.

Dogrul, M., Collins, P. J., Saville, M. A., Sertel, K., and Terzuoli, A. J., "Simulation of Improved Bandwidth Conformal Bow-Tie Antennas Printed on Multi-scale Triangular-Patch High-Impedance Ground Planes," *IGARSS 2008: Proceedings of the 2008 IEEE International Geoscience and Remote Sensing Symposium*, Boston, MA, 6-11 July 2008.

TRIAS, ERIC D., Maj

Trias, E., Navas, J., Ackley, E.S., Forrest, S., and Hermenegildo, M., "Two Efficient Representations for Set-Sharing Analysis in Logic Programs," *17th Workshop for Functional and Logic Programming*, WFLP'08, July 2008.

CONFERENCE PAPERS ACCEPTED ON THE BASIS OF ABSTRACT REVIEW

CAIN, STEPHEN C.

Mantravadi, S., and Cain, S., "Analysis and Verification of Resolution Limits of a Hyperspectral Imager Using Computed Tomography," *Proceedings of the SPIE*, Vol. 7094, Aug 2008.

KIM, YONG C.

Judge, M., Williams, P., Kim, Y. C., and Mullins, B. E., "Software Cannot Protect Software: An Argument or Dedicated Hardware in Security and a Categorization of the Trustworthiness of Information," *Workshop in Information Security Theory and Practices*, Sevilla, Spain, May 13, 2008.

LAMONT, GARY B.

Peterson, M. R., and Lamont, G. B., "Improving Image Resolution with Edge-Targeted Filter Evolution," *2008 IEEE Aerospace Conference*, Bozeman, Montana, 1-8 March, 2008.

Peterson, M. R., and Lamont, G. B., "Fitness Landscape Analysis of Evolved Image Transforms for Defense Applications," *2008 SPIE Defense Security Symposium*, Miami, FL, 17-30 March, 2008.

Nowak, D. J., and Lamont, G. B., "Autonomous Self Organized UAV Swarm Systems," *National Aerospace and Electronics Conference (NAECON)*, Dayton, OH, July, 2008. [ANT]

Ewing, R.L., Kadrovach, B.A., Eyster, M.D., Lamont, G.B., and Talbert, M.L., "LSA-2m Image Registration for Formation Flying," *National Aerospace and Electronics Conference (NAECON)*, OH, July, 2008. [ANT]

Babb, B., Moore, F., Peterson, M., and Lamont, G., "Improved Satellite Image Compression and Reconstruction via Genetic Algorithms," *Electro-Optical Remote Sensing, Photonic Technologies, and Applications II Conference, SPIE Symposium on Optics/Photonics in Security and Defense*, Vol. 7114, Wales, UK, September 2008.

MILLS, ROBERT F.

Grimaila, M.R., Mills, R.F., and Fortson, L., "Improving the Cyber Incident Mission Impact Assessment (CIMIA) Process," *Cyber Security and Information Intelligence Research Workshop*, Oak Ridge National Laboratory TN, May 12-14 2008. [CCR]

RAINES, RICHARD A.

Lacey, T. H., Mills, R. F., Raines, R. A., Williams, P. D., Oxley, M. E., Bauer, K. W., Rogers, S. K., "A Qualia Representation of Cyberspace," *Proceedings of the SPIE Conference*, Vol. 6964, 69640C, Orlando FL, April 2008. [CCR]

RAQUET, JOHN F.

Schexnayder, C., Raquet, J., Martin, R., and Velotta, J., "Effects of Oversampling and Multipath on Navigation Using OFDM Signals of Opportunity," *Proceedings of ION GNSS-2008*, Savannah, GA, Sep 2008. [ANT]

Ozdemir, H., Raquet, J., and Lamont, G., "Design of a Regional Satellite Navigation System Constellation Using Genetic Algorithms," *Proceedings of ION GNSS-2008*, Savannah, GA, Sep 2008. [ANT]

Nielsen, M., Raquet, J., Veth, M. and Pachter, M., "Development and Flight Test of a Robust Optical-Inertial Navigation System Using Low-Cost Sensors," *Proceedings of ION GNSS-2008*, Savannah, GA, Sep 2008. [ANT]

Amt J. J., Raquet, J.F., and Pachter, M., "Accurate Positioning Using a Planar Pseudolite Array," *Proceedings of IEEE/ION PLANS 2008*, Monterey, CA, May 2008. [ANT]

Raquet J. and Martin, R., "Non-GNSS Radio Frequency Navigation," *Proceedings of ICASSP 2008*, Las Vegas, NV, Mar 2008. [ANT]

TEMPLE, MICHAEL A.

Richards, E. F., Temple, M. A. and Hicks, K. D., "Commercial 802.11 Wireless Link for Tactical Air to Ground Military Communications," *2007 Military Communications Conference (MILCOM 2007)*, Orlando FL, 29-31 October 07.

VETH, MICHAEL J., Lt Col

Webber, F., Veth, M., Anderson, R., Nielsen, M., "Tightly-Coupled INS, GPS, and Imaging Sensors for Low-Cost, Precision Geolocation," presented at *the Joint Navigation Conference*, Las Vegas, NV, March 2008. [ANT]

Weaver, A., Veth, M., "Autonomous Aerial Refueling: An Image-Aided Approach," presented at *the Joint Navigation Conference*, Las Vegas, NV, March 2008. [ANT]

Gray, J., Veth, M., Raquet, J., "Deeply Integrated Feature Tracking for Embedded Image-Aided Navigation," presented at *the Joint Navigation Conference*, March 2008. [ANT]

Veth, M.J., Anderson, R., Webber, F., Nielsen, M., "Tightly-Coupled INS, GPS, and Imaging Sensors for Precision Geolocation," *Sensor Geopositioning Workshop 2008*, National Geospatial-Intelligence Center, Reston, VA, August 2008. [ANT]

Veth, M.J., Anderson, R., Webber, F., "Tightly-Coupled INS, GPS, and Imaging Sensors for Precision Geolocation," *GeoINT Symposium, National Geospatial-Intelligence Center*, St. Louis, MO, September 2008. [ANT]

Veth, M.J., Anderson, R., Webber, F., Nielsen, M., "Tightly-Coupled INS, GPS, and Imaging Sensors for Precision Geolocation," *Proceedings of the ION National Technical Meeting*, February 2008. [ANT]

5.2.8. SUBSTANTIAL CONSULTATIONS

Note: Research Center affiliations are listed in [] if applicable.

BALDWIN, RUSTY O.

Baldwin, Rusty O., "Data Analyst for Wound Treatment Study," Wright-Patterson Medical Center (SGCQW), February-March 2008.

COLLINS, PETER J.

Collins, Peter J., "National RCS Measurement Facilities Certification Program (Range Certification Reviewer)," Range Commanders Council Signature Measurements Standards Group, December 2007-September 2008.

Collins, Peter J., "National RCS Test Facility Operations and Maintenance Source Selection (Technical Advisor)," Air Force Materiel Command, 46th Test Wing, Eglin AFB, FL, 4-15 February 2008.

Collins, Peter J., "Classified RCS Measurement Test Support (Technical Advisor)," Secretary of the Air Force, Office of Research, 12 August, 29 September – 3 October 2008.

Collins, Peter J., "Air Force Research Laboratory \$2.5M Radar Procurement (requirements evaluation and factory acceptance test observer)," Air Force Research Laboratory, Sensors Directorate, 22-29 March, 14 May 2008.

Collins, Peter J., "Classified Test Infrastructure Development (Proposal evaluator and Technical Advisor)," Air Force Research Laboratory, 6 May, 16-17 September 2008.

HOPKINSON, KENNETH M.

Thomas, Ryan W., and Hopkinson, Kenneth M., "Cognitive Radio Working Group (Advisor)," The Technical Cooperation Program, Cognitive Radio Workshop, Ottawa, ON and Washington, D.C., May through October 2008.

KIM, YONG C.

Kim, Yong, C., "DOD FPGA Anti-Tamper Requirement, Assessment and Development (Advisor)," FPGA Mission Assurance Study, June.-August 2008.

LAMONT, GARY B.

Lamont, Gary B., "Bioinformatics, Evolutionary Computation, Parallel and Distributive Processing for Signal and Image Processing," Dr. Robert Ewing and Dr. Richard Linderman, Air Force Research Laboratory, Information Directorate.

Lamont, Gary B., "Optimal Wavelet Coefficient Determination with Genetic Algorithms," Air Force Research Laboratory, Information Directorate, Dr. Robert Ewing, Air Force Research Laboratory, Sensors Directorate.

Lamont, Gary B., Parallel Simulation of UAVs, Mike Foster, Air Force Research Laboratory, Sensors Directorate.

Lamont, Gary B., "High-Frequency Laser Design using Multi-objective Optimization," Dr. Thomas Nelson, Air Force Research Laboratory, Sensors Directorate.

MILLS, ROBERT F.

Mills, R. F., Raines, R. A., and Williams, P. D., "Developing Cyberspace Competencies for Air Force Professional Military Education," white paper, Headquarters Air Force Operations Directorate and Air University, October 2007.

PACHTER, MEIR

Pachter, Meir, Consulting with AFRL/RBCA on a regular basis: Cooperative Control of UAVs.

Pachter, Meir, Consulting with AFOSR: Estimation, System Identification and Signal Processing, and Optimal Control.

RAINES, RICHARD A.

Raines, Richard A., Senior Mentor Forum, Commander, Air Force Cyber Command (Provisional).

Raines, Richard A., DoD Force Transformation Chair.

Mills, R. F., Raines, R. A., and Williams, P. D., "Developing Cyberspace Competencies for Air Force Professional Military Education," white paper, Headquarters Air Force Operations Directorate and Air University, October 2007.

TERZUOLI, ANDREW J., Jr.

Terzuoli, Andrew J., "Wright-Patterson MASINT Development Consortium (WPMDC)" with NASIC/DEM, January 2005 -Present.

Terzuoli, Andrew J., "Wright-Patterson Passive Radar Working Group (PRWG)" with NASIC/AD, January 2002 - Present.

Terzuoli, Andrew J., "Wright-Patterson Over the Horizon Radar (OTHR) Working Group" with NASIC/AD & DE, June 2007 - Present.

Terzuoli, Andrew J., “Harnessing Remote Sensed Data” with NASIC/SCX June 2007- Present.

Terzuoli, Andrew J., “RF Sensor Enhancement” with AFRL/SNR June 2003 – Present.

THOMAS, RYAN W., Capt

Thomas, Ryan W., and Hopkinson, Kenneth M., “Cognitive Radio Working Group (Advisor),” The Technical Cooperation Program, Cognitive Radio Workshop, Ottawa, ON and Washington, D.C., May through October 2008.

TOUSSAINT, GREGORY J., Lt Col

Toussaint, Gregory J., “Small Business Innovation Research (SBIR) Technical Monitor, Topic Team Lead, and Evaluator,” Missile Defense Agency, October 2007 - September 2008.

5.2.9. BOOKS AND CHAPTERS IN BOOKS

BALDWIN, RUSTY O.

Marsh, D. W., Baldwin, R. O. and Mullins, B. E., “Wireless Sensor Network Authorization Specification Language: A Formal Model,” *Security in Ad-hoc and Sensor Networks*, World Scientific Press, March 2008.

LAMONT, GARY B.

Kleeman, M.P. and Lamont, G.B., “Evolutionary Multi-Objective Optimization in Assignments Problems,” in *Multi-Objective Optimization in Computational Intelligence: Theory and Practice*, 29 pages, IRM Press, March, 2008.

Kleeman, M. P., and Lamont, G. B., “Evolutionary Multi-Objective Optimization in Military Applications,” in *Multi-Objective Optimization in Computational Intelligence: Theory and Practice*, 47 pages, IRM Press, March, 2008.

MARTIN, RICHARD K.

Martin, R. K., “Adaptive Equalization for Wireless Channels,” chapter 9, pp. 235-267, in *Adaptation in Wireless Communications, Volume 1: Adaptive Signal Processing*. Boca Raton: CRC Press, 2008.

MULLINS, BARRY E.

Marsh, D. W., Baldwin, R. O. and Mullins, B. E., “Wireless Sensor Network Authorization Specification Language: A Formal Model,” *Security in Ad-hoc and Sensor Networks*, World Scientific Press, March 2008.

PACHTER, MEIR

Pachter, M., Chandler, P. R., and Dharba, S., “Optimal Control of an ATR Module Equipped MAV/Human Operator Team,” *Cooperative Networks: Control and Optimization*, Grundlel, Murphey, Pardalos, Prokopyev, editors, Edward Elgar Publishing, June 2008.

Bode, J., Jacques, D., and Pachter, M., “Optimal Control of the Weapon Operating Characteristic with Control Inequality Constraints,” *Optimization and Cooperative Control Strategies - Proceedings of the 8th International Conference on Cooperative Control and Optimization*, LNCS; Springer; 2008.

Baker, J., Holsapple, R., Girard, A., Pachter, M., and Chandler, P., “Operator - Aided Decision Processes for Unmanned Aerial Vehicles in a Stochastic Environment,” *Optimization and Cooperative Control Strategies - Proceedings of the 8th International Conference on Cooperative Control and Optimization*, LNCS; Springer; 2008.

PETERSON, GILBERT L.

Fogg, P., Peterson, G. L., and Veth, M., "Digital Image Background Matching for Identifying Suspects," *Advances in Digital Forensics IV*, S. Sheno and I. Ray, Eds., New York, NT: Spring Science+Business Media, pp. 307-324, 2008.

Molina, D., Zimmermann, M. A., Roberts, G. R., Eadie, M. T., and Peterson, G. L., "Timely Rootkit Detection During Live Response," *Advances in Digital Forensics IV*, S. Sheno and I. Ray, Eds., New York, NT: Spring Science+Business Media, pp. 139-150, 2008.

Rodriguez, B. M., Peterson, G. L., and Bauer, K. W., "Fusion of Steganalysis Systems Using Bayesian Model Averaging," *Advances in Digital Forensics IV*, S. Sheno and I. Ray, Eds., New York, NT: Spring Science+Business Media, pp. 345-356, 2008.

RAINES, RICHARD A.

Wilkin, D. C., Raines, R. A., Williams, P. D., and Hopkinson, K., "Cyberspace Policies and Politics for Critical Infrastructure," *Critical Infrastructure Protection II*, S. Sheno, and M. Goetz, eds., Springer Science+Business Media, New York, NY, Chapter 2, pp. 17-30, 2008. [CCR]

Todd, A. D., Benson, J. A., Peterson, G. L., Franz, T. P., Stevens, M. R., and Raines, R. A., "An Analysis of Forensic Tools in Detecting Rootkits and Hidden Processes," *Advances in Digital Forensics III*, S. Sheno, and P. Craiger, eds., Springer Science+Business Media, New York, NY, pp. 89-106, 2007. [CCR]

THOMAS, RYAN W., Capt

Thomas, R.W., Friend, D. H., DaSilva, L. A., and Mackenzie, A. B., "Cognitive Radio Software Defined Radio, and Adaptive Wireless Systems," Chapter 2, *Cognitive Networks*, pp 17-39. Dordrecht, the Netherlands: Springer-Verlag, 2007.

Friend, D. H., Thomas, R. W., MacKenzie, A. B., and DaSilva, L. A., "Cognitive Networks: Towards Self-Aware Networks chapter Distributed Learning and Reasoning," *Chapter 9, in Cognitive Networks: Methods and Design Decisions*," pp 223-244. West Sussex, England: Wiley-Interscience, 2007.

VETH, MICHAEL J., Lt Col

Fogg, P., Peterson, G. L., and Veth, M. J., "Digital Image Background Matching for Identifying Suspects," *Advances in Digital Forensics IV*, S. Sheno and I. Ray, Eds., New York, NT: Spring Science+Business Media, pp. 307-324, 2008.

5.2.10. OTHER PRESENTATIONS, PUBLICATIONS AND PROFESSIONAL ACTIVITIES

Note: Research Center affiliations are listed in [] if applicable.

PUBLICATIONS AND PRESENTATIONS

COLLINS, PETER J.

Ozer S., Saville M. A., Collins P. J., Terzuoli A. J., "Increasing the Survivability of a Strike Aircraft Formation Through Coherent Self-Protection Jammers," *Proceedings of the NATO RTO SET-130 Symposium on Military Sensing*, Orlando, FL, US Gov't Restricted to NATO Nations Only, 12-14 March 2008.

Ozer S., Saville M. A., Collins P. J., Terzuoli A. J., "Modeling of a Strike Formation with Coherent Self-Protection Jammers," *Proceedings of the 2008 IEEE Radar Conference (RadarCon)*, Rome, IT. 26-30 May 2008.

Naiva S. L., Collins P. J., Conn T. W., Baumgartner M. C., "Measurement and Uncertainty Analysis of the CAM RCS Dual-Cal Standard," *Proceedings of the Antenna Measurement Techniques Association 29th Annual Symposium*, 4-9 November 2007.

McGuirk J. S., Havrilla M. J., Collins P. J., "A 3-Short Full 2-Port Calibration for Focused Beam Measurement Systems," *Proceedings of the Antenna Measurement Techniques Association 29th Annual Symposium*, 4-9 November 2007.

Cakiroglu B., Collins P. J., Havrilla M. J Sertel., K., Terzuoli A. J., "Fabrication of Multi-scale Triangular Patch High Impedance Ground Planes to Improve the Bandwidth of Conformal Bow-Tie Antennas for Remote Sensing," *IGARSS 2008: Proceedings of the 2008 IEEE International Geoscience and Remote Sensing Symposium*, Boston, MA, 6-11 July 2008.

Dogrul M., Collins P. J., Saville M. A., Sertel K., Terzuoli A. J., "Simulation of Improved Bandwidth Conformal Bow-Tie Antennas Printed on Multi-scale Triangular-Patch High-Impedance Ground Planes," *IGARSS 2008: Proceedings of the 2008 IEEE International Geoscience and Remote Sensing Symposium*, Boston, MA, 6-11 July 2008.

Cakiroglu B., Collins P.J., Havrilla M.J., Sertel K., Terzuoli A.J., "Multi-scale Triangular Patch High Impedance Ground Plane to Improve the Bandwidth of Conformal Bow-tie Antennas," *IEEE Antennas and Propagation Society International Symposium*, Honolulu, HI, 5-11 July 2008.

Dogrul M., Collins P.J., Saville M. A., Sertel, K., Terzuoli, A.J., "Improved Bandwidth Conformal Bow-tie Antennas Printed on Multi-Scale Triangular-Patch High-impedance Ground Planes," *IEEE Antennas and Propagation Society International Symposium*, Honolulu, HI, 5-11 July 2008.

HOPKINSON, KENNETH M.

Hopkinson, K. and Thomas, R., "Technical Challenges and Open Research Areas in Cognitive Radio Networks, *TTCP Cognitive Radio Workshop*," Naval Research Laboratory, Washington DC, 6 May 2008.

Hopkinson, K., "Context-Awareness Everywhere: From the Airwaves to the Power Grid," *Utah State University, Department of Computer Science, Department Colloquium*, Logan, Utah, 8 November 2007.

Hopkinson, K. and Thomas, R., "Context-Awareness Everywhere: From the Power Grid to the Airwaves," *University of Toledo, Department of Electrical Engineering and Computer Science, Department Colloquium*, Toledo, Ohio, 17 October 2007.

Hopkinson, K., Graham, S., "Connecting the War Fighter: Moving from Today's Crude Bent Pipes to the Tactical Battle Systems of the Future," *Blue Darts: Award-Winning Op-Eds*, Air University Press, pp. 32-33, August 2008.

KURKOWSKI, STUART H., Lt Col

Stevens, M., Williams, P., Peterson, G., and Kurkowski, S., "Integrating Trust into the CyberCraft Initiative via the Trust Vectors Model," *IEEE Computational Intelligence Society IEEE Computational Intelligence Magazine (CIM)*, Special Issue, Vol. 3, Issue 2, page s 65-68, Summer 2008.

Avitia, S., Kurkowski, S., and van der Hoeven, L., "Interactive Visualization of Fused Intrusion Detection Data," *In proceedings for the 3rd International Conference on Information Warfare and Security (ICIW)*, Omaha, NE, April 2008.

Kurkowski, S., Camp, T., and Navidi, W., "Discovering Variables that Affect MANET Protocol Performance," *In proceedings for the 50th Annual IEEE Global Communications Conference (GLOBECOM)*, Washington, DC, November 2007.

Kurkowski, S., Navidi, W., and Camp, T., "Constructing MANET Simulation Scenarios That Meet Standards," *In proceedings of the 4th IEEE International Conference on Mobile Ad-hoc and Sensor Systems (MASS)*, Pisa, Italy, October 2007.

MARTIN, RICHARD K.

Schexnayder, C., Raquet, J. F., and Martin, R. K., "Effects of Oversampling and Multipath on Navigation Using OFDM Signals of Opportunity," *in Proceedings for the Institute of Navigation (ION) GNSS 2008*, Savannah, GA, September 2008. [ANT]

Balakrishnan, J., Martin, R. K., and Johnson, C. R. Jr., "Methods and System for Equalizing Data," *United States Patent #7,305,028*, granted on 4 December 2007.

MENDENHALL, MICHAEL J., Maj

Soliman, N.A., Mendenhall, M.J., Vasquez, J.R., "Spectral Gating in Hyperspectral-Augmented Target Tracking," *Proceedings of the SPIE*, Vol. 6969, Orlando, FL, 18 March, 2008.

Mendenhall, M. J., "A Physics-Based Model of Human Skin in Visible and Near-Infrared Hyperspectral Imagery," *Remote Sensing Guest Lecture, College of Charleston*, Charleston, SC, 3 April, 2008.

Nunez, A. S. and Mendenhall, M. J., "Detection of Human Skin in Near-Infrared Hyperspectral Imagery," *IEEE International Geoscience & Remote Sensing Symposium Invited Session on Rare Target Detection In Hyperspectral Imagery*, Boston, MA, 6-11 July, 2008.

Eyster, M. D. Mendenhall, M. J., and Rogers, S. K., "A Qualia Framework for Ladar 3D Object Classification," *Automatic Target Recognizer Working Group Symposium on Proficient Targeting*, Cambridge, MA, 9-11 September, 2008.

Nunez, A. S. and Mendenhall, M. J., "Modeling Human Skin Reflectance for Remote Sensing Applications," *Automatic Target Recognizer Working Group Symposium on Proficient Targeting*, Cambridge, MA, 9-11 September, 2008.

McDONALD, J. TODD, Lt Col

McDonald, J. T., Kurkowski, S. H., Raines, R. A., Bennington, R. W., "Practical Methods for Software Security Education," *National Science Foundation Faculty Workshop on Secure Software Development*, Orlando, FL, April 14-15, 2008.

McDonald, J. T., and Hunt, S., "Developing a Requirements Framework for Cybercraft Trust Evaluation," *Proceedings of the 3rd International Conference on Information Warfare and Security*, April 2008.

MILLS, ROBERT F.

Williams, P.D., Rogers, S.K., Mills, R.F., Raines, R.A., and Lacey, T.H., "Tomorrow Night," *IANewsletter, Information Assurance Technology Analysis Center*, Vol., 11 No. 2, , pp. 10-15, Summer 2008.

Lacey, T.H., Mills, R.F., Raines, R.A., Williams, P.D. and Rogers, S., "A Qualia Framework for Awareness in Cyberspace," *IANewsletter, Information Assurance Technology Analysis Center*, Vol 10, Number 3, , pp 12-17, Fall 2007.

Dalton, G.C., Mills, R.F., and J.M. Colombi, "The Deployment Readiness Service: A Case Study of the Challenges of Implementing a Service Oriented Architecture in a Legacy System Environment," *10th Annual Systems Engineering Conference*, San Diego, CA, 22-25 Oct 2007.

Mills, R.F., "AFIT Cyber Warfare Education Program," *presented to numerous agencies, including Headquarters Air Force, Air Force Personnel Center, 8th Air Force, Air University, Office of Force Transformation, and the Air Force Scientific Advisory Board*, October 2007-August 2008.

Mills, R.F., and Peterson, G.L., "Mitigating the Insider Threat" and "USAF in Cyberspace – Organizing, Training and Equipping a Cyber Force," *presented at the Dayton Infraguard Meeting*, Dayton, OH, 21 May, 2008.

Mills, R.F., and Williams, P.D., "Developing Competencies for Cyberspace Professionals," *presented to Spaatz Center for Officer Education*, Air University, Maxwell AFB AL, Feb 2008.

Leinart, J., Deckro, R., Denhard, D., Mills, R., Moore, J., and Perry, M., "Detecting Unrevealed Elements of Network Systems," *INFORMS*, Nov 2007.

PACHTER, MEIR

Pachter, M., "Vision-Based Target Geo-Location Using Camera Equipped MAVs," *Proceedings of the 46th Conference on Decision and Control*, , New Orleans, LA, Paper ThPI20.1, December 12-14, 2007.

Pachter, M., "Optimal Sensor Threshold Control and the Weapon Operating Characteristics for Autonomous Search and Attack Munitions," *48th Israel Annual Conference on Aerospace Sciences*, 2008, Tel Aviv, Israel, February 27-28.

Hansen, J., Pachter, M., and Jacques, D., "Optimal Guidance of a Relay MAV for ISR Support Beyond Line-Of-Sight," *33rd Annual Dayton-Cincinnati Aerospace Sciences Symposium*, Dayton, 4 March 2008. *Paper was the winner of Best Presentation.*

Pachter, M., Amt, J., and Raquet, J., "Accurate Positioning Using a Planar Pseudolites Array," *Proceedings of the IEEE/ION PLANS 2008 Conference*, Monterey, CA, May 6-8, 2008.

Gu, G., Pachter, M., and Chandler, P., "Target Motion Analysis Based on RF Power," *Proceedings of the American Control Conference*, June 11-13, 2008, Seattle, WA.

Pachter, M., "Optimal Guidance of a Relay Air Vehicle," *13th International Symposium on Dynamic Games and Applications*, Wroclaw, Poland, June 30-July 3, 2008.

Pachter, M., Ceccarelli, N., and Chandler, P., "Estimating an MAV's Heading and the Wind Speed and Direction Using GPS, Inertial and Air Speed Measurements," *AIAA Guidance, Navigation and Control Conference*, Honolulu, Hawaii, AIAA paper 2008-6311, 18-21 August 2008.

Girard, A., Swaroop, D., Pachter, M., and Chandler, P., "Autonomous Decision Making with Uncertainty for an Urban Intelligence, Surveillance, and Reconnaissance (ISR) Scenario," *AIAA Guidance, Navigation and Control Conference*, Honolulu, Hawaii., AIAA paper 2008-6310, 18-21 August 2008.

Pachter, M., Hansen, J., Jacques, D., and Blue, P., "Optimal Guidance of a Relay MAV for ISR Support Beyond Line-Of-Sight," *AIAA Guidance, Navigation and Control Conference*, Honolulu, Hawaii, AIAA paper 2008-698, 18-21 August 2008.

Nielsen, M., Racquet, J., Veth, M., and Pachter, M., "Development and Flight Test of a Robust Optical-Inertial Navigation System Using Low Cost Sensors," *ION GNNS 2008*, Savannah, GA, September 16-19, 2008. *Received Best Paper award.*

PETERSON, GILBERT L.

Oimoen, S.C., Peterson, G.L., and Hopkinson, K.M., "Network Formation using Ant Colony Optimization – A Comparative Analysis," *Sixth International Conference on Ant Colony Optimization and Swarm Intelligence*, Brussels, Belgium, pp. 405-406, September 2008.

Dries, E., and Peterson, G.L., "Scaling Ant Colony Optimization with Hierarchical Reinforcement Learning Partitioning," in *GECCO 2008: Genetic and Evolutionary Computation Conference*, Atlanta, GA, pp. 25-32, August 2008.

Duffy, J.P., and Peterson G.L., "An Abstract Behavior Representation for Robust, Dynamic Sequencing in a Hybrid Architecture," in *AAAI Spring Symposium – Architectures for Intelligent Theory-Based Agents*, Stanford University, CA, pp. 19-24, March 2008.

Cousin, K., and Peterson, G.L., "Distributed Approach to Solving Constrained Multiagent Task Scheduling Problems," in *AAAI Fall Symposium – Regarding the "Intelligence" in Distributed Intelligent Systems (RIDIS)*, Washington, DC, pp. 42-48, November 2007.

Rodriguez, B.M., and Peterson, G.L., "Multi-Class Classification Fusion Using Boosting for Identifying Steganography Methods," in *Multisensor, Multisource Information Fusion: Architectures, Algorithms, and Applications 2008 of the SPIE Symposium on Defense and Security*, Orlando, FL, March 2008, pp. 697407.01-697470.10, March 2008.

Rodriguez, B.M., and Peterson, G.L., "Classifier Dependent Feature Preprocessing Methods," in *Mobile Multimedia/Image Processing, Security and Applications of the SPIE Symposium on Defense and Security*, Orlando, FL, pp. 69820S.01–69820S.12, March 2008.

Karrels, D.R., and Peterson, G.L., "CyberCraft: Protecting Electronic Systems with Lightweight Agents," in *Cyberspace Research Workshop*, Shreveport, LA, pp. 58-62, November 2007.

RAINES, RICHARD A.

Williams, P. D., Rogers, S. K., Mills, R. F., Raines, R. A., and Lacey, T. H., "Tomorrow Night," *IAnewsletter*, Information Assurance Technical Analysis Center, Vol. 11, No 2, pp. 10-15, Summer 2008.

Lacey, T. H., Mills, R. F., Raines, R. A., Williams, P. D., and Rogers, S. K., "A Qualia Framework for Awareness in Cyberspace," *IAnewsletter*, Information Assurance Technical Analysis Center, Vol. 10, No. 3, pp. 12-16, Fall 2007.

SAVILLE, MICHAEL A., Maj

Özer, S., Saville, M. A., Collins, P. J., Terzuoli, A. J., and Martin, R. K., "Modeling of a Strike Formation with Coherent Self-protection Jammers," *IEEE Radar Conference*, Rome, Italy, 26-30 May 2008. [CCR]

Townsend, J., Saville, M. A., Hong, S. M., and Martin, R. K., "Simulator for Velocity Gate Pull-Off Electronic Countermeasure Techniques," *IEEE Radar Conference*, Rome, Italy, 26-30 May 2008. [CCR]

Townsend, J., Saville, M. A., Hong, S. M., Mayhew, O P., and Simpson, C., "Waveform Optimization for Electronic Countermeasure Technique Generation," *IEEE Radar Conference*, Rome, Italy, 26-30 May 2008. [CCR]

Farooq, J., Temple, M. A., and Saville, M. A., "Exploiting Frequency Diverse Array Processing to Improve SAR Imaging," *IEEE Radar Conference*, Rome, Italy, 26-30 May 2008.

Hong, S., Longbrake, M., Saville, M., and Wu, Z., "Non-coherent Cooperative Jammer for Multi-Platform Applications," *IEEE Radar Conference*, Rome, Italy, 26-30 May 2008. [CCR]

Farooq, J., Saville, M. A., Temple, M. A., "Exploiting Frequency Diverse Array Processing to Improve SAR Image Resolution," 2008 Tri-Service Radar Symposium Waveform Diversity Workshop, Monterey, CA, June 23-17, 2008.

Özer, S., Saville, M. A., Collins, P. J., Terzuoli, A. J., "Increasing the Survivability of a Strike Aircraft Formation through Self-Protection Jammers," *NATO Military Sensing Symposium, Panel 130 Sensor Electronic Technology*, Orlando, FL., 12-15 March 2008.

Dogrul, M., Collins, P. J., Saville, M. A., Sertel, K., and Terzuoli, A. J., "Improved Bandwidth Conformal Bow-tie Antennas Printed on Multi-scale Triangular-patch High-impedance Ground Planes – Simulation," *2008 Progress In Electromagnetics Research Symposium*, Cambridge, MA, 02-06 July 2008.

SCHMIDT, JASON D., Maj

Louthain, J. A., and Schmidt, J. D., "Integrated Approach to Airborne Laser Communication," *Optics in Atmospheric Propagation and Adaptive Systems. Proc. SPIE.* September 2008. [CDE]

Vitayaudom, K. P., Vincent, T. R., Schmidt, J. D., and Sanchez, D. J., "Analysis of Non-Uniform Gain for Control of a Deformable Mirror in an Adaptive-Optics System," *Advanced Wavefront Control: Methods, Devices, and Applications VI. Proc. SPIE.* August 2008. [CDE]

Plourde, M. D., and Schmidt, J. D., "Limitations of Segmented Wavefront Control Devices in Emulating Optical Turbulence," *Advanced Wavefront Control: Methods, Devices, and Applications VI. Proc. SPIE.* August 2008. [CDE]

TERZUOLI, ANDREW J., JR.

Cakiroglu, B., Collins, P. J., Havrilla, M. J., Sertel, K., and Terzuoli, A. J., "Multi-scale Triangular Patch High Impedance Ground Planes to Improve the Bandwidth of Conformal Bow-Tie Antennas – Fabrication," *PIERS 2008: Progress in Electromagnetics Research Symposium Proceedings*, Cambridge, MA, 2-6 July 2008.

Dogrul, M., Collins, P. J., Saville, M. A., Sertel, K., and Terzuoli, A. J., "Improved Bandwidth Conformal Bow-Tie Antennas Printed on Multi-scale Triangular-Patch High-Impedance Ground Planes – Simulation," *PIERS 2008: Progress in Electromagnetics Research Symposium Proceedings*, Cambridge, MA, 2-6 July 2008.

Cakiroglu, B., Collins, P. J., Havrilla, M. J., Sertel, K., and Terzuoli, A. J., "Fabrication of Multi-scale Triangular Patch High Impedance Ground Planes to Improve the Bandwidth of Conformal Bow-Tie Antennas," *EUROEM 2008: American-European Electromagnetics Symposium Proceedings*, Lausanne, SW, 21-25 July 2008.

Dogrul, M., Collins, P. J., Saville, M. A., Sertel, K., and Terzuoli, A. J., "Simulation of Improved Bandwidth Conformal Bow-Tie Antennas Printed on Multi-scale Triangular-Patch High-Impedance Ground Planes," *EUROEM 2008: American-European Electromagnetics Symposium Proceedings*, Lausanne, SW, 21-25 July 2008.

THOMAS, RYAN W., Capt

Thomas, R. W., "ACC/A8 Aerial Networking Workshop (Invited participant)," Langley AFB, VA, Dec. 2007.

Thomas, R. W., and Martin, R. K., "EW Countermeasures Roundtable (participant)," ACC Chief Scientist's office, Nov. 2007.

TRIAS, ERIC D., Maj

Trias, E., Navas, J., Ackley, E.S., Forrest, S., and Hermenegildo M., "Efficient Representations for Set-Sharing Analysis," Technical Report, TR-CS-2008-11, University of New Mexico. 2008.

Esponda, F., Trias, E., Ackley, E.S., and Forrest, S., "A Relational Algebra for Negative Databases," Technical Report, TR-CS-2007-18, University of New Mexico. 2007.

PROFESSIONAL ACTIVITIES

COLLINS, PETER J.

Chair: AFIT/ENG Low Observables Curriculum Committee.

Reviewer: *IEEE Transactions on Antennas and Propagation*.

Collins, Peter J., 781st Test Squadron CAM-Team (technical expert), “Outstanding Team” Recognition, Air Force Material Command, HQ Inspector General Unit Compliance Inspection (UCI), (UCI Report: HQ AFMC/IG PN 2008-02, 7 December 2007).

KIM, YONG C.

Review Committee Member: IEEE International Symposium on Circuits and Systems (ISCAS).

Reviewer: IEEE Transactions on Computer-Aided Design of Integrated Circuits and Systems, IEEE Transactions on VLSI Systems, Journal of Electronic Testing Theory and Applications, and International Symposium on VLSI Design.

LAMONT, GARY B.

Associations of Computing Machinery (ACM): Reviewer: ACM Genetic and Evolutionary Computation Conference (GECCO).

Institute of Electrical and Electronics Engineers (IEEE): Technical Co-Chair, IEEE National Aerospace and Electronics Conference (NAECON), Dayton, OH, July, 2008; program committee: IEEE Congress on Evolutionary Computation (CEC) (on-going); reviewer: IEEE Transactions on Evolutionary Computing.

Member, program committee for Conference on Evolutionary Multi-Criterion Optimization (EMO); program committee for ICARIS.

Reviewer, MIT Journal on Evolutionary Computation; Conference on Evolutionary Multi-Criterion Optimization; Parallel Processing Systems in Nature Conference (PPSN).

Chair: AFIT/ENG Computer Science/Engineering Theory/Math Committee, 1980 to present.

Chair: AFIT/ENG Computer Architecture & Parallel Computation, 1990 to present.

Member: AI, Computer Engineering Committees, 1990 to present.

Member: AFIT Tau Beta Pi Executive Committee, 1992 to present.

MULLINS, BARRY E.

2008–present; Member, Technical Program Committee for the 4th International Conference on Information Warfare and Security (ICIW 2009).

2007–2008; Member, Technical Program Committee for the 3rd International Conference on Information Warfare and Security (ICIW 2008).

2008; Air Force representative to the Naval Postgraduate School’s curriculum working group for the 595 Information Warfare Masters Degree in Systems Engineering program.

2007–present; Member, Advisory Board for the Global Information Assurance Certification for the SANS Institute.

2007 – present; Member, Advisory Board for the Department of Electrical Engineering and Computer Science, University of Evansville.

PACHTER, MEIR

Faculty Research Council.

DAGSI Program Coordinating Committee (Control and Signal Processing).

Associate Editor of the Journal of Optimization Theory and Applications.

Session Chairman: 13th International Symposium on Dynamic Games and Applications, June 30-July 2008, Wroclaw, Poland.

Member of the following professional societies: IEEE, AIAA and ION; member of the IEEE committee "Engineers at Risk".

Reviewer for IEEE Transactions on Automatic Control, AIAA J. of Guidance, Control and Dynamics and International Journal of Control.

AFIT liaison to AFRL/RB.

Member of AFOSR Review Panel.

Consultant to AFRL/RBCA, AFRL/RV.

Member of AFRL/RBCA AFOSR *Star Team*.

AFIT NRC Postdoctoral Advisor.

Associate Fellow of the AIAA.

SAVILLE, MICHAEL A., Maj

Reviewer: *IET Electronic Letters, IEEE Transactions for Geoscience and Remote Sensing.*

Invited session co-chair for three sessions at the 2008 IEEE Inter. Symp. on Antennas and Propagation and the 2008 USNC/URSI (U.S. National Committee of the International Union of Radio Science) National Radio Science meeting, July 5-12, 2008, San Diego, California.

TERZUOLI, ANDREW J., JR.

Chair: Local Chapter, Joint IEEE Societies Antennas and Propagation Society (APS), Microwave Theory and Techniques (MTT), Geoscience and Remote Sensing (GRS).

Technical Paper Referee: *IEEE Transactions, IEE Proceedings.*

Dayton Development Coalition (DDC) Sensors Task Force.

Steering Committee: WPAFB MASINT Development Consortium.

VETH, MICHAEL J., Lt Col

Institute of Navigation Chapter President (2008-2009).

5.3. DEPARTMENT OF ENGINEERING PHYSICS

Access Phone 937-255-2012, DSN 785-2012

Fax: 937-656-6000, DSN 786-6000

Homepage: <http://www.afit.edu/en/enp/>

5.3.1	<u>DOCTORAL DISSERTATIONS</u>	91
5.3.2	<u>MASTER'S THESES</u>	91
5.3.3	<u>FUNDED RESEARCH PROJECTS</u>	93
5.3.4	<u>FUNDED EDUCATIONAL PROJECTS</u>	95
5.3.5	<u>REFEREED JOURNAL PUBLICATIONS</u>	95
5.3.6	<u>REFEREED CONFERENCE PUBLICATIONS</u>	97
5.3.7	<u>SUBSTANTIAL CONSULTATIONS</u>	99
5.3.8	<u>OTHER PRESENTATIONS, PUBLICATIONS AND PROFESSIONAL ACTIVITIES</u>	100

5.3.1. DOCTORAL DISSERTATIONS

5.3.1.1. ELECTRO-OPTICS (DS)

COLE, WALTER P., *Atmospheric Turbulence Effects Correction Factors for the Laser Range Equation*. AFIT/DS/ENP/08-02. Faculty Advisor: Dr. Michael A. Marciniak. Sponsor: AFRL/RX.

MASSEY, STEVEN M., *Simulated Brillouin Scattering Phase Conjugation in Fiber Optic Waveguides*. AFIT/DS/ENP/08-S03. Faculty Advisor: Maj Timothy H. Russell. Sponsor: HEL-JTO.

5.3.1.2. NUCLEAR ENGINEERING (DS)

MCCLORY, JOHN W., *The Effect of Radiation on the Electrical Properties of Aluminum Gallium Nitride/Gallium Nitride Heterostructures*. AFIT/DS/ENP/08-01. Faculty Advisor: Dr. James C. Petrosky. Sponsor: AFOSR and AFRL/RV.

MOORE, ELIZABETH A., *Electrical Activation Studies of Silicon Implanted Aluminum Gallium Nitride with High Aluminum Mole Fraction*. AFIT/DS/ENP/08-D01. Faculty Advisor: Dr. Yung Kee Yeo. Sponsor: AFOSR.

PRINS, NICHOLAS J., *Distribution Iteration: A Robust Alternative to Source Iteration for Solving the Discrete Ordinates Radiation Transport Equations in Slab and XY-Geometries*. AFIT/DS/ENP/08-S04. Faculty Advisor: Dr. Kirk A. Mathews. Sponsor: N/A.

5.3.1.3. APPLIED PHYSICS (DSP)

KEE, PATRICK, *Electronic State Distributions of YBa₂Cu₃O_{7-x} Laser Ablated Plumes*. AFIT/DSP/ENP/08-S05. Faculty Advisor: Dr. Glen P. Perram. Sponsor: AFOSR.

5.3.2. MASTER'S THESES

5.3.2.1. APPLIED PHYSICS (GAP)

ARMBRUSTER, DAVID R., *Production and Characterization of Femtosecond-Laser-Induced Air Plasma*. AFIT/GAP/ENP/08-M01. Faculty Advisor: Lt Col Matthew J. Bohn. Sponsor: AFOSR.

DERBIS, RICHARD M., *Ultrafast Spectroscopy of Mid-Infrared Semiconductors Using the Signal and Idler Beams of a Synchronous Optical Parametric Oscillator*. AFIT/GAP/ENP/08-M02. Faculty Advisor: Dr. Michael A. Marciniak. Sponsor: N/A.

FONDREN, TERESA J., *Time Resolution of Collapse Events During the Propagation of Ultraviolet Filaments*. AFIT/GAP/ENP/08-M03. Faculty Advisor: Maj Thomas A. Niday. Sponsor: AFOSR.

GIVENS, RYAN N., *Demonstration of a Strategy to Perform Two-Dimensional Diode Laser Tomography*. AFIT/GAP/ENP/08-M04. Faculty Advisor: Dr. William F. Bailey. Sponsor: AFRL/RZ.

GOLDEN, ERIC M., *Modulation Response of Twin Optically Coupled Diode Lasers*. AFIT/GAP/ENP/08-M05. Faculty Advisor: Maj Thomas A. Niday. Sponsor: AFRL/RV.

GOODSPEED, ALLISON S., *Measuring Dispersion in Laser Cavity Mirrors using White-Light Interferometry*. AFIT/GAP/ENP/08-M06. Faculty Advisor: Lt Col Matthew J. Bohn. Sponsor: AFRL/RV.

POINDEXTER, JESSICA L., *Nano-Mechanical Properties of Heat Inactivated Bacillus Anthracis and Bacillus Thuringiensis Spores*. AFIT/GAP/ENP/08-M07. Faculty Advisor: Dr. Larry W. Burggraf. Sponsor: AFMC/CX.

REICH, JOSEPH P., *Ionospheric Response to Solar Flares Using an Improved Version of SAMI2*. AFIT/GAP/ENP/08-M08. Faculty Advisor: Lt Col Christopher G. Smithtro. Sponsor: N/A.

RODGERS, LUKE P., *Collision Broadening Using Alkali-Filled, Hollow Core Fibers*. AFIT/GAP/ENP/07-S01. Faculty Advisor: Maj Timothy H. Russell. Sponsor: AFRL/RD.

SPRING, JUSTIN B., *Modeling of SBS Phase Conjugation in Multimode Step Index Fibers*. AFIT/GAP/ENP/08-M09. Faculty Advisor: Maj Timothy H. Russell. Sponsor: HEL/JTO.

5.3.2.2. ELECTRICAL ENGINEERING (GE)

CHIASSON, MARC A., *Passive Infrared Polarimetric Detection of an Airborne Target*. AFIT/GE/ENP/08-M01. Faculty Advisor: Dr. Michael A. Marciniak. Sponsor: AFRL/RY.

5.3.2.3. ELECTRO-OPTICS (GEO)

CALLAHAN, JOHN M., *A Study of the Irradiance-and-Temperature-Dependence of Mid-Wave-Infrared (MWIR) Absorption in Indium Antimonide (InSb)*. AFIT/GEO/ENP/08-S01. Faculty Advisor: Dr. Michael A. Marciniak. Sponsor: N/A.

HAGG, MICHAEL T., *An Image Based Bidirectional Reflectivity Distribution Function Experiment*. AFIT/GEO/ENP/08-M03. Faculty Advisor: Dr. Michael A. Marciniak. Sponsor: AFRL/RY.

McATEE, KYLE R., *Survey of Contrast and Gain Control Techniques for Infrared Focal Planes under Laser Illumination*. AFIT/GEO/ENP/08-M04. Faculty Advisor: Dr. Michael A. Marciniak. Sponsor: AFRL/RY.

RASMUSSEN, JOSHUA D., *Image-Based Laser Jam Detection in Infrared Focal Plane Array Detectors*. AFIT/GEO/ENP/08-M05. Faculty Advisor: Dr. Michael A. Marciniak. Sponsor: AFRL/RX.

5.3.2.4. NUCLEAR ENGINEERING (GNE)

BLASY, BRYAN D., *Neutron Detection Utilizing Gadolinium Doped Hafnium Oxide Films*. AFIT/GNE/ENP/08-M02. Faculty Advisor: LTC David A. LaGrafte. Sponsor: AFRL/RD.

MATHER, DAVID E., *Discrete Counting of Short Lived Isotopes with Low Background Detectors*. AFIT/GNE/ENP/08-M03. Faculty Advisor: Dr. Kirk A. Mathews. Sponsor: N/A.

RAKES, KELLY D., *Evaluating the Response of Polyvinyl Toluene Scintillators Used in Portal Detectors*. AFIT/GNE/ENP/08-M04. Faculty Advisor: Dr. James C. Petrosky. Sponsor: DHS/DNDO.

SMITH, BRIANA J., *Near-Time Characterization of a Domestic Nuclear Event Using Gamma Spectroscopy*. AFIT/GNE/ENP/08-M06. Faculty Advisor: Dr. Charles J. Bridgman. Sponsor: DHS/DNDO.

5.3.2.5. MATERIALS SCIENCES (GMS)

GRUEN, GREGGORY J., *Time Dependent Annealing Study of Silicon Implanted Aluminum Gallium Nitride*. AFIT/GMS/ENP/08-J01. Faculty Advisor: Dr. Yung Kee Yeo. Sponsor: AFOSR.

5.3.2.6. COMBATING WEAPONS OF MASS DESTRUCTION (GWM)

HAWKINS, LESLIE S., *Micro-Etched Platforms for Thermal Inactivation of Bacillus Anthracis and Bacillus Thuringiensis Spores*. AFIT/GWM/ENP/08-M01. Faculty Advisor: Dr. Larry W. Burggraf. Sponsor: AF/A3S and AFNWCA (AT).

5.3.3. FUNDED RESEARCH PROJECTS

Note: Research Center affiliations are listed in [] if applicable.

BAILEY, WILLIAM F.

“Single Surface Multipactor.” Sponsor: AFRL/RD. Funding: \$30,000. [CDE]

BOHN, MATTHEW J., Lt Col

“Femtosecond Enhancement Cavity for High Average Power THz Generation.” Sponsor: AFOSR. Funding: \$28,600.

BUNKER, DAVID J.

“ONIR Ground Truth.” Sponsor: NASIC. Funding: \$140,160. [CMSR]

BURGGRAF, LARRY W.

“Role of Water in Heat Inactivation of Bacillus Anthracis Spores and Spores of Related Organisms.” Sponsor: AFNWCA. Funding: \$155,000.

CUSUMANO, SALVATORE J.

“Airborned Aero-Optic Laboratory.” Sponsor: HELJTO. Funding: \$200,760. [CDE]

“HELJTO Model & Simulation.” Sponsor: HELJTO. Funding: \$400,000. [CDE]

“High Energy Laser-Laser Communications Performance Assessments from Remotely-Sensed Measurements of Atmospheric Beam Scatter.” Sponsor: NSF. Funding: \$230,000. [CDE]

GROSS, KEVIN C.

“Novel Use of Advanced Sensors for Battlespace Characterizations.” Sponsor: SAF. Funding: \$49,000. [CMSR]

LAGRAFFE, DAVID A., LTC

“DTRA-AFIT Nuclear Partnership.” Sponsor: DTRA. Funding: \$50,000.

MARCINIAK, MICHAEL A.

“BRDF Measurement Research.” Sponsor: AFRL/RX. Funding: \$80,000.

“Infrared Counter-Countermeasure Research.” Sponsor: AFRL/RX. Funding: \$73,511.

MATTHEWS, KIRK A.

“AFTAC/TM-AFIT/EN MOA 2008 Support.” Sponsor: AFTAC. Funding: \$50,000.

PERRAM, GLEN P.

“AFIT Analysis Support to the Joint Improvised Explosive Device Defeat Organization.” Sponsor: JIEDDO. Funding: \$100,300. [CDE]

“AFOSR Center of Excellence in High Power Gas Phase Electric and Hybrid Laser Kinetics and Spectroscopy.” Sponsor: AFOSR. Funding: \$89,877. [CDE]

“Center of Excellence for Gas Phase Hybrid Lasers: Additional Student Support.” Sponsor: AFOSR. Funding: \$58,492. [CDE]

“Characterization of Excited Atomic Oxygen in RF and Microwave Discharges.” Sponsor: AFRL/RD. Funding: \$52,500. [CDE]

“Hazard Analysis for a Forward-Looking Interferometer.” Sponsor: NASA. Funding: \$19,995. [CDE]

“High Power Diode Pumped Alkali Vapor Lasers and Analog Systems.” Sponsor: AFRL/RD. Funding: \$176,000. [CDE]

“Iron Rose II Muzzle Flash Field Test.” Sponsor: NASIC. Funding: \$40,000. [CMSR]

“Measure High Priority Kinetic Rates for DPALS.” Sponsor: AFRL/RD. Funding: \$78,750. [CDE]

“Technical and Administrative Support for the AFOSR Center of Excellence in High Power Gas Phase and Electric Lasers.” Sponsor: AFRL/RD. Funding: \$220,000. [CDE]

PETROSKY, JAMES C.

“Analysis of Thermal Flash Effects of Surfaces for Post-Event Nuclear Forensics.” Sponsor: DTRA. Funding: \$144,350.

“Support to NNSA for QUASPR Review.” Sponsor: DoE. Funding: \$9,200.

“Support to NTNFC: Nuclear Forensics of Interest.” Sponsor: DHS. Funding: \$52,000.

“Technical Research on Detection of Weapons of Mass Destruction.” Sponsor: DTRA. Funding: \$50,000.

RUSSELL, TIMOTHY H., Maj

“Stimulated Brillouin Scattering Phase Conjugation in Optical Fiber.” Sponsor: AFRL/RD. Funding: \$60,000. [CDE]

SMITHTRO, CHRISTOPHER G., Lt Col

“Observation and Modeling of the Mid-Latitude E- and F- Region Ionosphere during Solar X-Ray Flares.” Sponsor: AFOSR. Funding: \$5,675.

TUTTLE, RONALD F.

“Advanced Technical Intelligence Research Support.” Sponsor: NASIC. Funding: \$114,576. [CMSR]

“Advanced Sensor Integration Study.” Sponsor: OSD. Funding: \$14,000. [CMSR]

“Integration of a Sensor Package for Identifying Radical Extremist (INSPIRE).” Sponsor: West Virginia High Technology Consortium (WVHTC). Funding: \$44,308. [CMSR]

WEEKS, DAVID E.

“A Wigner Distribution Analysis of Scattering Dynamics.” Sponsor: AFOSR. Funding: \$20,000.

5.3.4. FUNDED EDUCATIONAL PROJECTS

Note: Research Center affiliations are listed in [] if applicable.

CUSUMANO, SALVATORE J.

“2008 AFIT Center for Directed Energy Summer Internship Program.” Sponsor: AFRL/RD. Funding: \$51,168. [CDE]

PETROSKY, JAMES C.

“GNE Student Support.” Sponsor: DTRA. Funding: \$82,910.

TUTTLE, RONALD F.

“Advanced Geospatial Intelligence Education.” Sponsor: NGA. Funding: \$756,000. [CMSR]

5.3.5. REFEREED JOURNAL PUBLICATIONS

Note: Research Center affiliations are listed in [] if applicable.

BOHN, MATTHEW J., Lt Col

Christopher D. Stoik, Matthew J. Bohn, and James L. Blackshire, “*Nondestructive evaluation of aircraft composites using transmissive terahertz time domain spectroscopy*”, Optics Express 16, issue 21, pp.17039-17051 (2008).

BURGRAFF, LARRY W.

G. Li and L.W. Burggraf, “*Surface stress influences on nanopatterns formed in polystyrene films using a force-modulated nanohammer*”, Nanotechnology 19, article no. 095301 (6 pages) (2008).

Larry W. Burggraf, Eric V. Beck, Eric A. Stahlberg, and Jean-Philippe Blaudeau, “*A graphical unitary group approach-based hybrid density functional theory multireference configuration interaction method*”, Chemical Physics 349, pp. 158-169 (2008).

P. E. Adamson, X.F. Duan, L.W. Burggraf, M.V.Pak, C. Swalina, S. Hammes-Schiffer, “*Modeling positrons in molecular electronic structure calculations with the nuclear-electronic orbital method*”, Journal of Physical Chemistry A 112, pp. 1346-51 (2008).

GROSS, KEVIN C.

Kevin C. Gross and Glen P. Perram, “*The Phenomenology of High Explosive Fireballs from Fielded Spectroscopic and Imaging Sensors for Event Classification*,” International Journal of High Speed Electronics and Systems 18, pp. 19-29 (2008). [CMSR]

HENGHOLD, ROBERT L.

J. A. Raley, Y. K. Yeo, R. L. Hengehold, Mee-Yi Ryu, Y. Lu, and Pan Wu, “*Ferromagnetic Properties of Nickel Implanted $Al_{0.35}Ga_{0.65}N$* ,” J. Korean Physical Society 51, pp. 1707-1712 (2007).

J. A. Raley, Y. K. Yeo, R. L. Hengehold, and M. Y. Ryu, “*Magnetic Properties of Transition Metal Implanted ZnO Nanotips Grown on Sapphire and Quartz*,” J. Magnetism 13, pp. 19-22 (2008).

MARCINIAK, MICHAEL A.

B. T. Wysocki and M.A. Marciniak, “*Discrimination between electronic and optical blooming in an InSb focal plane array under high-intensity excitation*,” *Infrared Physics and Technology* 51, pp. 137-145 (2008).

MATHEWS, KIRK A.

K. A. Mathews and D. W. Gerts, “*Bayesian analysis for very-low-background counting of short-lived isotopes: Lowest Minimum Detectable Quantity*,” *Journal of Radioanalytical and Nuclear Chemistry* 276, No. 2, pp. 305-312 (2008).

MCCLORY, JOHN W., LTC

John W. McClory, James C. Petrosky, James M. Sattler, and Thomas A. Jarzen, “*An Analysis of the Effects of Low-Energy Electron Irradiation of AlGaIn/GaN HFETs*,” *IEEE Transactions on Nuclear Science*, vol. 54, pp. 1946-1952 (Dec 2007).

John W. McClory and James C. Petrosky, “*Temperature Dependent Electrical Characteristics of Neutron Irradiated AlGaIn/GaN HFETs*,” *IEEE Transactions on Nuclear Science*, vol. 54, pp. 1969-1974 (Dec 2007).

PERRAM, GLEN P.

Grady T. Phillips and Glen P. Perram, “*Pressure broadening by argon in the hyperfine resolved $P(10)$ and $P(70)(17,1)$ transitions of $I_2 X^1\Sigma(O_g^+) \rightarrow B3\Pi(O_u^+)$ using sub-Doppler laser saturation spectroscopy*,” *J. Quantitative Spectroscopy and Radiative Transfer* 109, pp. 1875–1885 (2008).

Joseph L. Cox, Dean T. Cherer, and Glen P. Perram, “*Electronic Quenching of $Bi_2 A(O_u^+) v'= 18-23$ by Rare Gases and Nitrogen*,” *Chemical Physics* 343, pp. 31–34 (2008).

Kevin C. Gross and Glen P. Perram, “*The Phenomenology Of High Explosive Fireballs from Fielded Spectroscopic And Imaging Sensors for Event Classification*,” *International Journal of High Speed Electronics and Systems* 18, pp. 19-29 (March 2008). [CMSR]

PETROSKY, JAMES C.

John W. McClory, James C. Petrosky, James M. Sattler, and Thomas A. Jarzen, “*An Analysis of the Effects of Low-Energy Electron Irradiation of AlGaIn/GaN HFETs*,” *IEEE Transactions on Nuclear Science*, vol. 54, pp. 1946-1952 (Dec 2007).

John W. McClory and James C. Petrosky, “*Temperature Dependent Electrical Characteristics of Neutron Irradiated AlGaIn/GaN HFETs*,” *IEEE Transactions on Nuclear Science*, vol. 54, pp. 1969-1974 (Dec 2007).

RANDALL, ROBB M., Maj

Robb M. Randall and Benjamin M. Herman, “*Using Limited Time Period Trends as a Means to Assign Attribution to Discrepancies in Microwave Sounding Unit Derived Tropospheric Temperature Time Series*”, *J. Geophysical Research*, vol. 113, D05105, doi: 10.1029/2007D008864 (2008).

RUSSELL, TIMOTHY H., Maj

S. M. Massey and T. H. Russell, “*Phase analysis of stimulated Brillouin scattering in long, graded-index optical fiber*,” *Opt Express* 16, 11496-11505 (2008). [CDE]

S. M. Masey, J. B. Spring, and T.H. Russell, “*Stimulated Brillouin scattering continuous wave phase conjugation in step-index fiber optics*,” *Opt. Express* 16, 10873-10885 (2008). [CDE]

SMITHRO, CHRISTOPHER G., Lt Col

R. A. Steenburgh, C. G. Smithro, and K. M. Groves, "Ionospheric scintillation effects on single frequency GPS," *Space Weather*, vol. 6, S04D02, doi: 10.29/2007SW000340 (2008).

C. G. Smithro and S. C. Solomon, "An improved parameterization of thermal electron heating by photoelectrons, with application to an X17 flare," *J. Geophysical Research* 113, A08307, doi: 10.1029/2008JA013077 (2008).

YEO, YUNG KEE

J. A. Raley, Y. K. Yeo, R. L. Hengehold, Mee-Yi Ryu, Y. Lu, and Pan Wu, "Ferromagnetic Properties of Nickel Implanted $Al_{0.35}Ga_{0.65}N$," *J. Korean Physical Society* 51, pp. 1707-1712 (2007).

J. A. Raley, Y. K. Yeo, R. L. Hengehold, and M. Y. Ryu, "Magnetic Properties of Transition Metal Implanted ZnO Nanotips Grown on Sapphire and Quartz," *J. Magnetism* 13, pp. 19-22 (2008).

5.3.6. REFEREED CONFERENCE PUBLICATIONS

Note: Research Center affiliations are listed in [] if applicable.

CONFERENCE PAPERS ACCEPTED ON THE BASIS OF FULL PAPER REVIEW

BAILEY, WILLIAM F.

M. J. Krizo, S. J. Cusumano, R. J. Bartell, S. T. Fiorino, W.F. Bailey, R. L. Beauchamp, M. A. Marciniak, and K. P. Moore, "A worldwide physics-based high-spectral resolution atmospheric characterization and propagation package for UV to RF wavelengths," SPIE Defense and Security Symposium, Algorithms and Technologies for Multispectral, Hyperspectral, and Ultraspectral Imagery XIV Orlando, FL, March 2008; Proc. SPIE volume 6966, article no. 696619 (12 pages) (2008). [CDE]

CUSUMANO, SALVATORE J.

Fiorino, S.T., Bartell, R.J. Krizo, M.J. Moore, K.P. and Cusumano, S.J. "Validation of a worldwide physics-based high-spectral resolution atmospheric characterization and propagation package for UV to RF wavelengths," Proc. SPIE 7090-70900I (12 pages), SPIE Optics and Photonics, San Diego, CA, August 2008. [CDE]

Krizo, M.J., Cusumano, S.J. Bartell, R.J. Fiorino, S.T., Bailey, W.F, Beauchamp, R.L. Marciniak, M.A. and Moore, K.P. "A worldwide physics-based high-spectral resolution atmospheric characterization and propagation package for UV to RF wavelengths," Proc. SPIE 6966, 696619 (12 pages) SPIE Defense and Security Symposium, Orlando, FL, March 2008. [CDE]

Fiorino, S.T., Bartell, R.J. Krizo, M.J. and Cusumano, S.J. "Propagation variability assessments of ship defense HEL and HPM performance in worldwide maritime boundary layer environments at wavelengths of 1.0642 μm , 2.141 μm , 3.16 mm and 12.2 cm," Proc. SPIE 6951, 69510G (12 pages) SPIE Defense and Security Symposium, Orlando, FL, March 2008. [CDE]

Fiorino, S.T., Bartell, R.J. Krizo, M.J. Caylor, G.L. Moore, K.P. Harris, T.R. and Cusumano, S.J. "A First Principles Atmospheric Propagation & Characterization Tool: The Laser Environmental Effects Definition and Reference (LEEDR)," Proc. SPIE 6878, 68780B (12 pages) SPIE Photonics West, Laser Applications in Science and Engineering (LASE), San Jose, CA, January 2008. [CDE]

FIORINO, STEVEN T., Lt Col

Fiorino, S.T., Bartell, R.J. Krizo, M.J. Moore, K.P. and Cusumano, S.J. "Validation of a worldwide physics-based high-spectral resolution atmospheric characterization and propagation package for UV to RF wavelengths," Proc. SPIE 7090-70900I (12 pages), SPIE Optics and Photonics, San Diego, CA, August 2008. [CDE]

Krizo, M.J., Cusumano, S.J. Bartell, R.J. Fiorino, S.T., Bailey, W.F, Beauchamp, R.L. Marciniak, M.A. and Moore, K.P. "A worldwide physics-based high-spectral resolution atmospheric characterization and propagation package for UV to RF wavelengths," Proc. SPIE 6966, 696619 (12 pages) SPIE Defense and Security Symposium, Orlando, FL, March 2008. [CDE]

Fiorino, S.T., Bartell, R.J. Krizo, M.J. and Cusumano, S.J. "Propagation variability assessments of ship defense HEL and HPM performance in worldwide maritime boundary layer environments at wavelengths of 1.0642 μm , 2.141 μm , 3.16 mm and 12.2 cm," Proc. SPIE 6951, 69510G (12 pages) SPIE Defense and Security Symposium, Orlando, FL, March 2008. [CDE]

Fiorino, S.T., Bartell, R.J. Krizo, M.J. Caylor, G.L. Moore, K.P. Harris, T.R. and Cusumano, S.J. "A First Principles Atmospheric Propagation & Characterization Tool: The Laser Environmental Effects Definition and Reference (LEEDR)," Proc. SPIE 6878, 68780B (12 pages) SPIE Photonics West, Laser Applications in Science and Engineering (LASE), San Jose, CA, January 2008. [CDE]

GROSS, KEVIN C.

Kevin C. Gross, Joseph Wymann, and Glen P. Perram, "Phenomenological Fireball Model for Remote Identification of High-Explosives," SPIE Proceedings Defense and Security Symposium, 656613 (2007). [CMSR]

MARCINIAK, MICHAEL A.

Krizo, M.J., Cusumano, S.J. Bartell, R.J. Fiorino, S.T., Bailey, W.F, Beauchamp, R.L. Marciniak, M.A. and Moore, K.P. "A worldwide physics-based high-spectral resolution atmospheric characterization and propagation package for UV to RF wavelengths," Proc. SPIE 6966, 696619 (12 pages) SPIE Defense and Security Symposium, Orlando, FL, March 2008. [CDE]

PERRAM, GLEN P.

Bill Smith, Sr., Stanislav Kireev, Leanne West, Gary Gimmetstad, Larry Cornman, Wayne Feltz, Glen Perram, Taumi Daniels, "Interferometric radiometer for in-flight detection of aviation hazards," SPIE Proceedings of Optical Engineering and Applications, 70880A (2008). [CMSR]

G.Hager, J.McIver, D.Hostutler, G.Pitz, and G.Perram, "A Quasi-Two Level Analytic Model For End-Pumped Alkali Metal Vapor Laser," SPIE Proceedings of High Energy Laser Ablation, 700528 (2008). [CDE]

Greg A. Pitz and Glen P. Perram, "Pressure Broadening of the D1 and D2 lines in Diode Pumped Alkali Lasers," SPIE High Energy Laser Ablation, 700526 (2008). [CDE]

Fiorino, S.T., R.J. Bartell, G.P. Perram, M.J. Krizo, D.J. Fedyk, B.W. Wisdom, and S.J. Cusumano, "Worldwide Estimates and Uncertainty Assessments of Laser Propagation for Diverse Geometries for Paths in the Altitude Regime of 3 km and Below at Wavelengths of 0.355 μm to 10.6 μm ," SPIE Defense and Security Symposium Proceedings 655104 (2007). [CDE]

Kevin C. Gross, Joseph Wymann, and Glen P. Perram, "Phenomenological Fireball Model for Remote Identification of High-Explosives," SPIE Proceedings Defense and Security Symposium, 656613 (2007). [CMSR]

Michael Hawks and Glen P. Perram, "Passive Ranging of Boost Phase Missiles," SPIE Proceedings Defense & Security Symposium, Acquisition, Tracking, Pointing, and Laser Systems Technologies XXI, 65690G (2007). [CMSR]

TUTTLE, RONALD L.

K. Graham, R. Tuttle, and J. Jordan, “A Cognitive Analytical Approach: Identification of Problem Complexity, Indicators, and the Need for Signatures to Reveal Foreign Denial and Deception,” The 76th Proceedings of the Military Operations Research Society Symposium, 10-12 June 2008, United Coast Guard Academy, New London, CT, USA. [CMSR]

CONFERENCE PAPERS ACCEPTED ON THE BASIS OF ABSTRACT REVIEW

BOHN, MATTHEW J., Lt Col

Stoik, C. D., Bohn, M. J., and Blackshire, J. L., “Nondestructive Evaluation of Aircraft Composites Using Terahertz Time Domain Spectroscopy,” Review of Progress in Quantitative Nondestructive Evaluation, Vol. 28, July 20 – July 25, 2008, University of Illinois at Chicago (UIC)

5.3.7. SUBSTANTIAL CONSULTATIONS

Note: Research Center affiliations are listed in [] if applicable.

CUSUMANO, SALVATORE J.

Cusumano, Salvatore, J., Consulted with the United States Air Force Academy on the procurement of their 2m class telescope.

FIORINO, STEVEN T., Lt Col

Fiorino, Steven T., “Aerostat Relay Mirror Ship-Based Laser Capability Enhancement using HELEEOS” to Dr. Kenneth Billman, Lockheed Martin Senior Fellow and Chief Scientist, LMSSC ABL Program, Lockheed Martin Space Systems, Sunnyvale, CA, Jul-Nov 2008.

Fiorino, Steven T., “Integrated Atmospheric Characterization System LIDAR” to Dr. David Roberts, Senior Research Scientist, Georgia Tech Research Institute, Electro-Optical Systems Laboratory, LIDAR Remote Sensing Branch, Atlanta, GA, July 2008.

Fiorino, Steven T., “Cloud Free Line of Sight Analysis and other Atmospheric Effects for UAVs” to Dr Kevin Keefer, Aeronautical Systems Center, (658 AESS), WPAFB, OH, Jan-Jul 2008.

MATHEWS, KIRK A.

Analysis and modeling of nuclear event radiation, including source, transport, detection and data analysis of radiations that include the full spectrum of electromagnetic and nuclear radiation, with Air Force Technical Applications Command, AFTAC/TH, Patrick AFB, FL.

Analysis and modeling of nuclear fuels and fuel cycle processes, with Air Force Technical Applications Command, AFTAC/TM, Patrick AFB, FL.

PETROSKY, JAMES C.

Chair, QASPR review Committee, NNSA: Lead role in an 8 professional (PhD) member review committee at the request of the National Nuclear Security Agency (NNSA.) Our primary function is to analyze the technical aspects of an engineering project at Sandia National Laboratories to establish a process for nuclear weapon validation without the Sandia Pulsed Reactor (SPR.)

Member HEMP Review Committee, DTRA: Serve as nuclear weapons technical expert to a panel chartered to review testing methodology and computational codes used to determine high altitude electromagnetic pulse (HEMP) vulnerability, reports to DTRA/RD enterprise.

5.3.8. OTHER PRESENTATIONS, PUBLICATIONS AND PROFESSIONAL ACTIVITIES

Note: Research Center affiliations are listed in [] if applicable.

BAILEY, WILLIAM F.

Marciniak, M.A., S.J. Cusumano, S.T. Fiorino, G.P. Perram, W.F. Bailey and J.E. McCrae, "AFIT research in the areas of optical-reflectance, remote-sensing and absolute-radiometric measurements and models," presented at the Air Force Research Laboratory/Directed Energy Scatterometry Workshop held on 17-18 October 2007 at Kirtland AFB NM.

Skip Williams, Ryan Givens, Chad Lindstrom, Doug Davis, Chung Tam Tam, and William Bailey, "*Diode Laser Absorption Tomography of Two Dimensional Supersonic Flow*", 46th AIAA Aerospace Sciences Meeting, 7-10 January 2008, Las Vegas, NV.

E. Josyula, W. F. Bailey, S. F. Gimelshein, R. R. Arslanbekov, and V. I. Kolobov, "*Recent Advances in Modeling Thermal and Chemical Nonequilibrium in Continuum-Rarefied Gas Flows*," 26th International Rarefied Gas Dynamics Conference, July 21-26, 2008, Kyoto, Japan.

BOHN, MATTHEW J., Lt Col

David R. Armbruster and Matthew J. Bohn, "*Production and Characterization of Femtosecond-Laser-Induced Air Plasma*," Frontiers in Optics 2008, Rochester, NY.

Christopher D. Stoik, Matthew J. Bohn, and James L. Blackshire, "*Nondestructive Evaluation of Aircraft Composites Using Terahertz Time Domain Spectroscopy*," IRMMW-THz 2008 Terahertz for Life September 15 – 19, 2008, California Institute of Technology, Pasadena, California.

Matthew J. Bohn, "*Alternative Explanation of Free-Induction Decay*," IRMMW-THz 2008 Terahertz for Life September 15–19, 2008, California Institute of Technology. Pasadena. California.

BRIDGMAN, CHARLES J.

Bridgman, C. Panel member of the Nuclear Forensics Advisory Panel jointly hosted by The Department of Homeland Security, Domestic Nuclear Detection Office and the Defense Threat Reduction Agency (DoD) - met monthly at DHS, Washington D.C.

BUNKER, DAVID J.

Randall, R.M., Fiorino, S.T., S.J. Cusumano and D. Bunker, "High Energy Laser Performance Assessments from Remotely-Sensed Measurements of Atmospheric Beam Scatter," National Consortium of MASINT Research Technology Review, Sante Fe, NM, March 2008.

Kevin C. Gross, Glen P. Perram, Ronald F. Tuttle, David J. Bunker, "*Using fireball phenomenology to assess the applicability of current and future BATTLESPACE sensors to the C-IED fight*", JIEDDO IPT Meeting, Scitor, Chantilly, VA, 25–26 March 2008. [CMSR]

BURGRAFF, LARRY W.

Burgraff, Larry W., Presented research results, evaluated ARRS contractor performance and recommended directions for future research at AFMC 709 ARSS, Air Force Nuclear Weapons and Counterproliferation Agency Program Meeting on Bacterial Spore Thermal Neutralization 11-12 March 2008 at the Nuclear Weapons Center (NWC), Kirtland Air Force Base, NM.

CUSUMANO, SALVATORE, J.

Instructor: Beam Control Short Course, 2008 Directed Energy Systems Symposium, Monterey, CA 3 March 2008. 17 Students.

Randall, R.M., Fiorino, S.T., S.J. Cusumano and D. Bunker, "High Energy Laser Performance Assessments from Remotely-Sensed Measurements of Atmospheric Beam Scatter," National Consortium of MASINT Research Technology Review, Sante Fe, NM, March 2008.

Marciniak, M.A., S.J. Cusumano, S.T. Fiorino, G.P. Perram, W.F. Bailey and J.E. McCrae, "AFIT research in the areas of optical-reflectance, remote-sensing and absolute-radiometric measurements and models," presented at the Air Force Research Laboratory/Directed Energy Scatterometry Workshop held on 17-18 October 2007 at Kirtland AFB NM.

Fiorino, S.T., Bartell, R.J. Krizo, M.J., Moore, K.P. and Cusumano, S.J. "Comparison of a Worldwide, Hyperspectral Atmospheric Characterization Package to Measurements and MODTRAN," 30th Review of Atmospheric Transmission Models Meeting, Lexington, MA, 10-12 June 2008. [CDE]

Bartell, R.J., Fiorino, S.T. Krizo, M.J. and Cusumano, S.J. "Comparison of HEL Effective Range and Target Tracking Range as a Function of Aperture Diameter Over Diverse Low Altitude Scenarios," DEPS 6th Annual Directed Energy Professional Society Modeling and Simulation Conference, Monterey, CA, March 2008. [CDE]

FIORINO, STEVEN T., Lt Col

Instructor: Atmospheric Effects (LEEDR) Short Course, 2008 Directed Energy Systems Symposium, Monterey, CA 3 March 2008. 17 Students.

Randall, R.M., Fiorino, S.T., S.J. Cusumano and D. Bunker, "High Energy Laser Performance Assessments from Remotely-Sensed Measurements of Atmospheric Beam Scatter," National Consortium of MASINT Research Technology Review, Sante Fe, NM, March 2008.

Marciniak, M.A., S.J. Cusumano, S.T. Fiorino, G.P. Perram, W.F. Bailey and J.E. McCrae, "AFIT research in the areas of optical-reflectance, remote-sensing and absolute-radiometric measurements and models", presented at the Air Force Research Laboratory/Directed Energy Scatterometry Workshop held on 17-18 October 2007 at Kirtland AFB NM.

Fiorino, S.T., Bartell, R.J. ,Krizo, M.J. Moore, K.P. and Cusumano, S.J. "Comparison of a Worldwide, Hyperspectral Atmospheric Characterization Package to Measurements and MODTRAN," 30th Review of Atmospheric Transmission Models Meeting, Lexington, MA, 10-12 June 2008. [CDE]

Bartell, R.J., Fiorino, S.T. Krizo, M.J. and Cusumano, S.J. "Comparison of HEL Effective Range and Target Tracking Range as a Function of Aperture Diameter Over Diverse Low Altitude Scenarios," DEPS 6th Annual Directed Energy Professional Society Modeling and Simulation Conference, Monterey, CA, March 2008. [CDE]

President, Wright Memorial Chapter of the American Meteorological Society.

GROSS, KEVIN C.

Gross, K., "Phenomenological Model for Infrared Emissions from High-Explosive Detonation Fireballs", Ph.D. dissertation, Air Force Institute of Technology, Wright-Patterson AFB, Ohio (2007).

Gross, Kevin C. and Perram, Glen P. "Mid Infrared Imaging FTIR for Battlespace Combustion Events", Telops Scientific Workshop 2008, Washington, DC, 25-26 September 2008. [CMSR]

Bradley Kenneth, Gross, Kevin and Perram, Glen “*Imaging Fourier Transform Spectrometry (IFTS) of Combustion Events with the Telops FIRST-MW*”, 2008 International Symposium on Spectral Research Meeting, Hoboken, NJ, June 23-27, 2008. [CMSR]

Steward, B. J. Sinha, N. DeMagistris, M. Gross, K. C., and Perram, G. P. “*Iron Rose 2 Ground Truth and Modeling Review*”, 55th Joint Army-Navy-NASA-Air Force (JANNAF) Propulsion Meeting, Boston, MA 12-16 May 2008. [CMSR]

Gross, Kevin C. Perram, Glen P. Tuttle, Ronald F. Bunker, David J. “*Using fireball phenomenology to assess the applicability of current and future BATTLESPACE sensors to the C-IED fight*”, JIEDDO IPT Meeting, Scitor, Chantilly, VA, 25–26 March 2008. [CMSR]

HENGHOLD, ROBERT L.

Member, BRAC Physical Sciences Working Group.

Honors and Awards Chair, Ohio-Region Section, American Physical Society.

Moore, E. A., Y. K. Yeo, R. L. Hengehold, and Mee-Yi Ryu, “*Electrical Activation Studies of Si-Implanted $Al_{0.4}Ga_{0.6}N$ and $Al_{0.5}Ga_{0.5}N$ Implanted with Si for N-type Doping*,” the March 2008 Meeting of the American Physical Society, New Orleans, Louisiana, 10-14 March 2008.

MARCINIAK, MICHAEL A.

Cole, W.P., M.A. Marciniak and M.B. Haeri, “*Modification of the laser range equation*,” Proceedings of the 2008 Meeting of the Military Sensing Symposium Specialty Group on Passive Sensors, Battlefield Survivability & Discrimination, Detectors, and Materials (2008).

Cole, W.P., M.A. Marciniak, S.C. Cain, J.E. McCrae and M.B. Haeri, “*Laser illumination of optical devices*,” Proceedings of the 2008 Meeting of the Military Sensing Symposium Specialty Group on Electro-Optical & Infrared Countermeasures (2008).

Marciniak, M.A., S.J. Cusumano, S.T. Fiorino, G.P. Perram, W.F. Bailey and J.E. McCrae, “*AFIT research in the areas of optical-reflectance, remote-sensing and absolute-radiometric measurements and models*,” presented at the 2007 Air Force Research Laboratory/Directed Energy Scatterometry Workshop held on 17-18 October 2007 at Kirtland AFB NM.

Marciniak, M.A., “*AFIT research in support of Air Force Research Laboratory/Materials and Manufacturing Directorate laser-hardened materials*,” presented at the Tri-Service Information Exchange Meeting (6.1 and 6.2 Agile Hardening Concepts) held on 14-16 April 2008 on Hilton Head Island, SC.

MATHEWS, KIRK A.

Member: Satellite Sensor Review Panel, Air Force Technical Applications Center.

Founding Member: NPP Senior Advisory Panel, Air Force Technical Applications Center.

MCCLORY, JOHN W., LTC

McClory, J., The Effect of Irradiation on the Electrical properties of Aluminum Gallium Nitride/Gallium Nitride Hetrostructures, PhD dissertation, Air Force Institute of Technology, Wright-Patterson Air Force Base, Ohio (2008).

MCCRAE, JACK E., Col

Cole, W.P., M.A. Marciniak, S.C. Cain, J.E. McCrae and M.B. Haeri, “*Laser illumination of optical devices*,” Proceedings of the 2008 Meeting of the Military Sensing Symposium Specialty Group on Electro-Optical & Infrared Countermeasures (2008).

Marciniak, M.A., S.J. Cusumano, S.T. Fiorino, G.P. Perram, W.F. Bailey and J.E. McCrae, "AFIT research in the areas of optical-reflectance, remote-sensing and absolute-radiometric measurements and models," presented at the 2007 Air Force Research Laboratory/Directed Energy Scatterometry Workshop held on 17-18 October 2007 at Kirtland AFB NM.

PERRAM, GLEN P.

Marciniak, M.A., S.J. Cusumano, S.T. Fiorino, G.P. Perram, W.F. Bailey and J.E. McCrae, "AFIT research in the areas of optical-reflectance, remote-sensing and absolute-radiometric measurements and models," presented at the 2007 Air Force Research Laboratory/Directed Energy Scatterometry Workshop held on 17-18 October 2007 at Kirtland AFB NM.

Perram, Glen P. and Pitz, Greg A., "Lineshape Kinetics of Diode Pumped Alkali Lasers," Tenth Annual Directed Energy Symposium, 5-8 November 2007, Huntsville, Alabama.

Smith, Bill, Sr., Kireev, Stanislav, West, Leanne, Gimmestad, Gary, Cornman, Larry, Feltz, Wayne, Perram, Glen, and Daniels, Taumi, "Interferometric radiometer for in-flight detection of aviation hazards", SPIE Conference on Optical Engineering and Applications, 10-14 August 2008, San Diego, CA.

Gross, Kevin C. and Perram, Glen P., "Mid Infrared Imaging FTIR for Battlespace Combustion Events" Telops Scientific Workshop 2008, Washington, DC, 25-26 September 2008. [CMSR]

Bradley Kenneth, Gross, Kevin and Perram, Glen, "Imaging Fourier Transform Spectrometry (IFTS) of Combustion Events with the Telops FIRST-MW" 2008 International Symposium on Spectral Research Meeting, Hoboken, NJ, June 23-27, 2008. [CMSR]

Steward, B. J. Sinha, N. DeMagistris, M. Gross, K. C., and Perram, G. P. "Iron Rose 2 Ground Truth and Modeling Review" 55th Joint Army-Navy-NASA-Air Force (JANNAF) Propulsion Meeting, Boston, MA 12-16 May 2008. [CMSR]

Hager, G. McIver, J. Hostutler, D. Pitz, G. and Perram, G., "A Quasi-Two Level Analytic Model For End Pumped Alkali Metal Vapor Lasers" SPIE High Energy Laser Ablation Conference, Taos, NM. 21 -24 April 2008.

Pitz, Greg A. and Perram, Glen P., "Pressure Broadening of the D1 and D2 lines in Diode Pumped Alkali Lasers" SPIE High Energy Laser Ablation Conference, Taos, NM. 21 -24 April 2008.

Gross, Kevin C. Perram, Glen P. Tuttle, Ronald F. Bunker, David J., "Using fireball phenomenology to assess the applicability of current and future BATTLESPACE sensors to the C-IED fight" JIEDDO IPT Meeting, Scitor, Chantilly, VA, 25-26 March 2008. [CMSR]

RANDALL, ROBB R., Maj

Randall, R.M., Fiorino, S.T., S.J. Cusumano and D. Bunker, "High Energy Laser Performance Assessments from Remotely-Sensed Measurements of Atmospheric Beam Scatter," National Consortium of MASINT Research Technology Review, Sante Fe, NM, March 2008.

Randall, R. M., "Satellite Calibration Corrections and Implications for Space Surveillance and Climate Change," American Meteorological Society, Wright Memorial Chapter Meeting, 10 January 2008.

RUSSELL, TIMOTHY H., Maj

Massey, S. M., Spring, J. B., and Russell, T. H., "Continuous wave stimulated Brillouin scattering phase conjugation in step index optical fibers," Solid State and Diode Laser Technology Review, Albuquerque, NM, 2-5 June 2008. [CDE]

TUTTLE, RONALD L.

Gross, Kevin C. Perram, Glen P. Tuttle, Ronald F. Bunker, David J. “*Using fireball phenomenology to assess the applicability of current and future BATTLESPACE sensors to the C-IED fight*”, JIEDDO IPT Meeting, Scitor, Chantilly, VA, 25–26 March 2008. [CMSR]

WEEKS, DAVID E.

D. E. Weeks, “*A Wigner Distribution Analysis of Scattering Dynamics*”, AFOSR Molecular Dynamics/Theoretical Chemistry Contractor's Meeting, Vienna, VA, 19-21 May 2008.

M. B. Garvin and D. E. Weeks, “*The Adiabatic-to-Diabatic Mixing Angle for the Inelastic Collision $B(^2P_{1/2}) + H_2 (n, j) \rightarrow B(^2P_{3/2}) + H_2 (n', j')$* ”, APS March Meeting, New Orleans, LA, March 10-14, 2008.

Served as the Ohio Section of the American Physical Society Chair Elect 2008-2009.

YEO, YUNG KEE

Moore, E. A., Y. K. Yeo, R. L. Hengehold, and Mee-Yi Ryu, “*Electrical Activation Studies of Si-Implanted $Al_{0.4}Ga_{0.6}N$ and $Al_{0.5}Ga_{0.5}N$ Implanted with Si for N-type Doping*,” the March 2008 Meeting of the American Physical Society, New Orleans, Louisiana, 10-14 March 2008.

5.4. DEPARTMENT OF MATHEMATICS AND STATISTICS

Access Phone: 937-255-3098, DSN 785-3098

Fax: 937-656-4413, DSN 986-4413

Homepage: <http://www.ahit.edu/en/enc/>

5.4.1 <u>MASTER'S THESES</u>	106
5.4.2 <u>FUNDED RESEARCH PROJECTS</u>	106
5.4.3 <u>REFEREED JOURNAL PUBLICATIONS</u>	107
5.4.4 <u>REFEREED CONFERENCE PUBLICATIONS</u>	107
5.4.5 <u>SUBSTANTIAL CONSULTATIONS</u>	108
5.4.6 <u>OTHER PRESENTATIONS, PUBLICATIONS AND PROFESSIONAL ACTIVITIES</u>	108

5.4.1. MASTER'S THESES

5.4.1.1. APPLIED MATHEMATICS (GAM)

HOCKERSMITH, BRIAN D., *Statistical Removal of Shadow for Applications to Gait Recognition*. AFIT/GAM/ENC/08-04. Faculty Advisor: Maj Samuel A. Wright. Sponsor: N/A.

MASSAR, MELODY L., *Time-Frequency Analysis of Terahertz Radar Signals for Rapid Heart and Breath Rate Detection*. AFIT/GAM/ENC/08-05. Faculty Advisor: Dr. Matthew C. Fickus. Sponsor: N/A.

PETERSON, JESSE D., *Entire Blow-Up Solutions of Semilinear Elliptic Equations and Systems*. AFIT/GAM/ENC/08-02. Faculty Advisor: Dr. Aihua W. Wood. Sponsor: N/A.

SLATTERY, MELANIE R., *Estimation of the Number of Microbial Species Comprising a Population*. AFIT/GAM/ENC/08-03. Faculty Advisor: Maj Samuel A. Wright. Sponsor: N/A.

WAGENMAN, SETH B., *Risk-Based Comparison of Classification Systems*. AFIT/GAM/ENC/08-01. Faculty Advisor: Maj Steven N. Thorsen. Sponsor: N/A.

WALSH, MICHAEL B., *ROC Curves of Fused Independent Classification Systems*. AFIT/GAM/ENC/08-06. Faculty Advisor: Dr. Mark E. Oxley. Sponsor: N/A.

5.4.1.2. OPERATIONS RESEARCH (GOR)

BETHEA, DAVID M., *Improving Mixed Variable Optimization of Computational and Model Parameters Using Multiple Surrogate Functions*. AFIT/GOR/ENC/08-01. Faculty Advisor: Lt Col Mark A. Abramson. Sponsor: Los Alamos National Laboratory.

CHELLIAH, DERRICK M., *Statistical Approach to the Characterization and Recognition of Human Gaits*. AFIT/GOR/ENC/08-02. Faculty Advisor: Maj Samuel A. Wright. Sponsor: N/A.

5.4.1.3. RESEARCH AND DEVELOPMENT MANAGEMENT (GRD)

RUSNOCK, CHRISTINA F., *Predicting Cost and Schedule Growth for Military and Civil Space Systems*. AFIT/GRD/ENC/08M-01. Faculty Advisor: Dr. Edward D. White, III. Sponsor: AFSPC.

5.4.2. FUNDED RESEARCH PROJECTS

Note: Research Center affiliations are listed in [] if applicable.

ABRAMSON, MARK A., Lt Col

“Algorithms for Blackbox Optimization Using Surrogate Functions.” Sponsor: AFOSR. Funding: \$11,626.

BULUTOGLU, DURSUN A.

“Algorithmic Tools for Finding Efficient Designs and Test Suites for Test and Evaluation.” Sponsor: AFOSR. Funding: \$44,974.

FICKUS, MATTHEW C.

“Time-Frequency Analysis of Doppler-Shifted Signals.” Sponsor: AFOSR. Funding: \$27,677.

OXLEY, MARK E.

“Qualia Exploitation of Sensor Technology (QUEST) for Structural Health Management.” Sponsor: AFRL/RB.
Funding: \$8,000. [COA]

5.4.3. REFEREED JOURNAL PUBLICATIONS

Note: Research Center affiliations are listed in [] if applicable.

ABRAMSON, MARK A., Lt Col

Abramson, M. A., T. J. Asaki, J. E. Dennis, Jr., K. R. O’Reilly, and R. L. Pingel, Quantitative object reconstruction using Abel transform x-ray tomography and mixed variable optimization, *SIAM Journal on Imaging Sciences* **1**, No. 3 (2008), 322-342.

BULUTOGLU, DURSUN A.

Bulutoglu, D. A. and F. Margot, Classification of orthogonal arrays by integer programming, *Journal of Statistical Planning and Inference* **138**, No. 3 (2008), 654-666.

Bulutoglu, D. A. and K. J. Ryan, $E(s^2)$ -optimal supersaturated designs with good minimax properties when N is odd, *Journal of Statistical Planning and Inference* **138**, No. 6 (2008), 1754-1762.

KAZISKA, DAVID M., Maj

Kaziska, D., and A. Srivastava, Gait-based human recognition by classification of cyclostationary processes on nonlinear shape manifolds, *Journal of the American Statistical Association* **102**, No. 480 (2007), 1114-1124.

Kaziska, D., and A. Srivastava, Rejoinder, *Journal of the American Statistical Association* **102**, No. 480 (2007), 1127-1127.

Kaziska, D., and A. Srivastava, The Karcher mean of a class of symmetric distributions on the circle, *Statistics & Probability Letters* **78**, No. 11 (2008), 1314-1316.

LAIR, ALAN V.

Lair, A. V., Z. J. Proano, and A. W. Wood, Existence of large solutions to non-monotone semilinear elliptic equations, *The Australian Journal of Mathematical Analysis and Applications* **4**, No. 2 (2007), 1-7.

WOOD, AIHUA W.

Lair, A. V., Z. J. Proano, and A. W. Wood, Existence of large solutions to non-monotone semilinear elliptic equations, *The Australian Journal of Mathematical Analysis and Applications* **4**, No. 2 (2007), 1-7.

5.4.4. REFEREED CONFERENCES

Note: Research Center affiliations are listed in [] if applicable.

CONFERENCE PAPERS ACCEPTED ON THE BASIS OF FULL PAPER REVIEW

FICKUS, MATTHEW C.

Fickus, M., G. S. Seetharaman and M. E. Oxley, “Multiscale Moment Transforms Over the Integer Lattice”, *Proceedings of SPIE, Wavelets XII*, Editors: D. Van De Ville, V.K. Goyal and M. Papadakis, Vol. 6701 (2007), pp. 67011N/1-8.

Srinivasa, G., M. Fickus and J. Kovacevic, "Active Contour-based Multiresolution Transforms for the Segmentation of Fluorescence Microscope Images", *Proceedings of SPIE, Wavelets XII*, Editors: D. Van De Ville, V.K. Goyal and M. Papadakis, Vol. 6701 (2007), pp. 67010I/1-15.

THORSEN, STEVEN N., Maj

Oxley, M. E., S. N. Thorsen, C. M. Schubert, K. W. Bauer, Jr., "Performance of an ATR System via its ROC Manifold", *11th International Conference on Information Fusion* (2008), 597-602. (on compact disc)

CONFERENCE PAPERS ACCEPTED ON THE BASIS OF ABSTRACT REVIEW

OXLEY, MARK E.

Rogers, S. K., C. Sadowski, K. W. Bauer, Jr., M. E. Oxley, M. Kabrisky, A. Rogers, S. D. Mott, "The life and death of ATR/Sensor Fusion and the hope for resurrection," *Proceedings of SPIE, Automatic Target Recognition XVIII 6967* (2008), paper 1. Editors: F. A. Sadjadi and A. Mahalanobis. (invited paper)

Lacey, T. H., R.F. Mills, R. A. Raines, M. E. Oxley, K.W. Bauer, Jr., S. K. Rogers, "A qualia representation of cyberspace," *Proceedings of SPIE, Evolutionary and Bio-Inspired Computation: Theory and Applications II 6964* (2008), paper 11. Editors: M. Blowers and A. F. Sisti. (on compact disc)

5.4.5. SUBSTANTIAL CONSULTATIONS

BUSH, BRETT A., Maj

Bush, B. A., "Simulating the performance of the T-11 parachute off the C-17," for C-17 SPO (836 AESG), Wright-Patterson AFB, OH, Oct 2007-Sep 2008.

DUCKRO, DONALD E., Lt Col

Duckro, D. E. and J. S. Turner, "Fly what you want, log what you need: a new currency system for USAF mobility aircrew", for AF/A3O-A, Pentagon, Washington DC, October 2007 - June 2008.

Duckro, D. E. and J. B. Hall, "Assessing the productivity of the Air Force flying training process: proposing a new measurement system," for AF/A3O-A, Pentagon, Washington DC, October 2007 - June 2008.

5.4.6. OTHER PRESENTATIONS, PUBLICATIONS AND PROFESSIONAL ACTIVITIES

ABRAMSON, MARK A., Lt Col

Editorial board, *Optimization and Engineering*

Reviewer, *SIAM Journal on Optimization, Optimization and Engineering, Optimization Methods and Software, Journal of Global Optimization, ASME Journal of Mechanical Design, Journal of Computational and Applied Mathematics, and Optimization Letters.*

Bethea, D. M., M. A. Abramson, T. J. Asaki, J.E. Dennis, Jr., and M. Sottile, "Optimization of model and computational parameters in expensive engineering simulations," *SIAM Conference on Optimization*, Boston, MA, May, 2008.

Abramson, M. A., L. Frimannslund, and T. Steihaug, "A subclass of generating set search with second-order convergence," *SIAM Conference on Optimization*, Boston, MA, May, 2008.

Abramson, M. A., "Mesh adaptive direct search algorithms for mixed variable, constrained, black box optimization," Air Force Research Laboratory, Sensors Directorate, Wright-Patterson AFB, OH, March, 2008.

- Abramson, M. A., "Mesh adaptive direct search algorithms for constrained mixed variable optimization," MITRE Corporation, Bedford, MA, February, 2008.
- Abramson, M. A., "Mesh adaptive direct search algorithms for constrained mixed variable optimization," Oak Ridge National Laboratory, Oak Ridge, TN, February, 2008.
- Abramson, M. A., "Mesh adaptive direct search algorithms for constrained mixed variable optimization," Department of Mathematics, University of Tennessee, Knoxville, TN, February, 2008.
- Abramson, M. A., "Mesh adaptive direct search algorithms for mixed variable constrained optimization," Department of Mathematics, Missouri University of Science and Technology, Rolla, MO, February, 2008.
- Abramson, M. A., "Mesh adaptive direct search algorithms for mixed variable constrained optimization," Department of Mathematics and Statistics, University of New Mexico, Albuquerque, NM, January, 2008.
- Abramson, M. A., "Mesh adaptive direct search algorithms for constrained mixed variable optimization," MITRE Corporation, McLean, VA, December, 2007.
- Abramson, M. A., "Mesh adaptive direct search algorithms for constrained mixed variable optimization," National Security Agency, Ft Meade, MD, December, 2007.
- Abramson, M. A., "Mesh adaptive direct search algorithms for constrained mixed variable optimization," Metron Incorporated, Reston, VA, December, 2007.
- Abramson, M. A., "Mesh adaptive direct search algorithms for constrained mixed variable optimization," The Boeing Company (Phantom Works), Bellevue, WA, November, 2007.
- Abramson, M. A., T. J. Asaki, J. E. Dennis, Jr., K. R. O'Reilly, and R. L. Pingel, "Quantitative Object Reconstruction via Abel Transform X-Ray Tomography," First Annual Chemical-Biological-Radiological-Nuclear (CBRN) Symposium, United States Air Force Academy, CO, November, 2007.
- Abramson, M. A., T. J. Asaki, D. A. Bethea, J. E. Dennis, Jr., R. Magallanez, and M. Sottile, "Improving parameter optimization performance," *INFORMS Annual Meeting*, Seattle, WA, November, 2007.

BAKER, WILLIAM P.

- Larson, R., A. Palazotto, and W. Baker, "Analysis of wave propagation in monolithic and functionally graded Ti-TiB plates subject to impact loading", AIAA SDM Conference, Schaumburg, IL, April, 2008.

BULUTOGLU, DURSUN A.

- Reviewer, *Journal of Statistical Planning and Inference, Biometrika, Utilitas Mathematica, Statistical Methodology, Communications in Statistics, and Journal of Computational Statistics and Data Analysis.*
- Bulutoglu, D. "Classification of Orthogonal Arrays by Integer Programming," Cleveland State University, OH, March 2008.
- Bulutoglu, D. "Classification of Orthogonal Arrays by Integer Programming," AFOSR Program Review, Washington D.C., April 2008.
- Bulutoglu, D. "Classification of Orthogonal Arrays by Integer Programming," 29'th OSU Dennison Conference, Ohio State University, Columbus, OH, May, 2008.

DEA, JOHN R., Maj

Dea, J. R., "Non-Reflecting Boundary Conditions for Flow in a Channel," Seminar in honor of Matsuto Kawahara (Chuo University, Japan), Naval Postgraduate School, Monterey, CA, February 2008.

FICKUS, MATTHEW C.

Reviewer, *Applied and Computational Harmonic Analysis, Advances in Computational Mathematics, and Serdica Mathematical Journal*.

Fickus, M., "A frame-theoretic analysis of continuous wave radar," American Mathematical Society Spring Southeastern Meeting, Louisiana State University, Baton Rouge, LA, March, 2008.

LAIR, ALAN V.

Reviewer, *Mathematical Reviews*.

Lair, A. V., "Large solutions of mixed sublinear/superlinear elliptic equations," 7th AIMS International Conference on Dynamical Systems, Differential Equations and Applications, Arlington, TX, May, 2008.

OXLEY, MARK E.

Referee, *Applicable Analysis and Journal of Optical Society of America B, Sensors*.

Reviewer, *11th International Conference on Information Fusion (FUSION 2008)*, April 2008.

Reviewer, U.S. Department of Energy, National Nuclear Security Administration, Office of Defense Nuclear Nonproliferation (NA-20), Office of Nonproliferation Research and Development (NA-22), February 2008.

Member, Conference Program Committee, SPIE's Defense & Security Symposium, *Intelligent Computing: Theory and Applications VI*, Orlando FL, March 2008.

Best Paper Award Committee, *11th International Conference on Information Fusion (FUSION 2008)*, June 2008.

Oxley, M. E., "ROC Manifolds of Multiple Fused Independent Classification Systems," *SPIE, Signal Processing, Sensor Fusion, and Target Recognition XVII*, Orlando FL, March 2008.

Oxley, M. E., "Performance of an ATR System via its ROC Manifold," *11th International Conference on Information Fusion*, Cologne, Germany, July 2008.

THORSEN, STEVEN N., Lt Col

Reviewer, *11th International Conference on Information Fusion (FUSION 2008)*, April 2008.

Thorsen, S. N., "A Risk-Based Comparison of Classification Systems," *SPIE, Signal Processing, Sensor Fusion, and Target Recognition XVII*, Orlando FL, March 2008.

WOOD, AIHUA W.

Wood, A. W., "Topics on mathematical methods in EM scattering phenomena." Applied Mathematics Seminar, Tulane University, New Orleans, LA, Nov, 2007.

Wood, A. W., "EM scattering by a protruding cavity in an impedance plane." ACES Annual Conference, Niagara Falls, ON, Canada, Mar, 2008.

5.5. DEPARTMENT OF OPERATIONAL SCIENCES

Access Phone: 937-255-2549, DSN 785-2549

Fax: 937-656-4943 DSN 986-4943

Homepage: <http://www.afit.edu/en/ens/>

5.5.1	<u>DOCTORAL DISSERTATIONS</u>	112
5.5.2	<u>MASTER'S THESES</u>	112
5.5.3	<u>GRADUATE RESEARCH PAPERS</u>	114
5.5.4	<u>FUNDED RESEARCH PROJECTS</u>	115
5.5.5	<u>REFEREED JOURNAL PUBLICATIONS</u>	116
5.5.6	<u>REFEREED CONFERENCE PUBLICATIONS</u>	118
5.5.7	<u>SUBSTANTIAL CONSULTATIONS</u>	121
5.5.8	<u>BOOKS & CHAPTERS IN BOOKS</u>	121
5.5.9	<u>OTHER PRESENTATIONS, PUBLICATIONS AND PROFESSIONAL ACTIVITIES</u>	122

5.5.1. DOCTORAL DISSERTATIONS

ARTELLI, MICHAEL J., *Modeling and Analysis of Resolve and Morale for the "Long War"*. AFIT/DS/ENS/07-02. Faculty Advisor: Dr. Richard F. Deckro. Sponsor: US CENTCOM.

FRIEND, MARK A., *Combat Identification with Synthetic Aperture Radar, Out-Of-Library Identification and Non-Declarations*. AFIT/DS/ENS/07-04. Faculty Advisor: Dr. Kenneth W. Bauer, Jr. Sponsor: AFOSR and ACC.

LEAP, NATHAN J., *A Confidence Paradigm for Classification Systems*. AFIT/DS/ENS/08-02. Faculty Advisor: Dr. Kenneth W. Bauer, Jr. Sponsor: AFOSR.

LONG, SCOTT N., *Characterizing Effects and Benefits of Beam Defocus on High Energy Laser Performance Under Thermal Blooming and Turbulence Conditions for Air-to-Ground Engagements*. AFIT/DS/ENS/08-05. Faculty Advisor: Dr. John O. Miller. Sponsor: HEL-JTO.

RODRIGUEZ, JUNE F.D., *Metamodeling Techniques to Aid in the Aggregation Process of Large Hierarchical Simulation Models*. AFIT/DS/ENS/08-03. Faculty Advisor: Dr. John O. Miller. Sponsor: HQ USAF.

5.5.2. MASTER'S THESES

5.5.2.1. LOGISTICS MANAGEMENT (GLM)

DURAND, JEFFREY M., *Aircraft Maintenance Organizational Structure Changes: An Antecedent Model*. AFIT/GLM/ENS/08-1. Faculty Advisor: Dr. Jeffrey A. Odgen. Sponsor: Logistics Transformation Office.

GARDNER, CHRISTOPHER P., *Balancing Government Risks with Contractor Incentives in Performance-Based Logistics Contracts*. AFIT/GLM/ENS/08-2. Faculty Advisor: Dr. Jeffrey A. Odgen. Sponsor: Defense Acquisition University.

HEPLER, AARON J., *Balanced Scorecard: Evaluation of Air Force Material Command's Implementation and Use*. AFIT/GLM/ENS/08-03. Faculty Advisor: Lt Col Bradley E. Anderson. Sponsor: 554 ELSG/SBI.

KENDALL, KELLY D., *AFMC Customer Satisfaction Study at the Air Logistics Centers*. AFIT/GLM/ENS/08-5. Faculty Advisor: Dr. William A. Cunningham. Sponsor: AFMC/A4SP.

KIM, SE YOUNG, *A Case Analysis of Explaining the Main Factors that Contribute to ROK'S Decision Making in Procurement of Defense Articles*. AFIT/GLM/ENS/08-14. Faculty Advisor: Lt Col Stanley E. Griffis. Sponsor: SAF/IA.

LARSON, PHILLIP K., *Forecasting Expeditionary Training for Company Grade Logistics Readiness Officers: A Delphi Study*. AFIT/GLM/ENS/08-8. Faculty Advisor: Dr. William A. Cunningham. Sponsor: AETC/A4R.

MAIN, BRYAN D., *Analytical Techniques and the Air Force Logistics Readiness Officer*. AFIT/GLM/ENS/08-9. Faculty Advisor: Dr. William A. Cunningham. Sponsor: AF/A4I.

MILLER, TROY J., *It is Time the United States Air Force Changes the Way it Feeds its Airmen. Six University's Perspectives on Outsourcing*. AFIT/GLM/ENS/08-10. Faculty Advisor: Lt Col Bradley E. Anderson. Sponsor: Air Force Services Agency, T2.

SERVIDIO, JOSEPH A., *Process Time Refinement for Reusable Launch Vehicle Regeneration Modeling*. AFIT/GLM/ENS/08-11. Faculty Advisor: Dr. Alan W. Johnson. Sponsor: AFRL/RB.

STRACHAN, ELISE V., *Governance Structure Transformation During ERP Implementations*. AFIT/GLM/ENS/08-12. Faculty Advisor: Dr. Jeffrey A. Odgen. Sponsor: Logistics Transformation Office.

VANN, LANCE A., *Feasibility of JP-8 to Jet A Fuel Conversion at U. S. Military Facilities*. AFIT/GLM/ENS/08-13. Faculty Advisor: Lt Col Bradley E. Anderson. Sponsor: AFPET/AFF.

WILLIAMSON, DEREK L., *Inland Resupply Without a Road or Runway: Airdrop Solutions Including High-Altitude Precision Systems*. AFIT/GLM/ENS/08-15. Faculty Advisor: Maj Shane N. Hall. Sponsor: AFOSR/NM and AF/A8XC.

5.5.2.2. OPERATIONS RESEARCH (GOR)

ALKANAT, OMER, *Determining the Surface-to-Air Missile Requirement for Western and Southern Part of the Turkish Air Defense System*. AFIT/GOR/ENS/08-01. Faculty Advisor: Dr. James T. Moore. Sponsor: Turkish Air Force.

BURNWORTH, TODD C., *Simulated Multi-Echelon Readiness-Based Inventory Leveling With Lateral Resupply*. AFIT/GOR/ENS/08M-23. Faculty Advisor: Dr. John O. Miller. Sponsor: AFMC/A9A.

CANDIR, AHMET AYDIN, *Discrete Event Simulation of a Suppression of Enemy Air Defenses (SEAD) Mission*. AFIT/GOR/ENS/08-03. Faculty Advisor: Dr. John O. Miller. Sponsor: Turkish Air Force.

EVANS, EMILY C., *A Simulation Optimization Approach to the Design of Unmanned Aircraft Systems*. AFIT/GOR/ENS/08-22. Faculty Advisor: Maj Shane N. Hall. Sponsor: AFRL/RD.

GOKCEN, OSMAN BAHADIR, *Robust Aircraft Squadron Scheduling in the Face of Absenteeism*. AFIT/GOR/ENS/08-06. Faculty Advisor: Maj Shane J. Knighton. Sponsor: Turkish Air Force.

JOHNSON, ROBERT J., *Improved Feature Extraction, Feature Selection, and Identification Techniques that Create a Fast Unsupervised Hyperspectral Target Detection Algorithm*. AFIT/GOR/ENS/08-07. Faculty Advisor: Dr. Kenneth W. Bauer, Jr. Sponsor: N/A.

KANG, YOUN IN, *Combat Identification Using Multiple TUAV Swarm*. AFIT/GOR/ENS/08-09. Faculty Advisor: Dr. John O. Miller. Sponsor: N/A.

KAPPEDAL, RYAN D., *Intelligence Surveillance and Reconnaissance Asset Assignment for Optimal Mission Effectiveness*. AFIT/GOR/ENC/08-10. Faculty Advisor: Maj August G. Roesener. Sponsor: USSTRATCOM.

KIM, TAE HO, *Combat Identification Modeling Using Robust Optimization Techniques*. AFIT/GOR/ENS/08-11. Faculty Advisor: Dr. Kenneth W. Bauer, Jr. Sponsor: ACC/A8SI.

LOEFFELHOLZ, BERNARD J., *Street Gangs: A Modeling Approach to Evaluation of "At Risk" Youth*. AFIT/GOR/ENS/08-24. Faculty Advisor: Dr. Richard F. Deckro. Sponsor: Montgomery County (OH) Police Department.

LUPA, JOSEPH S., *Simulation of National Intelligence Process with Fusion*. AFIT/GOR/ENS/08-13. Faculty Advisor: Dr. John O. Miller. Sponsor: NSSO.

MARKS, HUNTER A., *Robust Sensitivity Analysis of Courses of Action Using an Additive Value Model*. AFIT/GOR/ENS/08-14. Faculty Advisor: Maj Shane J. Knighton. Sponsor: AFRL/RISE.

OKAL, ADEM, *Simulation Modeling and Analysis of F-16 Pilot Training Squadron*. AFIT/GOR/ENS/08-15. Faculty Advisor: Dr. John O. Miller. Sponsor: Turkish Air Force.

PACIENCIA, TODD J., *Multi-Objective Optimization of Mixed-Variable, Stochastic Systems Using Single-Objective Formulations*. AFIT/GOR/ENS/08-17. Faculty Advisor: Dr. James W. Chrissis. Sponsor: AFRL/RB.

PONACK, RYAN S., *Assessing Capabilities of the High Energy Liquid Laser Area Defense System Through Combat Simulations*. AFIT/GOR/ENS/08-18. Faculty Advisor: Dr. John O. Miller. Sponsor: AF/A9.

STONE, BRIAN B., *Developing an Excel Decision Support System Using In-Transit Visibility to Decrease DoD Transportation Delays*. AFIT/GOR/ENS/08-20. Faculty Advisor: Dr. James T. Moore. Sponsor: AMC/A9.

TANNEHILL, BRYAN R., *Forecasting Instability Indicators in the Horn of Africa Region*. AFIT/GOR/ENS/08-21. Faculty Advisor: Dr. Richard F. Deckro. Sponsor: USCENTCOM J8-ARB.

5.5.2.3. ENGINEERING MANAGEMENT (GEM)

CULLEN, ANDREW J., *A Multi-Objective Linear Program Model to Test Hub-and-Spoke Networks as a Potential Air Force Deployment Alternative*. AFIT/GEM/ENS/08-M01. Faculty Advisor: Dr. James T. Moore. Sponsor: AFOSR/NM or AF/A7.

5.5.3. GRADUATE RESEARCH PAPERS

5.5.3.1. GRADUATE LOGISTICS MANAGEMENT (ILM)

GRANT, SCOTT D., *Improving the Tanker Employment Model*. AFIT/ILM/ENS/08-02. Faculty Advisor: Dr. Alan W. Johnson. Sponsor: N/A.

HACKLER, GEORGE C., *Goal Programming Tanker Beddown Decisions*. AFIT/ILM/ENS/08-03. Faculty Advisor: Dr. Alan W. Johnson. Sponsor: N/A.

KIMBROUGH, JAMES M., *Examining US Irregular Warfare Doctrine*. AFIT/ILM/ENS/08-04. Faculty Advisor: Dr. Richard F. Deckro. Sponsor: N/A.

KOVICH, MATTHEW D., *Developing a Predictive Model for Unscheduled Maintenance Requirements on United States Air Force Installations*. AFIT/ILM/ENS/08-05. Faculty Advisor: Lt Col Stanley E. Griffis. Sponsor: HQ AFMC/A7.

MARENTETTE, KENNETH A., *An Objective Decision Tool for Use in Considering Air Force Specialty Code Pairs for Consolidation*. AFIT/ILM/ENS/08-06. Faculty Advisor: Dr. Alan W. Johnson. Sponsor: HAF/A1PF.

NORTON, JOHN D., *Developing a Predictive Model for Unscheduled Maintenance Requirements on United States Air Force Installations*. AFIT/ILM/ENS/08-05. Faculty Advisor: Lt Col Stanley E. Griffis. Sponsor: HQ AFMC/A7.

PETTUS, EVAN L. and RICHARD V. STEELE, *Air Dominance in an Anti-Access Environment*. AFIT/ILM/ENS/08-08. Faculty Advisor: Lt Col Bradley E. Anderson. Sponsor: DoD Policy Planning.

STEELE, RICHARD V., See Pettus, Evan L.

5.5.3.2. GRADUATE MOBILITY OPERATIONS (IMO)

BUFORD, TRAVIS P., *Contingency Response Groups: How Many Do We Really Need?* AFIT/IMO/ENS/08-01. Faculty Advisor: Dr. James T. Moore. Sponsor: 621 COSG/CD.

CLARK, WILL, *Optimal Cargo Compartment Size for the Advanced Joint Combat System*. AFIT/IMO/ENS/08-02. Faculty Advisor: Lt Col Pamela S. Donovan. Sponsor: AMC/A8X.

DEVOE, DANIEL A., *When Precision Becomes Precise: What it Takes to Achieve 10 Meter Accuracy with the Joint Precision Airdrop System*. AFIT/IMO/ENS/08-03. Faculty Advisor: Dr. James T. Moore. Sponsor: SAF/AQQ.

DEVOS, BROCK E., *Airfield Operations and Airbase Opening*. AFIT/IMO/ENS/08-04. Faculty Advisor: Dr. Alan R. Heminger. Sponsor: AMC/A3.

DUDLEY, PAUL J., *Is the Euro-NATO Joint Jet Pilot Training Program Viable in the Post Cold War Era?* AFIT/IMO/ENS/08-05. Faculty Advisor: Dr. Alan R. Heminger. Sponsor: AETC/A5.

EASTLAND, KEVIN M., *Has the Expeditionaryh Mobility Task Force (EMTF) Organization Outlived Its Usefulness?* AFIT/IMO/ENS/08-06. Faculty Advisor: Dr. Alan R. Heminger. Sponsor: USAF EC/CC.

HALL, JAMES B., *Assessing the Productivity of the Air Force Flying Training Process: Proposing a New Measurement of Success*. AFIT/IMO/ENS/08-07. Faculty Advisor: Lt Col Donald E. Duckro. Sponsor: 18 AF/CV.

HANSON, JEREMY R., *Moving the Force: The Impact of Large Scale Brigade Combat Team Deployments*. AFIT/IMO/ENS/08-08. Faculty Advisor: Dr. James T. Moore. Sponsor: AMC/A3.

HOWLAND, ERIC J., *A Lean Look at the C-17 Home Station Departure Process*. AFIT/IMO/ENS/08-09. Faculty Advisor: Dr. Alan W. Johnson. Sponsor: 437 OG/CC.

KIELTY, ROBERT A., *A Multinational Perspective on Aircraft Spares Cross Servicing for the Mobility Air Forces*. AFIT/IMO/ENS/08-10. Faculty Advisor: Lt Col Stanley E. Griffis. Sponsor: AMC/A4.

LACY, JOHN A., *Application of AFSO21 Principles to Navigator Training at the C-130 Formal Training Unit*. AFIT/IMO/ENS/08-11. Faculty Advisor: Dr. Alan R. Heminger. Sponsor: 314 OG/CC.

MITCHELL, LAWRENCE W.S., *Fee for Service Air Refueling: A Summary Market Analysis*. AFIT/IMO/ENS/08-12. Faculty Advisor: Dr. James T. Moore. Sponsor: AMC/CR.

NICHOL, JAMES P., *Analysis of AFRICOM Theater Airlift Distribution Network*. AFIT/IMO/ENS/08-13. Faculty Advisor: Dr. James T. Moore. Sponsor: AFRICOM/J3.

NULTON, JASON D., *Assessing Air Force Logistics Reengineering (LogR) Against Process in the Supply Chain*. AFIT/IMO/ENS/08-14. Faculty Advisor: Dr. Alan R. Heminger. Sponsor: AMC/A4.

TURNER, JOBIE S., *Fly What You Want, Log What You Need: A New Currency System for USAF Mobility Aircrew*. AFIT/IMO/ENS/08-15. Faculty Advisor: Lt Col Donald E. Duckro. Sponsor: 18 AF/CV.

ZEINER, ZACHARY B., *Intra-Theater Airlift Cost Analysis*. AFIT/IMO/ENS/08-16. Faculty Advisor: Dr. James T. Moore. Sponsor: AF/A9.

5.5.4. FUNDED RESEARCH PROJECTS

Note: Research Center affiliations are listed in [] if applicable.

BAUER, KENNETH W., Jr.

“Sensor Fusion for Automatic Target Recognition (Combat ID Research).” Sponsor: ACC. Funding: \$33,000. [COA]

CHAMBAL, STEPHEN P., Lt Col

“COA Support.” Sponsor: AFMC/A9. Funding: \$175,000. [COA]

DECKRO, RICHARD F.

“AFIT Analysis Support to the Joint Improvised Explosive Device Defeat Organization.” Sponsor: JIEDDO. Funding: \$238,360.

“Operations Research in Support of NSA.” Sponsor: NSA. Funding: \$20,000.

HALL, SHANE N., Maj

“The Optimal Allocation and Utilization of Weather Assets for Strategic Weather.” Sponsor: AFSOC. Funding: \$12,000.

KNIGHTON, SHANE A., Maj

“Effects-Based Operations (EBO) Research Consortium.” Sponsor: AFRL/RI. Funding: \$15,000.

MILLER, JOHN O.

“AFIT Analysis Support to the Joint Improvised Explosive Device Defeat Organization.” Sponsor: JIEDDO. Funding: \$346,910. [COA]

“Air Force Standard Analysis Toolkit (AFSAT) Support.” Sponsor: AF/A9. Funding: \$35,000. [COA]

MOORE, JAMES T.

“Application of Metaheuristics to Air Force Problems.” Sponsor: AFOSR. Funding: \$51,500. [COA]

OGDEN, JEFFREY A.

“ECSS Research.” Sponsor: ECSS. Funding: \$36,293. [COA]

WEIR, JEFFERY D., Lt Col

“AFIT Analysis Support to the Joint Improvised Explosive Device Defeat Organization.” Sponsor: JIEDDO. Funding: \$11,700. [COA]

ZALEWSKI, DANIEL J., Col

“Quadrennial Defense Review Support Studies.” Sponsor: HQ USAF. Funding: \$25,000.

5.5.5. REFEREED JOURNAL PUBLICATIONS

Note: Research Center affiliations are listed in [] if applicable.

BAUER, KENNETH W., Jr.

Bednar, E.M., Bauer, K.W., and Miller, J.O., “Use of Control Variates in a Large-Scale Aggregated Combat Model”, *Journal of Defense Modeling and Simulation*, 4(1):29-42 (2007). [COA]

Laine, T. I. and Bauer, K.W., "A Mathematical Framework to Optimize ATR Systems with Non-declarations and Sensor Fusion", *Computers & Operations Research*, 35(6):1789-1812 (2008). [COA]

CHRISSIS, JAMES W.

Abramson, M., Audet, C. Chrissis, J., and Walston, J., “Mesh Adaptive Direct Search Algorithms for Mixed Variable Optimization”, *Optimization Letters*, 3(1): 35-47. [COA]

Y. Chan , J. Mahan , J. Chrissis, D. Drake, and D. Wang, “Hierarchical Maximal-Coverage Location-Allocation Case of Generalized Search-and-Rescue”, *Computers and Operations Research*, vol. 35, no. 6, June 2008, pp.1886-1904. [COA]

COCHRAN, JEFFERY K.

Cochran, J.K. and Kaylani, H., "Optimal Design of a Hybrid Push/Pull Serial Manufacturing System with Multiple Part Types", *International Journal of Production Research* 46(4): 949-965 (2008). [COA]

Cochran, J.K. and Roche, K.T., "A Queuing-Based Methodology for Hospital Inpatient Bed Planning", *Journal of the Operational Research Society* 59(11): 1471-1482 (2008). [COA]

COOPER MARTHA C.

Charvet F., Cooper, M.C., and Gardner, J. "The Intellectual Structure of Supply Chain Management: A Bibliometric Approach", *Journal of Business Logistics*, 29(1): 47-73 (2008). [COA]

CUNNINGHAM, WILLIAM A.

Heilmann, S., Cunningham, W. A. and Ward, C., "User Perceptions of In-Transit Visibility Architecture Utility", *Air Force Journal of Logistics*, 32(2): 92-99 (2008). [COA]

DECKRO, RICHARD F.

Hamill, J.T., Deckro, R. F., Wiley, V. D., and Renfro, II, R.S., "Gains, Losses, and Thresholds of Influence in Social Networks", *International Journal of Operational Research*, 2(4): 357-379 (2007).

Artelli M.J., and Deckro, R.F., "Fourth Generation Operations: Principles for the 'Long War'", *Small Wars & Insurgencies*, 19(2): 224-240 (2008).

Bullock, R.K., Deckro, R. F. and Weir J. D., "Methodology for Competitive Strategy Development", *Computers & Operations Research*, 35(2): 1865-1873 (2008).

HILL, RAYMOND R.

Marsh, W. E. and Hill, R.R., "An Initial Agent Behavior Modeling and Definition Methodology as Applied to Unmanned Aerial Vehicle Simulations", *International Journal of Simulation and Process Modeling*, 4(2): 119-129 (2008). [COA]

Cho, Y. K., Moore, J.T., Hill, R.R. and Reilly, C. H., "Exploiting Empirical Knowledge for Bi-Dimensional Knapsack Problem Heuristics", *International Journal of Industrial and Systems Engineering*, 3(5): 530-548 (2008). [COA]

Hiremath, C.S. and Hill, R.R., "New Greedy Heuristics for the Multiple-Choice Multidimensional Knapsack Problem", *International Journal of Operational Research*, 2(4): 495-512 (2008). [COA]

JOHNSON, ALAN W.

Maynard, T., Bell, J. and Johnson, A., "Frustrated Hazardous Material: Military and Commercial Training Implications", *Transportation Journal* 47(1): 30-42 (2008). [COA]

MOORE, JAMES T.

Cho, Y. K., Moore, J.T., Hill, R.R. and Reilly, C.H., "Exploiting Empirical Knowledge for Bi-Dimensional Knapsack Problem Heuristics", *International Journal of Industrial and Systems Engineering*, 3(5): 530-548 (2008). [COA]

OGDEN, JEFFREY A.

Ogden, J.A., Lowry, P.B., Petersen, K.J. and Carter, P.L., "Explaining the Key Elements of Information Systems-Based Supply-Chain Strategy That Are Necessary for Business-to-Business Electronic Marketplace Survival", *Supply Chain Forum: An International Journal*, 9(1): 92-110 (2008).

Foster, S. T. and Ogden, J.A., "On Differences in How Operations and Supply Chain Managers Approach Quality Management", *International Journal of Production Research*, 46(24): 6945-6961 (2008).

Ogden, J.A. and Carter, P.L., "The Supply Base Reduction Process: An Empirical Investigation", *The International Journal of Logistics Management*, 19(1): 5-28 (2008).

Ogden, J. A., Rossetti, C. L., and Hendrick, T. E., "An Exploratory Cross-Country Comparison of Strategic Purchasing", *Journal of Purchasing and Supply Management*, 13(1): 2-16 (2007).

5.5.6. REFEREED CONFERENCE PUBLICATIONS

Note: Research Center affiliations are listed in [] if applicable.

CONFERENCE PAPERS ACCEPTED ON THE BASIS OF FULL PAPER REVIEW

BAUER, KENNETH W., Jr.

Oxley, M.E., Thorsen, S.N., Schubert, C.M., and Bauer, K.W., "The Evaluation of an ATR System via its ROC Manifold", *11th International Conference on Information Fusion (FUSION 2008)*, June – July 2008 Cologne, Germany. [COA]

Lacey, T.H., Mills, R.F., Raines, R. A., Williams, P. D., Oxley, M.E., Bauer, K.W. and Rogers, S.K., "A Qualia Representation of Cyberspace", *Proceedings of the International Society for Optical Engineering (SPIE) Conference*, April 2008. [COA]

Rogers, S. K., Sadowski, C., Bauer, K. W., Oxley, M. E., Kabrisky, M., Rogers, A. S. and Mott, S. D., "The life and death of ATR/Sensor Fusion and the hope for resurrection" , *Proceedings of SPIE*, March 2008. [COA]

Turnbaugh, M.A. and Bauer, K.W., "HRR Signature Classification using Syntactic Pattern Recognition", *IEEE Aerospace Conference*, March 2008, Big Sky, Montana, USA. [COA]

Turnbaugh, M.A. and Bauer, K.W., "HRR Signature Classification using a Hybrid Composite Classification System", *International Society for Optical Engineering (SPIE) Defense and Security Symposium*, Conference on Automatic Target Recognition XVIII, March 2008, Orlando, Florida, USA. [COA]

Rodriguez, J., Miller, J.O., Bauer, K.W. Jr., and Neher, R.E. Jr., "Methodologies for Aggregating Large Hierarchical Simulation Models" *Proceedings of SPIE Vol 6965-11*, 2008. [COA]

Rodriguez, J., Bauer, K.W. Jr., Miller, J.O., and Neher, R.E. Jr., "Building Prediction Models of Large Hierarchical Simulation Models with Artificial Neural Networks and other Statistical Techniques." *Proceedings of SPIE Vol 6978-21*, 2008. [COA]

Leap, N.J. and Bauer, K.W., "A Confidence Paradigm for Classification Systems," *Proceedings of SPIE – Volume 6968, Signal Processing, Sensor Fusion, and Target Recognition XVII*, Editor: Ivan Kadar, March 2008. [COA]

Friend, M. A. and Bauer, K.W., "Non-Declaration Measures for Classifier Accuracy", *Proceedings of the Artificial Neural Networks in Engineering Conference (ANNIE 2006)*, November 2007, St. Louis, Missouri, USA. [COA]

Leap, N. J. and Bauer, K.W., "Confidence Framework in Classification", *Proceedings of the Artificial Neural Networks In Engineering Conference (ANNIE 2006)*, November 2007, St. Louis, Missouri, USA. [COA]

COCHRAN, JEFFERY K.

Burdick, T.L. and Cochran, J.K., "Right on 'Queue': Engineers Set the Stage for Healthcare Improvement" with Associated Paper "Forming a Healthcare Engineering Partnership: The Banner Health / Arizona State University Experience", *HIMSS Conference & Exhibition*, 2008, Orlando, Florida, USA. [COA]

COOPER, MARTHA C.

Cooper, M. C., Helper, A., and Ogden, J., "Evaluating the Effectiveness of Balanced Score Card Implementations", *2008 SOLE Symposium*, August 2008, Orlando, Florida, USA. [COA]

Cooper, M.C., Helper, A. and Ogden, J., "Business Methods Applied in Government", *2008 POMS Conference*, May 2008, La Jolla, California, USA. [COA]

Burgos-Dominguez, A., Cartwright, H., Cooper, M. C. and Hurst, D., "Women in Logistics 2007: A Global Perspective", *Council of Supply Chain Management Professionals Annual Meeting*, October, 2007, San Antonio, Texas, USA. [COA]

HILL, RAYMOND R.

Hardman, N., Colombi J., Jacques, D. and Hill, R.R., "Improved User Interface Design through Graph-Theoretic Modeling", *2008 IEEE International Conference on Distributed Human-Machine Systems*, March 2008, Athens, Greece. [COA]

Champagne, L.E., and Hill, R.R., "Agent-Model Validation Based on Historical Data" *Proceedings of the 2007 Winter Simulation Conference*, Institute of Electrical and Electronics Engineers, December 2007, Washington, DC, USA. [COA]

JOHNSON, ALAN W.

Cole, G., Johnson, A.W., and Miller, J.O., "Feasibility Study of Variance Reduction in the Logistics Composite Model", *Proceedings of the Winter Simulation Conference*, December 2007, Washington, DC, USA. [COA]

MILLER, J.O.

Miller, J.O., "Tutorial: Military Applications of Modeling and Simulation", *Proceedings of the Industrial Engineering Research Conference 2008*, May 2008, Vancouver, B.C. Canada. [COA]

OGDEN, JEFFREY A.

Cooper, M. C., Helper, A., and Ogden, J., "Evaluating the Effectiveness of Balanced Score Card Implementations", *2008 SOLE Symposium*, August 2008, Orlando, Florida, USA.

Cooper, M.C., Helper, A. and Ogden, J., "Business Methods Applied in Government", *2008 POMS Conference*, May 2008, La Jolla, California, USA.

SKIPPER, JOSEPH B., Maj

Skipper, J. B., Landrum, H.W., Huscroft, J.R., Hall, D., Hanna, J., and Peachey, T., "Facilitating Flexibility in Supply Chain Organizations: The Confounding Effect of Information", *Proceedings of the Americas Conference on Information Systems: Information Systems for Supply Chain Management, the Integration with Globalization Track*, August 2008, Toronto, Ontario, Canada.

CONFERENCE PAPERS ACCEPTED ON THE BASIS OF ABSTRACT REVIEW

CHRISSIS, JAMES W.

B. Sparkman, J. Chrissis, and M. Gruber, "Optimization of a Scramjet Fuel Injection Array", 12th AIAA/ISSMO Multidisciplinary Analysis and Optimization Conference, Victoria, BC, Canada, 10-12 Sept 2008. (Paper was a finalist in student paper competition). [COA]

T. Paciencia and J. Chrissis, "Optimization of Multi-Objective Stochastic Systems Beyond Two Objectives Using Direct Search Methods", 12th AIAA/ISSMO Multidisciplinary Analysis and Optimization Conference, Victoria, BC, Canada, 10-12 Sept 2008. (Paper won Best Paper award in student paper competition). [COA]

HALL, SHANE N., Maj

Jacobson, S. H., Sewell, E. C. and Hall, S. N., "Analyzing the General Minimum Cost Vaccine Formulary Selection Problem," *Proceedings of the 2008 NSF Design, Service, and Manufacturing Grantees and Research Conference*, Knoxville, Tennessee, January 2008. [COA]

Kappedal, R., Roesener, A. G. and Hall, S. N., "Intelligence Surveillance and Reconnaissance Asset Assignment for Optimal Mission Effectiveness", *Military Operations Research Society Symposium*, United States Coast Guard Academy, Connecticut, June 2008. [COA]

Illig, A.A., Roesener, A.G., Knighton, S. A. and Hall, S. N., "Hurry Up and Wait ...Optimizing the Initial Skills Training Scheduling Process", *Military Operations Research Society Symposium*, United States Coast Guard Academy, Connecticut, June 2008. [COA]

HILL, RAYMOND R.

Miller, J. O. and Hill, R.R., "Military Applications of Modeling and Simulation", *Proceedings of the 2008 Industrial Engineering Research Conference*, Vancouver, BC, May 2008. [COA]

Heath, B. L. and Hill, R.R., "The Early History of Agent-Based Modeling", *Proceedings of the 2008 Industrial Engineering Research Conference*, Vancouver, BC, Canada, May 2008. [COA]

JOHNSON, ALAN W.

Johnson, A.W. and Servidio, J., "Ground Support Process Time Refinement for Reusable Launch Vehicle Regeneration Modeling", *Proceedings of the American Institute of Aeronautics and Astronautics Space 2008 Conference*, San Diego California, AIAA-2008-7647. [COA]

OGDEN, JEFFREY A.

Brewer B., Ogden, J.A., Ashenbaum, B. and Carter, J.R., "The Link Between Outsourcing Strategy and Performance", published as a full paper and presented at the 19th Annual North American Research/Teaching Symposium on *Purchasing and Supply Chain Management*, Tempe, Arizona, March 2008.

Ogden, J.A., "Antecedents of Supply Base Reduction Efforts: An Empirical Investigation," *2008 POMS Conference*, May 2008, La Jolla, California, USA.

PETTIT, TIMOTHY, J., Lt Col

Pettit, T.J., "Ensuring Supply Chain Resilience," presentation at the 43rd Annual International Logistics Conference and Exhibition, *The International Society of Logistics (SOLE)*, Orlando, Florida, August 2008. [COA]

SKIPPER, JOSEPH B., Maj

Huscroft, J. R, Skipper, J.B., Hall, D. and Mattioda, D., “Improving Flexibility in the Supply Chain: Can Information have a Negative Impact,” *International Society of Logistics (SOLE) Abstracts*, Orlando, Florida, August 2008.

5.5.7. SUBSTANTIAL CONSULTATIONS

Note: Research Center affiliations are listed in [] if applicable.

DECKRO, RICHARD F.

Deckro, R. F., Member Behavioral Influence Analysis workgroup of the Human Factors for Homeland and National Security, Subcommittee of the National Science and Technology Council Committee on Homeland and National Security.

Deckro, R. F., Served as Subject Matter Expert (SME) for Vice Chief of the Joint Staff requested study on Human Network Attack undertaken by the Global Innovation and Strategy Center (GISC), USSTRATCOM. Group leader for conferences breakout groups; Human Network Analysis Conference February 2008.

Deckro, R. F., Requested participant/reviewer at AFOSR Program Review for the *Cognition and Decision, Human Machine Interaction and Social Cultural Modeling Programs*, January 2008, Arlington, VA.

Deckro, R. F., Panel member for AFOSR review of GMU/CMU MURI “Computational Modeling of Cultural Dimensions in Adversary Modeling” for Optional Years Renewal, GMU, November 2007.

Deckro, R. F., Member of Advisory Group on Applications, GMU/CMU MURI “Computational Modeling of Cultural Dimensions in Adversary Modeling” Participated in advisory board meeting, GMU, November 2007.

5.5.8. BOOKS AND CHAPTERS IN BOOKS

Note: Research Center affiliations are listed in [] if applicable.

BAUER, KENNETH W., Jr.

Rodriguez, B.M., Peterson, G.L., and Bauer, K.W., “Fusion of Steganalysis Systems Using Bayesian Model Averaging”, *Advances in Digital Forensics IV*, eds. Sheno, S., and Ray, I. (2008). [COA]

HALL, SHANE N., Maj

Hall, S.N., Jacobson, S.H., and Sewell, E.C., “Optimizing Pediatric Vaccine Formularies”, *Optimization in Medicine and Biology*, Chapter 4, pp 117-145. Auerbach Publications (Taylor and Francis Group), (2008). [COA]

HILL, RAYMOND R.

Prabhala,S., Ganapathy, S. Narayanan, S., Gallimore, J. J. and Hill, R.R., Model-Based Simulation to Examine Command and Control Issues with Remotely Operated Vehicles. “*Simulation and Modeling: Current Technologies and Applications*”, Chapter 7, El Sheikh, A A.A., Ajeeli, R.. A. and Abu-Taieh, E. M. O. eds. IGI Publishing, Hershey, PA., 199-218, (2008). [COA]

OGDEN, JEFFERY A.

Fawcett, S.E., Ellram, L.M. and Ogden, J.A. “*Supply Chain Management: From Vision to Implementation*”, Prentice Hall, Upper Saddle River, New Jersey, (2007).

5.5.9. OTHER PRESENTATIONS, PUBLICATIONS AND PROFESSIONAL ACTIVITIES

CHRISSIS, JAMES W.

PRESENTATIONS

Sparkman, B., Chrissis, J. and Gruber, M., "Optimization of a Scramjet Fuel Injection Array", accepted for presentation at the 12th AIAA/ISSMO Multidisciplinary Analysis and Optimization Conference, 10-12 Sept, Victoria, BC, Canada.

Paciencia, T. and Chrissis, J., "Multi-Objective Optimization of Mixed-Variable, Stochastic Systems Using Single-Product Formulations and Aspiration Reservation Levels", accepted for presentation at the 12th AIAA/ISSMO Multidisciplinary Analysis and Optimization Conference, 10-12 Sept, Victoria, BC, Canada.

PROFESSIONAL ACTIVITIES

Track Leader (Optimization Methods), 12th AIAA/ISSMO Multidisciplinary Analysis and Optimization Conference, September 2008, Victoria, BC, Canada.

Member of the AIAA Multidisciplinary Design Optimization (MDO) Technical Committee (TC).

Reviewed papers 2008 AIAA/ISSMO Multidisciplinary Analysis and Optimization Conference, September 2008, Victoria, BC, Canada.

Reviewed papers, 2008 AIAA SDM Conference/MDO Specialist Conference, April 2008, Schaumburg, Ill.

Reviewed papers for the MDO sessions at the 2008 AIAA Aerospace Sciences Meeting, January 2008, Reno, NV.

Session chair AIAA Aerospace Sciences Meeting.

Member of the MDO/TC Education Subcommittee.

Reviewer for Military Operations Research.

Reviewer for European Journal of Operational Research.

Committee chair and reviewer scholarships/grants provided by the Buckeye Chapter of AHEPA (American Hellenic Educational Progressive Association).

COCHRAN, JEFFERY K.

PROFESSIONAL ACTIVITIES

Editorial Board, Computers in Industry.

Editorial Board, Journal of Design and Manufacturing Automation.

Editorial Board, International Journal of Simulation and Process Modeling.

Editorial Board, International Journal of Industrial and Systems Engineering.

Editorial Board, International Journal of Mathematics in Operational Research.

Program Committee, IASTED International Conference on Modeling and Simulation.

COOPER, MARTHA C.

PROFESSIONAL ACTIVITIES

Associate Editor, Journal of Operations and Supply Chain Management, 2008.

Associate Editor, Journal of Supply Chain Management, Nov 2008.

Editorial Review Board for the Journal of Business Logistics, 2008 ; Journal of Operations Management, 2008; Journal of Supply Chain Management, 2008; the International Journal of Physical Distribution and Logistics Management, 2008; Journal of Transportation Management, 2008 ; Supply Chain Forum: an International Journal, 2008 .

Production and Operations Management Society (POMS).

2008 Conference Track Chair on Logistics in Government, La Jolla, California.

CUNNINGHAM, WILLIAM A.

PRESENTATIONS

Johnson, J.P., Cunningham, W.A., and Johnson, A.W., "Aggregating Aircraft Mission Capable Rates to Determine Total Aircraft Availability", INFORMS Annual Meeting, Washington, DC, 2008.

PROFESSIONAL ACTIVITIES

National Testing Committee - American Society of Transportation & Logistics.

Editorial Review Board - Journal of Transportation Management.

Editorial Review Board – Journal of Marketing Theory and Practice.

Editorial Review Board – Air Force Journal of Logistics.

Book Reviewer for Army Logistician.

DECKRO, RICHARD F.

OTHER PUBLICATIONS

Hamill, J.T., Deckro, R.F., Chrissis, J.W., and Mills, R. "Layered Social Networks", IO Sphere, pp 27-33, 2008.

PRESENTATIONS

Artelli, M., Deckro, R.F., Zalewski, D., Leach, S. and Perry, M., "Modeling Elements of Modern Warfare", 76th Military Operations Research Society Symposium, June 2008.

Deckro, R. F., "Human Networks: Analysis and Operations", Air War College's Behavioral Influences Analysis Center's Annual Tools/Computational Approaches/Methods Conference - Inferring Adversary Intent/Estimating Behaviors, Maxwell AFB, March 2008 (Invited Talk).

Perry, M. and Deckro, R.F., "Detecting Edge Structure in Noisy Networks", INFORMS Seattle, November 2007.

Herbranson, T., Deckro, R.F., Chrissis, J.W. and Hamill, J. T., "Applying the Key Player Problem Negative to Clandestine Networks", INFORMS Seattle, November 2007.

Leinart, J., Deckro, R.F., Moore, J., Denhard, D., Mills, R., and Perry, M., "Characterizing and Detecting Unrevealed Elements of Network Systems", INFORMS Seattle, November 2007.

Artelli, M., Deckro, R.F., Zalewski, D., Leach, S., and Perry, M., "Modeling Morale", Air Force Operations Research Symposium, Colorado Springs, CO, October 2007.

Geffre, J., Deckro, R.F. and Knighton, S., "Clandestine Networks & Operations: A Layered Approach", Air Force Operations Research Symposium, Colorado Springs, CO, October 2007. (Selected as one of the Outstanding Presentations of the Meeting)

Downs, D. and Deckro, R.F., "Gauging the Commitment of Clandestine Group Members", Air Force Operations Research Symposium, Colorado Springs, CO, October 2007.

PROFESSIONAL ACTIVITIES

Human, Social, Cultural, and Behavior (HSCB) Workshop at the National Defense University Co-Chaired working group on SSTRO (stability, security, transition, and reconstruction operations). National Defense University, July 2008.

Interagency Coordination Workshop entitled Stability and Reconstruction Operations: Current and Future Applications for Afghanistan. Workshop was sponsored by the U.S. Army Corps of Engineers and the DoD's Rapid Reaction Technology Office and the host, Gallup, Washington DC, June 2008.

Judge of Student Projects, USMA/DSE Capstone Conference, West Point, May 2008.

Organizing Committee, MORS Cyber & Networking Workshop.

Attended MORS Analyzing the Impact of Emerging Societies on National Security Workshop, Argonne National Laboratory, Argonne, IL, 14-18 April, Co – Chaired Social Network Working Group.

Attended MORS 2008 Education and Professional Development Colloquium, AFIT, Wright-Patterson AFB, March 2008.

Editor, Military Operations Research.

Area Editor, Service Systems, Computers & Industrial Engineering.

Chair, Military Applications Society Awards Committee.

Member, MORS Publication Committee.

Member, Peacekeeping and Stability Operations Institute Academic Consortium.

Member, Advisory Group on Applications, GMU/CMU MURI "Computational Modeling of Cultural Dimensions in Adversary Modeling".

HILL, RAYMOND R.

OTHER PUBLICATIONS

Parnell, G.S. and Hill, R.R., "Value-Focused Thinking and the Challenges of the Long War", Military Operations Research, Vol. 13, No. 2, 5-6, June 2008.

Hardman, N., Colombi, J., Jacques, D. and Hill, R.R., "What Systems Engineers Need to Know About Human-Computer Interaction", IncoSE INSIGHT, Vol. 11, No. 2, 19-23, April 2008.

Hill, R.R., "Discrete-Event Simulation: A First Course", Journal of Simulation, Vol. 1, No. 1, 147-148, Book Review, 2007.

PRESENTATIONS

Champagne, L. and Hill, R.R., "Agent-Model Validation Based on Historical Data," 2007 Winter Simulation Conference, Washington, DC, December 2007.

Miller, J. O. and Hill, R.R., "Military Applications of Modeling and Simulation", 2008 Industrial Engineering Research Conference, Vancouver, BC, May 2008.

Heath, B. L. and Hill, R.R., "The Early History of Agent-Based Modeling", 2008 Industrial Engineering Research Conference, Vancouver, BC, May 2008.

Hill, R.R., Mahadevan, S., Gripper, M., Militello, L. and Bowers, D., "Interruptions: Influence on Trust and Coordination in Small Virtual Teams," 2008 Industrial Engineering Research Conference, Vancouver, BC, May 2008.

PROFESSIONAL ACTIVITIES

Session Chair, Military Track, 2007 Winter Simulation Conference, Washington DC, December 2007.

Track Chair, Modeling and Simulation Track, 2008 Industrial Engineering Research Conference, Vancouver BC, May 2008.

Session chair, 2008 Industrial Engineering Research Conference, Vancouver, BC, May 2008.

Associate Editor, Military Operations Research.

Associate Editor, Journal of Simulation.

Associate Editor, Journal of Defense Modeling and Simulation.

Associate Editor, International Journal of Mathematics in Operational Research.

Guest Editor, Military Operations Research, special issue on Value Focused Thinking, Volume 8, Number 2, June 2008.

Proceedings Co-Editor, 2008 Winter Simulation Conference, Miami FL, December 2008 (editorial work accomplished during FY 2008).

JOHNSON, ALAN W.

PRESENTATIONS

Servidio, J. and Johnson A.W., "Parameterizing Activity Time Distributions for Reusable Military Launch Vehicle Regeneration Modeling", 76th MORS Symposium, US Coast Guard Academy, June 2008.

Servidio, J., Michalski, M., Stiegelmeier, A., Pope, T., Johnson, A.W. and Martindale, M., "Simulating Reusable Launch Vehicle Regeneration Activities between Flights", Responsive Access to Space Technology Exchange, Dayton, May 2008.

Kretser, M. and Johnson, A.W., "Modeling Predator UAV Operations" INFORMS National Meeting, Seattle, November 2007.

PROFESSIONAL ACTIVITIES

Track co-chair (eight sessions), Space Logistics, Tourism and Colonization, AIAA Space 2008 Conference, September 2008, San Diego, California.

Session Chair, Defense Supply Chain Analysis, INFORMS National Meeting, Seattle, Washington November 2007.

Secretary/Treasurer, Military Applications Society, INFORMS.

MILLER, JOHN O.

PRESENTATIONS

Rodriguez, J., Miller, J.O., and Bauer, K.W. "Aggregation Procedures for Large Hierarchical Simulation Models" Proceedings of Huntsville Simulation Conference, Huntsville, AL, October 2007.

Ponack, R. and Miller, J.O. "Modeling High Energy Liquid Laser Area Defense System (HELLADS) in a Mission Level Simulation", Directed Energy Modeling and Simulation Conference, Monte Rey, CA, March 2008.

PROFESSIONAL ACTIVITIES

INFORMS Simulation Society Council Representative (elected position).

Associate Editor, International Journal of Operations Research.

Journal referee for Military Operations Research.

Journal referee for International Journal of Logistics: Research and Applications.

Journal referee for The Journal of Defense Modeling and Simulation.

MOORE, JAMES T.

PRESENTATIONS

Moore, J. T., "A New Approach to the Theater Distribution Problem", AFIT Featured Blue Dart, March 2008.

Moore, J.T., "Scheduling Fighter Pilot Training in a Squadron", AFIT Featured Blue Dart, December 2007.

Stone, B.B., Moore, J.T. and Donovan, P.S., "Developing an Excel Decision Support System Using In-Transit Visibility to Decrease DoD Transportation Delays", Military Operations Research Society Symposium, New London, CT, June 2008.

Moore, J.T., "Application of Metaheuristics to Air Force Problems", AFOSR Optimization and Discrete Mathematics Program Review, Arlington, VA, April 2008.

Newlon, T.M., Moore, J.T. and Knighton, S.A., "Mathematical Programming Model for Fighter Squadron Pilot Training Scheduling", Air Force Operations Research Society Symposium, Colorado Springs, CO, October 2007.

PROFESSIONAL ACTIVITIES

Working Group 18 Chair (Strategic Deployment and Distribution), Military Operations Research.

Society (MORS) Symposium, New London, CT, June 2008.

Site Coordinator, MORS Education and Professional Development Colloquium, Air Force Institute of Technology, March 2008.

Session Chair, Military OR Applications, INFORMS, Seattle, WA, November 2007.

Cluster Chair, Military Applications Society, INFORMS, Seattle, WA, November 2007.

OGDEN, JEFFREY A.

PRESENTATIONS

Ogden, J.A., "Antecedents of Supply Base Reduction Efforts: An Empirical Investigation," presented at the 19th Annual Conference of the Production and Operations Management Society, La Jolla, California, May 2008.

Cooper, M.C., Ogden, J.A. and Anderson, B., "Business Methods Applied in Government," presented at the 19th Annual Conference of the Production and Operations Management Society, La Jolla, California, May 2008.

PETTIT, TIMOTHY J., Lt Col

OTHER PUBLICATIONS

Pettit, T.J., Fiksel, J. and Croxton, K.L., "Can you Measure your Supply Chain Resilience?" Supply Chain and Logistics Journal, 10(1): 21-22 (2008).

PRESENTATION

Pettit, T.J., "Ensuring Supply Chain Resilience," presentation to the Council of Supply Chain Management Professionals, Columbus Chapter, September 2008.

5.6. DEPARTMENT OF SYSTEMS AND ENGINEERING MANAGEMENT

Access Phone: 937-255-2998, DSN 785-2998

Fax: 937-656-4699, DSN 986-4699

Homepage: <http://www.afit.edu/en/env/>

5.6.1	<u>DOCTORAL DISSERTATIONS</u>	129
5.6.2	<u>MASTER'S THESES</u>	129
5.6.3	<u>GRADUATE RESEARCH PAPERS</u>	135
5.6.4	<u>FUNDED RESEARCH PROJECTS</u>	135
5.6.5	<u>REFEREED JOURNAL PUBLICATIONS</u>	136
5.6.6	<u>REFEREED CONFERENCE PUBLICATIONS</u>	138
5.6.7	<u>SUBSTANTIAL CONSULTATIONS</u>	142
5.6.8	<u>BOOKS & CHAPTERS IN BOOKS</u>	143
5.6.9	<u>OTHER PRESENTATIONS, PUBLICATIONS AND PROFESSIONAL ACTIVITIES</u>	144

5.6.1. DOCTORAL DISSERTATIONS

5.6.1.1. SYSTEMS ENGINEERING (DSE)

FORD, THOMAS C., *Interoperability Measurement*. AFIT/DSE/ENV/08-S01. Faculty Advisor: Dr. John M. Colombi. Sponsor: N/A.

5.6.2. MASTER'S THESES

5.6.2.1. COST ANALYSIS (GCA)

VAN DYK, STEFANIE L., *Forecasting Flying Hour Costs of the B-1, B-2, and B-52 Bomber Aircraft*. AFIT/GCA/ENV/08-M02. Faculty Advisor: Lt Col Eric J. Unger. Sponsor: N/A.

5.6.2.2. ENGINEERING MANAGEMENT (GEM)

AL-AHMED, MOHAMED E., *Creating A Level Nine Maintainer Position in the Aircraft Maintenance Training System for the Royal Bahraini Air Force (RBAF)*. AFIT/GEM/ENV/08-S01. Faculty Advisor: Dr. Michael T. Rehg. Sponsor: Bahrain Defense Force.

BEACH, MICHAEL J., *An Analysis of Construction Cost and Schedule Performance*. AFIT/GEM/ENV/08-M02. Faculty Advisor: Maj Sonia E. Leach. Sponsor: N/A.

BURRIS, ANDREW B., *A Qualitative and Quantitative Assessment of Readiness for Organizational Change Literature*. AFIT/GEM/ENV/08-J01. Faculty Advisor: Lt Col Daniel T. Holt. Sponsor: N/A.

CORBIN, REBECCA S., *An Analysis of Groundwater Flow Patterns in a Constructed Treatment Wetland Cell*. AFIT/GEM/ENV/08-M04. Faculty Advisor: Dr. Michael L. Shelley. Sponsor: AF/A7 and AFCEE.

CRABTREE, DONALD C., *Factors Leading to Effectiveness and Satisfaction in Civil Engineer Information Systems*. AFIT/GEM/ENV/08-M05. Faculty Advisor: Dr. Dennis D. Strouble. Sponsor: AFCESA.

CRAIG, DANIEL A., *Development of a Screening Tool to Facilitate Technology of an Innovative Technology to Treat Perchlorate-Contaminated Water*. AFIT/GEM/ENV/08-M06. Faculty Advisor: Dr. Mark N. Goltz. Sponsor: ESTCP.

GRIFFIN, JAMES S., *Impacts of Weather Variations on Energy Consumption Efforts at U.S. Air Force Installations*. AFIT/GEM/ENV/08-M08. Faculty Advisor: Dr. Alfred E. Thal, Jr. Sponsor: HQ AFCEA.

HICKMAN, KRISTA M., *A Decision Tool to Evaluate Budgeting Methodologies for Estimating Facility Recapitalization Requirements*. AFIT/GEM/ENV/08-M09. Faculty Advisor: Dr. Alfred E. Thal, Jr. Sponsor: N/A.

HOWELL, RYAN A., *Bibliometrically Mapping Team Cognition Literature: A Co-citation Analysis*. AFIT/GEM/ENV/08-M10. Faculty Advisor: Lt Col Christopher J. West. Sponsor: AFRL/RH.

KAYS, JUAN A., *Position Characteristics and Their Relationship to Selection for Promotion*. AFIT/GEM/ENV/08-M11. Faculty Advisor: Lt Col Daniel T. Holt. Sponsor: N/A.

LOTT, JANELL M., *Physical Attractiveness, Social Network Location, and Performance in the Military*. AFIT/GEM/ENV/08-M12. Faculty Advisor: Lt Col Kent C. Halverson. Sponsor: N/A.

NIELSEN, TYLER K., *Characterization Patterns of MILCON Project Contract Modifications*. AFIT/GEM/ENV/07-D01. Faculty Advisor: Dr. Alfred E. Thal, Jr. Sponsor: AF/ILE.

- NYIKOS, DAVID M., *Sustainable Design Policy and Leadership in Energy and Environmental Design Certification*. AFIT/GEM/ENV/08-M14. Faculty Advisor: Dr. Alfred E. Thal, Jr. Sponsor: HQ AFCEE/TBD.
- OLSEN, NATHAN P., *The Impact of Operations Tempo (OPTEMPO) on Intentions to Depart the Military. Does the Increase of OPTEMPO Cause Action?* AFIT/GEM/ENV/08-M15. Faculty Advisor: Maj Sharon G. Heilmann. Sponsor: N/A.
- ROSNER, JAMES W., *An Analysis of the Design-Build Delivery Method in Air Force Military Construction*. AFIT/GEM/ENV/08-M16. Faculty Advisor: Lt Col Christopher J. West. Sponsor: AFMC MSO/A7M and ACC/CCTT.
- SOTOROPOLIS, THEODORE J., *Selecting the Best Thermal Building Insulation Using a Multi-Attribute Decision Model*. AFIT/GEM/ENV/08-M17. Faculty Advisor: Dr. Alfred E. Thal, Jr. Sponsor: N/A.
- STUMME, LUKE D., *Optimal Adoption of Green Roofs: Hydrology and Public Finance Applications*. AFIT/GEM/ENV/08-M18. Faculty Advisor: Dr. Alfred E. Thal, Jr. Sponsor: HQ AFCEE/TBD.
- THOMAS, BENJAMIN J., *Mining Association Rules Between Credits in the Leadership in Energy and Environmental Design for New Construction (LEED-NC) Green Building Assessment System*. AFIT/GEM/ENV/08-M19. Faculty Advisor: Dr. Alfred E. Thal, Jr. Sponsor: AFCEE.
- TRAMEL, BILLY D., *Factors that may Affect Retention of Enlisted Explosive Ordinance Disposal Airmen*. AFIT/GEM/ENV/08-J02. Faculty Advisor: Dr. Alan R. Heminger. Sponsor: N/A.
- VERMILLION, RICK E., *Comparative Kinetics and Distribution to Target Tissues of Organophosphates Using Physiologically-Based Pharmacokinetic Modeling*. AFIT/GEM/ENV/08-M20. Faculty Advisor: Dr. Michael L. Shelley. Sponsor: 711 HPW/RHPB.
- WALLACE, RONALD S., *How a Multidimensional View of Perceived Organizational Support Impacts Self-Efficacy and Task Understanding During Training for Boundary Spanning Tasks*. AFIT/GEM/ENV/08-M21. Faculty Advisor: Lt Col Alexander J. Barelka. Sponsor: N/A.
- WEVER, PAUL S., *A System Dynamic Model of Leader Emergence*. AFIT/GEM/ENV/08-M22. Faculty Advisor: Lt Col Kent C. Halverson. Sponsor: N/A.
- WHEELDON, JACK G., *An Evaluation and Implementation Guide for Current Groundwater Mass Flux Measurement Practices*. AFIT/GEM/ENV/08-M23. Faculty Advisor: Dr. Mark N. Goltz. Sponsor: US EPA-NRMRL-GWERD.
- YESUÉ, ELIZABETH A., *A Cocitation Analysis of Crisis Management Literature*. AFIT/GEM/ENV/08-M01. Lt Col Christopher J. West. Sponsor: AF/A7.

5.6.2.3. ENVIRONMENTAL ENGINEERING AND SCIENCE (GES)

- CLARKE, BRIAN M., *In Vitro Toxicity and Inflammation Response Induced by Copper Nanoparticles in Rat Alveolar Macrophages*. AFIT/GES/ENV/08-M01. Faculty Advisor: Dr. Charles A. Bleckmann. Sponsor: AFRL/RHPB.
- KOCHERSBERGER, JONATHAN P., *Linking Embeddedness and Macroinvertebrate in Two Southwest Ohio Streams*. AFIT/GES/ENV/08-M03. Faculty Advisor: Lt Col David A. Smith. Sponsor: Wright State University Dept of Earth and Environmental Sciences.
- LEON, ELISABETH M., *Molecular Characterization of Wetland Soil Bacterial Communities in Constructed Mesocosms*. AFIT/GES/ENV/08-M04. Faculty Advisor: Dr. Charles A. Bleckmann. Sponsor: N/A.

SEAMAN, GREGORY G., *Optimization of Therapeutic Strategies for Organophosphate Poisoning*. AFIT/GES/ENV/08-M06. Faculty Advisor: Dr. Michael L. Shelley. Sponsor: HQ USAF Surgeon General and Joint Program Executive Office for Chemical and Biological Defense.

THOMPSON, IAN F., *Oxygenation of the Root Zone and TCE Remediation: A Plant Model of Rhizosphere Dynamics*. AFIT/GES/ENV/08-M07. Faculty Advisor: Dr. Michael L. Shelley. Sponsor: AF/A7 and AFCEE/ERD.

5.6.2.4. INFORMATION RESOURCE MANAGEMENT (GIR)

ASCHENBRENNER, BRIAN D., *Identification of Command and Control Information Requirements for the Cyberspace Domain*. AFIT/GIR/ENG/08-01. Faculty Advisor: Dr. Robert F. Mills. Sponsor: AFIOC/IO.

ASHE, ERIC M., *An Analysis of Critical Technology Identification and AntiTamper Protection in Department of Defense Acquisition Programs*. AFIT/GIR/ENV/08-M01. Faculty Advisor: Dr. Michael R. Grimaila. Sponsor: AFRL/RYT.

BECHTLOFF, RYAN D., *An Analysis of Information Assurance Risk Management Methods for Use in Embedded Weapons Systems*. AFIT/GIR/ENV/08-M02. Faculty Advisor: Dr. Michael R. Grimaila. Sponsor: ASC/ENAS.

CHESSMAN, JOHN A., *A Delphi Study of HIPAA Compliance to Battlefield Medical Evacuation*. AFIT/GIR/ENV/08-M03. Faculty Advisor: Dr. Alan R. Heminger. Sponsor: 88 MDSS/SGSN.

COWAN, ROBERT M., *An Application and Assessment of Attack and Protection Tree Methodologies In The Evaluation of Risk in an Embedded Weapon System*. AFIT/GIR/ENV/08-M04. Faculty Advisor: Dr. Michael R. Grimaila. Sponsor: ASC/ENAS.

EDWARDS, MICHAEL T., *Strategies for Minimizing Monetary Loss in the Department of Defense Budget Through Use of Financial Derivatives*. AFIT/GIR/ENV/08-M05. Faculty Advisor: Lt Col Jeffrey S. Smith. Sponsor: N/A.

FRUGÉ, JOHN W., *Comparing Information Assurance Awareness Training for End-Users: A Content Analysis Examination of Air Force and Defense Information Systems Agency User Training Modules*. AFIT/GIR/ENV/08-M07. Faculty Advisor: Dr. Dennis D. Strouble. Sponsor: SAF/XCPPI.

GOUGH, DAVID P., *A Multiple Case Study Analysis of Digital Preservation Techniques Across Government, Private, and Public Service Organizations*. AFIT/GIR/ENV/08-M08. Faculty Advisor: Dr. Alan R. Heminger. Sponsor: N/A.

HAAN, NICHOLAS W., *Examination of Insider Threat Detection within a Generic Unmanned Aerial Vehicle System*. AFIT/GIR/ENV/08-M09. Faculty Advisor: Dr. Michael R. Grimaila. Sponsor: ASC/ENAS.

HARRIS, RANDY M., *An Analysis of the Effectiveness of the International Military Education and Training Program*. AFIT/GIR/ENV/08-M10. Faculty Advisor: Dr. Michael T. Rehg. Sponsor: DISAM/DI.

HELLESEN, DENZIL L., *An Analysis of Information Asset Valuation (IAV) Quantification Methodology for Application with Cyber Information Mission Impact Assessment (CIMIA)*. AFIT/GIR/ENV/08-M11. Faculty Advisor: Dr. Michael R. Grimaila. Sponsor: 711th HPW/RHX.

KETTLES, THOMAS R., *Integration of Information Operations Theory into the Corporate Air Force*. AFIT/GIR/ENG/08-02. Faculty Advisor: Dr. Robert F. Mills. Sponsor: AETC/SOC/DE.

KINLEY, KELLI S., *What Constitutes an Act of War in Cyberspace*. AFIT/GIR/ENV/08-M12. Faculty Advisor: Dr. Dennis D. Strouble. Sponsor: N/A.

MAXON, RYAN A., *Software Assurance Best Practices for Air Force Weapon and Information Technology Systems - Are We Bleeding?* AFIT/GIR/ENV/08-M13. Faculty Advisor: Dr. Dennis D. Strouble. Sponsor: N/A.

MOSELEY, MICHAEL W., *A Case-Based Exploration of Task/Technology Fit in a Knowledge Management Context*. AFIT/GIR/ENV/08-M14. Faculty Advisor: Maj Jason M. Turner. Sponsor: Oklahoma State University Spears School of Business.

NICHOLSON, BYRON D., *A Delphi Study Assessing Long-term Access to Electronic Medical Records (EMR)*. AFIT/GIR/ENV/08-M15. Faculty Advisor: Dr. Alan R. Heminger. Sponsor: N/A.

NORGAARD, JASON C., *An Examination Into How Group Performance is Influenced by Various Communication Channels*. AFIT/GIR/ENV/08-M16. Faculty Advisor: Dr. Alan R. Heminger. Sponsor: N/A.

OTTO, ANTHONY R., *Scripted Mobile Network Routing in a Contested Environment*. AFIT/GIR/ENG/08-03. Faculty Advisor: Maj Scott A. Graham. Sponsor: AFOSR/NM.

PAGUIRIGAN, HENRY G., *Suspicion Modeling in Support of Cyber-Influence Operations/Tactics*. AFIT/GIR/ENV/08-M17. Faculty Advisor: Maj Jason M. Turner. Sponsor: N/A.

SAAVEDRA, FRANCIS M., *A Maturity Model and Architecture Definition to Support Graduate Distance Learning*. AFIT/GIR/ENV/08-M19. Faculty Advisor: Dr. David R. Jacques. Sponsor: AFIT/SC.

SCHEERES, JAMISON W., *Establishing the Human Firewall: Reducing an Individual's Vulnerability to Social Engineering Attacks*. AFIT/GIR/ENG/08-04. Faculty Advisor: Dr. Robert F. Mills. Sponsor: AFRL/RHX.

SORRELS, DAVID M., *A System Architecture for Cyber Incident Mission Impact Assessment*. AFIT/GIR/ENV/08-M20. Faculty Advisor: Dr. Michael R. Grimaila. Sponsor: AFRL/RHX.

STRATTON, MARK A., *An Investigation of Limitations in the Accuracy of Time-to-Location Internet Protocol Geolocation*. AFIT/GIR/ENV/08-M21. Faculty Advisor: Dr. Michael R. Grimaila. Sponsor: NASIC/SMAI.

TRIPLETT, JOHNNY E., *The Effects of Commercial Video Game Playing: A Comparison of Skills and Abilities for the Predator UAV*. AFIT/GIR/ENV/08-M22. Faculty Advisor: Maj Jason M. Turner. Sponsor: 711 HPW/RWPT.

WERLING, JOSEPH B., *An Exploratory Examination of Social Website Quality*. AFIT/GIR/ENV/08-M23. Faculty Advisor: Lt Col Alexander J. Barelka. Sponsor: N/A.

WHITFIELD, JOHN F., *An Empirical Investigation of Factors Influencing Knowledge Management System Success*. AFIT/GIR/ENV/08-M24. Faculty Advisor: Maj Jason M. Turner. Sponsor: William S. Spears School of Business; Oklahoma State University-Main Campus.

WILLIAMS, DANIEL J., *An Analysis of the Factors Affecting Training Transfer Within the Work Environment*. AFIT/GIR/ENV/08-M25. Faculty Advisor: Dr. Michael T. Rehg. Sponsor: N/A.

WILLIS, WARD G., *Risk Propensity and Knowledge Sharing Intentions of Individuals in a Downsized Organization*. AFIT/GIR/ENV/08-M26. Faculty Advisor: Lt Col Alexander J. Barelka. Sponsor: AFPC/DPS.

ZAMORA, EDGARD I., *High Performing Teams: The Moderating Effects of Communication Channels*. AFIT/GIR/ENV/08-M27. Faculty Advisor: Maj Jason M. Turner. Sponsor: N/A.

5.6.2.5. RESEARCH AND DEVELOPMENT MANAGEMENT (GRD)

CHAUSSE, JEAN P., *Impact of Language Immersion Programs on Foreign Language*. AFIT/GRD/ENV/08-M02. Faculty Advisor: Dr. Alfred E. Thal, Jr. Sponsor: SAF and AF/A1.

CONFER, BRIAN S., *An Analysis of Second-Tier Arms Producing Country Offset Policies: Technology Transfer and Defense Industrial Base Establishment*. AFIT/GRD/ENV/08-M03. Faculty Advisor: Dr. Alfred E. Thal, Jr. Sponsor: N/A.

DIAS, SANDRA J., *Characterization of a Fluorescent Protein Reporter System*. AFIT/GRD/ENV/08-M04. Faculty Advisor: Dr. Charles A. Bleckmann. Sponsor: AFRL/RHPB.

GALLUP, HEATHER L., *Blending the Battlefield: An Analysis of Using Private Military Companies to Support Military Operations in Iraq*. AFIT/GRD/ENV/08-M05. Faculty Advisor: Dr. Dennis D. Strouble. Sponsor: National Defense University.

GOEHRING, SIDNEY W., *An Analysis of Competencies for Managing Science and Technology Programs*. AFIT/GRD/ENV/08-M06. Faculty Advisor: Dr. Dennis D. Strouble. Sponsor: HQ AFMC/A5S.

GRIGORIAN, REZA A., *Assessment of the Current Cultural Awareness and Training for the Air Force Contingency Contracting Officer*. AFIT/GRD/ENV/08-M07. Faculty Advisor: Dr. Michael T. Rehg. Sponsor: DAU/Midwest Region.

POGORZELSKI, WILLIAM A., *Software Acquisition Improvement in the Aeronautical Systems Center*. AFIT/GRD/ENV/08-S1. Faculty Advisor: Lt Col Brian Hermann. Sponsor: N/A.

SHAHADY, DAVID E., *Understanding the Emergence of Disruptive Innovation in the Air Force Science and Technology Organizations*. AFIT/GRD/ENV/08-M10. Faculty Advisor: Dr. Alfred E. Thal, Jr. Sponsor: AFRL/CA and AFRL/RV.

5.6.2.6. INDUSTRIAL HYGIENE (GIH)

MCCORMACK-BROWN, STEPHANIE D., *In Vitro Toxicity of Aluminum Nanoparticles in Human Keratinocytes*. AFIT/GIH/ENV/08-M01. Faculty Advisor: Maj Jeremy M. Slagley. Sponsor: 711 HPW/RH.

SCHNEIDER, DANIEL J., *Three Models of Anthrax Toxin Effects on the MAP-Kinase Pathway and Macrophage Survival*. AFIT/GIH/ENV/08-M02. Faculty Advisor: Maj Jeremy M. Slagely. Sponsor: AFRL/RHPB (AFMC).

5.6.2.7. LOGISTICS MANAGEMENT (GLM)

HOLLAND, JEFFREY G., *Evaluating Experiential Leader Development: A Programmatic of the Effectiveness of US Air Force Squadron Officer School Curricula*. AFIT/GLM/ENV/08-M01. Faculty Advisor: Lt Col Kent C. Halverson. Sponsor: SOC/DES (AETC).

5.6.2.8. GRADUATE SYSTEMS ENGINEERING (GSE)

ALEXANDER, JEFF A., CHARLES-VICKERS, MARTHA, SMITH, TALBOT L., and VICKERS, MICHAEL S., *Operationally Responsive Space: An Architecture and Enterprise Model for Adaptive Integration, Test and Logistics*. AFIT/GSE/ENV/08-J01DL. Faculty Advisor: Dr. Joseph W. Carl. Sponsor: Sandia National Laboratory.

BROWN, JASON L. and HANSON, TRAVIS J., *A Systems Engineering Process for an Integrated Structural Health Monitoring System for Aging Aircraft III*. AFIT/GSE/ENV/08-M03. Faculty Advisor: Dr. Som R. Soni. Sponsor: AFRL/RX.

BROWN, RICHARD A., CARTWRIGHT, ARTHUR D., and McCLAIN, BRYON E., *Evaluation of Joint Precision Airdrop System Aircraft Integration Concepts Utilizing Activity-Based Methodology*. AFTI/GSE/ENV/08-M04. Faculty Advisor: Dr. Joseph W. Carl. Sponsor: 516 AESW/JPD.

CARTWRIGHT, ARTHUR D., See BROWN, RICHARD A.

CHARLES-VICKERS, MARTHA, See ALEXANDER, JEFF A.

DAWLEY, LYLE M., LONG, ALICE M., and MARENTETTE, LENORE A., *Developing a Decision Model for Joint Improvised Explosive Device Defeat Organization (JIEDDO) Proposal Selection*. AFIT/GSE/ENV/08-J01. Faculty Advisor: Maj Shane A. Knighton. Sponsor: JIEDDO.

HANSON, TRAVIS J., See BROWN, JASON L.

HARIHARAN, ANIL N., *Long Range Strike 2035: An Analysis of Functional Autonomy*. AFIT/GSE/ENV/08-M05. Faculty Advisor: Lt Col Joerg D. Walter. Sponsor: AFRL/RBAA.

HUMPHREYS, CLAY J., *Systems Engineering Analysis for Transition of the Ground Hardness Technology Demonstrator*. AFIT/GSE/ENV/08-M02. Faculty Advisor: Dr. David R. Jacques. Sponsor: AFRL/RX.

LONG, ALICE M., See DAWLEY, LYLE M.

LOUIE, ALAN K., See HARIHARAN, ANIL N.

MAILLOUX, LOGAN O., See HUMPHREYS, CLAY J.

MARENTETTE, LENORE A., See DAWLEY, LYLE M.

McCLAIN, BRYON E., See BROWN, RICHARD A.

RIVERA, SCOTT V., See HARIHARAN, ANIL N.

ROACH, NEAL R., ROHE, WAYNE C., and WELTY, NATHAN F., *A System Engineering Approach to the Design of a Spacecraft Dynamics and Control Testbed*. AFIT/GSE/ENV/08-M01. Faculty Advisor: Dr. Jonathan T. Black. Sponsor: N/A.

ROHE, WAYNE C., See ROACH, NEAL R.

SAKRYD, GREGORY A., *Systems Engineering Analysis for the Development of the Fleeting Target*. AFIT/GSE/ENV/08-M06. Faculty Advisor: Dr. David R. Jacques. Sponsor: AFRL/RX and AFRL/RB.

SMITH, TALBOT L., See ALEXANDER, JEFF A.

SPEAR, GRANT E., See HUMPHREYS, CLAY J.

VICKERS, MICHAEL S., See ALEXANDER, JEFF A.

WELTY, NATHAN F., See ROACH, NEAL R.

5.6.3. GRADUATE RESEARCH PAPERS

5.6.3.1. GRADUATE SYSTEMS ENGINEERING (ISE)

BORNEJKO, TRINA L., GLASSCOCK, CHARLES G. and SPRENKLE, DENNIS R., *Creating a Discrete Event Simulation to Determine the Military Worth of Developing an Electronic Warfare Battle Manager Function within an Airborne Electronic Attack System of Systems Architecture*. AFIT/ISE/ENV/08-J05. Faculty Advisor: Dr. David R. Jacques. Sponsor: ASC/XRS.

BROWN, KYLE D., LITTLE, ADAM W. and MUHA, MATTHEW T., *Capital Investment Management for Air Force Reserve Command (AFRC) Information Technology (IT)*. AFIT/ISE/ENV/08-J03. Research Advisor: Dr. John M. Colombi. Sponsor: HQ AFRC.

ELLER, JOHN W., HAZEL, BRIAN and ROONEY, BRENDAN D., *Global Persistent Attack: A Systems Architecture, Process Modeling, and Risk Analysis Approach*. AFIT/ISE/ENV/08-J04. Faculty Advisor: Maj Jeffrey D. Havlicek. Sponsor: HQ ACC/A5SC.

GLASSCOCK, CHARLES G., See BORNEJKO, TRINA L.

HAZEL, BRIAN, See ELLER, JOHN W.

LITTLE, ADAM W., See BROWN, KYLE D.

MUHA, MATTHEW T., See BROWN, KYLE D.

O'MALLEY, DAVID R., and ZALL, JONATHAN E., *Architecting Cognition Within the Department of Defense Architecture Framework*. AFIT/ISE/ENV/08-J06. Research Advisor: Dr. John M. Colombi. Sponsor: AFRL/RH.

ROONEY, BRENDAN D., See ELLER, JOHN W.

SPRENKLE, DENNIS R., See BORNEJKO, TRINA L.

ZALL, JONATHAN E., See O'MALLEY, DAVID R.

5.6.4. FUNDED RESEARCH PROJECTS

Note: Research Center affiliation is listed in [] if applicable.

BARELKA, ALEXANDER J., Lt Col

“Cyber Deny and Disrupt.” Sponsor: AFRL/RH. Funding: \$45,000.

“The Influence of Pop-Culture IT.” Sponsor: AFRL/RH. Funding: \$20,000.

GRMAILA, MICHAEL R.

“Towards Real-Time Cyber Incident Mission Impact Assessment.” Sponsor: AFRL/RH. Funding: \$25,000. [CCR]

HAVLICEK, JEFFREY D., Maj

“Net-Centric Joint Force Protection Values.” Sponsor: 642nd ESS. Funding: \$40,578. [CSE]

“Resourcing Global Strike or Global Persistent Attack Architecture.” Sponsor: ACC. Funding: \$28,974. [CSE]

JACQUES, DAVID R.

“AFIT Analysis Support to the Joint Improvised Explosive Device Defeat Organization.” Sponsor: JIEDDO. Funding: \$322,140. [CSE]

“Human Systems Interface Research.” Sponsor: AFRL/RH. Funding: \$30,000. [CSE]

“Space Systems Engineering Case Studies.” Sponsor: SAF. Funding: \$60,000. [CSE]

REHG, MICHAEL T.

“Effectiveness of the International Military Education and Training Program.” Sponsor: DISAM. Funding: \$30,385.

SLAGLEY, JEREMY M., Maj

“Partial Enclosures for Noise and Dust Control in Underground Longwall Coal Mining.” Sponsor: NIOSH. Funding: \$7,700.

SONI, SOM R.

“Optimization of Z-Pinning Volume Fraction in Joints for Structural Integrity.” Sponsor: DAGSI. Funding: \$20,160. [CSE]

STROUBLE, DENNIS D.

“Strategic Information System Architecture.” Sponsor: HQ AFMC/A6. Funding: \$30,000. [CSE]

WALTER, JOERG D., Lt Col

“Impacts of Uninhabited Long-Range Strike Aircraft.” Sponsor: AFRL/RB. Funding: \$25,000. [CSE]

5.6.5. REFEREED JOURNAL PUBLICATIONS

Note: Research Center affiliation is listed in [] if applicable.

BLECKMANN, CHARLES A.

Shelley, M.L, Wagner, A.J., Hussain, S.M., and Bleckmann, C.A., “Modeling the in vivo case with in vitro nanotoxicity data”, *International Journal of Toxicology* 27 (5), pp 359-368, 2008.

Ford, T.C., Colombi, J.M., Jacques D.R., and Graham, S.R., (2008, 8 Aug 2008). “On the application of classification concepts to systems engineering design and evaluation,” *Journal of Systems Engineering*. Available: www3.interscience.wiley.com/journal/116837515/issue. [CSE]

GOLTZ, MARK N.

Huang, J., J.A. Christ, M.N. Goltz, “An Assembly Model for Simulation of Large-Scale Ground Water Flow and Transport”, *Ground Water*, Vol.46, No.6, 2008, pp. 882-892.

Goltz, M.N., J. Huang, M.E. Close, M.J. Flintoft, L. Pang, “Use of Tandem Circulation Wells to Measure Hydraulic Conductivity Without Groundwater Extraction”, *Journal of Contaminant Hydrology*, Vol 100, 2008, pp.127-136, 2008.

Goltz, M.N., “The Relationship between Environmental Sustainability and the Military Mission, *Korean Journal of Security Affairs*, Vol.12, No.2, 2007, pp.65-75.

GRMAILA, MICHAEL R.

Choobineh, J., Dhillon, G., Grimaila, M.R., and Rees, J., "Management of Information Security: Challenges and Research Directions," *Communications of the Association for Information Systems*, Vol. 20, No.57, 2008, 958-971. [CCR]

Yates, H. and Grimaila, M.R., "A Systematic Approach to Securing our Space Assets," *High Frontier Journal*, Vol. 4, No. 2, March 2008, pp. 48-53. [CCR]

HOLT, DANIEL T., Lt Col

Holt, D. T. & Jung, H. H., "The development of a Korean version of a core-self evaluations scale" *Psychological Reports*, Vol.103, 2008, pp. 415-425.

Heilmann, S. G., Holt, D. T., & Rilovick, C. Y., "Effects of career plateauing on turnover: A test of a model." *Journal of Leadership & Organizational Studies*, Vol.15, No 1, 2008, pp. 59-68.

Muczyk, J. P. & Holt, D. T. "Toward a cultural contingency model of leadership," *Journal of Leadership & Organizational Studies*, Vol. 14, No. 4, 2008, pp. 277-286.

Wood, C. C., Holt, D. T., Reed, T. S., & Hudgens, B. J., "Entrepreneurial mindset in United States Air Force organizations: Antecedents and outcomes," *Journal of Small Business and Entrepreneurship*, Vol. 21, No. 1, 2008, pp. 117-132.

Holt, D. T., Bartczak, S. E., Clark, S. W., & Trent, M. R., "The development of an instrument to assess readiness for knowledge management," *Knowledge Management Research & Practice*, Vol. 5. No. 2, 2007, pp. 75-92.

Rutherford, M. W. & Holt, D. T. , "Corporate entrepreneurship: An empirical look at the innovativeness dimension and its antecedents," *Journal of Organizational Change Management*, Vol. 20., No. 2, 2007, pp. 429-446.

Holt, D. T., Armenakis, A. A., Harris, S. G., & Feild, H. S., "Readiness for organizational change: The systematic development of a scale," *Journal of Applied Behavioral Science*, Vol. 42, No. 2, 2007.

Holt, D. T., Rutherford, M. W., & Clohessy, G. R., "Corporate entrepreneurship: An empirical look at individual characteristics, context, and process", *Journal of Leadership & Organizational Studies*, Vol.13 No.4, 2007, pp. 40-54.

Holt, D. T., Rehg, M. T., Lin, J. S., & Miller, J. C., "An application of the unfolding model to explain turnover in a sample of military officers", *Human Resource Management*, Vol. 46, No. 1, 2007, pp. 35-49.

JACQUES, DAVID R.

Ford, T.C., Colombi, J.M., Jacques D.R., and Graham, S.R., (2008, 8 Aug 2008). "On the application of classification concepts to systems engineering design and evaluation," *Journal of Systems Engineering*. Available: www3.interscience.wiley.com/journal/116837515/issue. [CSE]

SHELLEY, MICHAEL L.

Shelley, M.L, Wagner, A.J., Hussain, S.M., and Bleckmann, C.A., "Modeling the in vivo case with in vitro nanotoxicity data", *International Journal of Toxicology* 27 (5), pp 359-368, 2008.

Amon, J.P., Agrawal, A., Shelley, M.L., Opperman, B.C., Enright, M.P., Clemmer, N.D., Slusser, T., Lach, J., Sobolewski, T., Gruner, W., and Entingh, A.C., "Development of a wetland constructed for the treatment of groundwater contaminated by chlorinated ethenes," *Ecological Engineering*, Vol. 30, No.1, 2007, pp. 51-66.

SLAGLEY, JEREMY, M., Maj

Slagley, J.M., and Guffey, S.E., "Effects of Cross-sectional Partitioning on Active Noise Control in Round Ducts," *Journal of Occupational and Environmental Health*, Vol.4, No. 10, 2007, pp. 751-761.

THAL, ALFRED E., Jr.

Thal, A.E., Jr., Knox, R.C., and Sabatini, D.A. "Estimating Partition Coefficients of Tracers," *Ground Water Monitoring & Remediation*, Vol. 27, Nol. 4, 2007, pp.135-142.

Hoffman, G.J., Thal, A.E. Jr., Webb, T.S., and Wier, J.D., "Estimating Performance Time for Construction Projects," *Journal of Management in Engineering*, Vol. 23, No. 4, 2007, pp.193-199.

TURNER, JASON M., Maj

Bartczak, S. E., Turner, J. M., and England, E. C., "Challenges in developing a knowledge management strategy: A case study of the Air Force Material Command," *International Journal of Knowledge Management*, Vol. 4, No. 1, 2007, pp.46-50.

WEST, CHRISTOPHER J., Lt Col

West, C.J., "A Methodological Framework for Improving Knowledge Creation Teams," *Engineering Management Journal*, 20 (2). June 2008, pp. 3-13.

5.6.6. REFEREED CONFERENCE PUBLICATIONS

CONFERENCE PAPERS ACCEPTED ON THE BASIS OF FULL PAPER REVIEW

COLOMBI, JOHN. M.

Bullard, R., Colombi, J. and Freeman, R., Global Positioning System: A Case Study Focused on Systems Engineering, Proceedings and Oral Presentation at the 19th International Conference on Systems Engineering (ICSEng), August 2008. [CSE]

Bullard, R., Colombi, J. and Freeman, R., Global Positioning System (GPS) Systems Engineering Case Study, *Proceedings and for Oral Presentation at INCOSE Symposium*, June 2008. [CSE]

Hardman N., Colombi, J., Jacques. D. and Hill, R. "Improved User Interface Design Through Graph-Theoretic Modeling", *Proceeding of the IEEE International Conference on Distributed Human-Machine Systems*, 9-12 March 2008, Athens, Greece. Available: <http://www.action-m.com/dhms2008/> [CSE]

O'Malley, D., Zall, J., Colombi J., and Carl, J., "Integrating Cognition into System Design," WORLDCOMP'08, World Congress in Computer Science, Computer Engineering, and Applied Computing, July 2008. [CSE]

Ford T., J. Colombi, S. Graham and D. Jacques, "Measuring System Interoperability", 2008 Conference on Systems Engineering Research, 4-5 April 2008, Redondo Beach, CA. Available: <http://incose-la.org/events/conferences/cser-2008.html> [CSE]

Hardman, N., Colombi, J., Jacques, D., Miller, J., "Human Systems Integration within the DoD Architecture Framework", *Proceedings of the 2008 Industrial Engineering Research Conference*, J. Fowler and S. Mason, eds., April 2008. [CSE]

GRMAILA, MICHAEL R.

- Grimaila, M.R., Mills, R.F., and Fortson, L.W., "An Automated Information Asset Tracking Methodology to Enable Timely Cyber Incident Mission Impact Assessment," *Proceedings of the 2008 International Command and Control Research and Technology Symposium (ICCRTS 2008)*, 17-19 June 2008, Bellevue, WA. [CCR]
- Ashe, E., Grimaila, M.R., and Carter, B.6, "A Framework for Improving Consistency of the Protection of Critical Technologies," *Proceedings of the 2008 International Conference on Information Warfare and Security (ICIW 2008)*, Peter Kiewit Institute, 24-25 April 2008, University of Nebraska Omaha, NE. [CCR]
- Cowan, R., Grimaila, M.R., and Patel, R., "Using Attack and Protection Trees to Evaluate Risk in an Embedded Weapon System," *Proceedings of the 2008 International Conference on Information Warfare and Security (ICIW 2008)*, Peter Kiewit Institute, 24-25 April 2008, University of Nebraska Omaha, NE. [CCR]
- Haan, N., Grimaila, M.R., and Patel, R., "Insider Threat Detection within Embedded Weapon Systems," *Proceedings of the 2008 International Conference on Information Warfare and Security (ICIW 2008)*, 24-25 April 2008, Peter Kiewit Institute, University of Nebraska Omaha, NE. [CCR]
- Hellesen, D., Grimaila, M.R., Fortson, L.W., and Mills, R.F., "Information Asset Value Quantification," *Proceedings of the 2008 International Conference on Information Warfare and Security (ICIW 2008)*, 24-25 April 2008, Peter Kiewit Institute, University of Nebraska Omaha, NE. [CCR]
- Sorrels, D., Grimaila, M.R., Fortson, L.W., and Mills, R.F., "An Architecture for Cyber Incident Mission Impact Assessment (CIMIA)," *Proceedings of the 2008 International Conference on Information Warfare and Security (ICIW 2008)*, 24-25 April 2008, Peter Kiewit Institute, University of Nebraska Omaha, NE. [CCR]
- Strouble, D. and Grimaila, M.R., "Legal Aspects of Warfare in Cyberspace," *Proceedings of the 2008 International Conference on Information Warfare and Security (ICIW 2008)*, 24-25 April 2008, Peter Kiewit Institute, University of Nebraska Omaha, NE. [CCR]
- Carls, J., Raines, R.A., Grimaila, M.R., and Rogers, S., "Biometric Security Enhancements Through Template Aging matching Score Analysis," *Proceedings of the 2008 International Conference on Information Warfare and Security (ICIW 2008)*, 24-25 April 2008, Peter Kiewit Institute, University of Nebraska Omaha, NE. [CCR]
- Scheeres, J., Mills, R., and Grimaila, M.R., "Establishing the Human Firewall: Improving Resistance to Social Engineering Attacks," *Proceedings of the 2008 International Conference on Information Warfare and Security (ICIW 2008)*, 24-25 April 2008, Peter Kiewit Institute, University of Nebraska Omaha, NE. [CCR]
- Kelly, D., Raines, R.A., Baldwin, R., Mullins, B., and Grimaila, M.R., "A Framework for Classifying Anonymous Networks in Cyberspace," *Proceedings of the 2008 International Conference on Information Warfare and Security (ICIW 2008)*, 24-25 April 2008, Peter Kiewit Institute, University of Nebraska Omaha, NE. [CCR]
- Kelly, D., Raines, R.A., Baldwin, R., Mullins, B., and Grimaila, M.R., "Analyzing Anonymity in Cyberspace," *Proceedings of the 2008 International Conference on Information Warfare and Security (ICIW 2008)*, 24-25 April 2008, Peter Kiewit Institute, University of Nebraska Omaha, NE. [CCR]
- Grimaila, M.R., Stratton, M.A., Leach, S.E., and Roehl, J., "An Investigation of Limitations in the Accuracy of Time-To-Location Internet Protocol Geolocation," *Proceedings of the 2008 Phoenix Challenge Conference (PC 2008)*, 1-5 April 2008, Monterey, CA. [CCR]
- Griffin, J. and Grimaila, M.R., "Insider Threats to Information Systems," *Proceedings of the 2008 Southern Association for Information Systems Conference (SAIS 2008)*, 13-15 March 2008, Virginia Commonwealth University, Richmond, VA. [CCR]

Nicholson, B., Grimaila, M.R., Strouble, D., "Electronic Medical Record (EMR) Informatics Security," *Proceedings of the 2008 Southern Association for Information Systems Conference (SAIS 2008)*, 13-15 March 2008, Virginia Commonwealth University, Richmond, VA (Nominated for Best Paper Award). [CCR]

Harris, R. and Grimaila, M.R., "Information Technology Contingency Planning," *Proceedings of the 2008 Southern Association for Information Systems Conference (SAIS 2008)*, 13-15 March 2008, Virginia Commonwealth University, Richmond, VA. [CCR]

Hubenko, V.P., Raines, R.A., Baldwin, R.O., Mullins, B.E., Mills, R.F., and Grimaila, M.R., "A Secure and Efficient Satellite-based Multicast Architecture," *Proceedings of the 2008 IEEE Radio and Wireless Symposium*, 21-23 January 2008, Orlando, FL. [CCR]

Hubenko, V.P., Raines, R.A., Baldwin, R.O., Mullins, B.E., Mills, R.F., and Grimaila, M.R., "Applying a Secure and Efficient Low Earth Orbit Satellite-Based Multicast Architecture in a Deployed Environment," *Proceedings of the 2007 IEEE Military Communications Conference (MILCOM 07)*, 29-31 October 2007, Orlando, FL. [CCR]

HEMINGER, ALAN R.

Shahady, D.E., Thal, A.E. Jr., Das, A., Heminger, A.R., and Halverson, K.C., "Understanding the Emergence of Disruptive Innovation in Air Force Research and Development Organizations," *Proceedings of the Portland International Conference on Management of Engineering and Technology (PICMET '08)*, Capetown, South Africa, 27-31 July 2008.

HOLT, DANIEL T., Lt Col

Hornsby, J. S., Holt, D. T., and Kuratko, D. F., "The dynamic nature of corporate entrepreneurship constructs: An assessment of the Corporate Entrepreneurship Assessment Instrument (CEAI)," *Best Paper Proceedings of the Annual Meeting of the Academy of Management*, 8-13 August 2008, Anaheim, CA.

Phelps, J. A., Heilmann, S. G., Holt, D. T., and Leach, S. E., "Moderating effects of perceived organizational support on the relationship between job satisfaction and turnover intentions for recently retrained USAF enlisted members," *Annual meeting of the American Society of Business and Behavioral Sciences*, 21-24 February 2008, Las Vegas, Nevada.

JACQUES, DAVID R.

Hardman N., Colombi, J., Jacques. D. and Hill, R. "Improved User Interface Design Through Graph-Theoretic Modeling", *Proceeding of the IEEE International Conference on Distributed Human-Machine Systems*, 9-12 March 2008, Athens, Greece. Available: <http://www.action-m.com/dhms2008/> [CSE]

Hardman N., J. Colombi, D. Jacques and J. Miller, "Human Systems Integration within the DoD Architecture Framework", 2008 Industrial Engineering Research Conference, Canada, 17-21 May 2008, Vancouver, British Columbia. [CSE]

Ford T., J. Colombi, S. Graham and D. Jacques, "Measuring System Interoperability", 2008 Conference on Systems Engineering Research, 4-5 April 2008, Redondo Beach, CA. Available: <http://incose-la.org/events/conferences/cser-2008.html> [CSE]

SLAGLEY, JEREMY M., Maj

Sweeney, D.D., and Slagley, J.M., "Passive Noise and Dust Control for Coal Mine Longwall Shearer," *Proceedings of NoiseCon 2008*, 29-30 Jul 2008, Dearborn, MI.

Slagley, J.M., Smith, D.A., and Guffey, S.E., "Possible Noise Exposure Assessment Compliance Strategy for Mining," *Proceedings of NoiseCon 2008*, 29-30 Jul 2008, Dearborn, MI.

SMITH, DAVID A., Lt Col

Slagley, J.M., Smith, D.A., and Guffey, S.E., "Possible Noise Exposure Assessment Compliance Strategy for Mining," *Proceedings of NoiseCon 2008*, 29-30 Jul 2008, Dearborn, MI.

STROUBLE, DENNIS D.

Strouble, D. and Grimaila, M.R., "Legal Aspects of Warfare in Cyberspace," *Proceedings of the 2008 International Conference on Information Warfare and Security (ICIW 2008)*, 24-25 April 2008, Peter Kiewit Institute, University of Nebraska Omaha NE. [CCR]

Nicholson, B., Grimaila, M.R., Strouble, D., "Electronic Medical Record (EMR) Informatics Security," *Proceedings of the 2008 Southern Association for Information Systems Conference (SAIS 2008)*, 13-15 March 2008, Virginia Commonwealth University, Richmond, VA (Nominated for Best Paper Award). [CCR]

Strouble, D. and Carroll, M. "Law and Cyber War," *Proceedings of the 2008 Southern Association for Information Systems Conference (SAIS 2008)*, 13-15 March 2008, Virginia Commonwealth University, Richmond, VA March, 2008.

THAL, ALFRED E., Jr.

Bedingfield, J.D., and Thal, A.E. Jr., "Project Manager Personality as a Factor in Project Manager Success," *Proceedings of the Portland International Conference on Management of Engineering and Technology (PICMET '08)*, 27-31 July 2008, Cape Town, South Africa.

Heuck, W.D., Jr., Thal, A.E. Jr., and Kinney, G.W., "A Future-Based Risk Assessment for the Survivability of Long-Range Strike Systems," *Proceedings of the Portland International Conference on Management of Engineering and Technology (PICMET '08)*, 27-31 July 2008, Cape Town, South Africa.

Shahady, D.E., Thal, A.E. Jr., Das, A., Heminger, A.R., and Halverson, K.C. "Understanding the Emergence of Disruptive Innovation in Air Force Research and Development Organizations," *Proceedings of the Portland International Conference on Management of Engineering and Technology (PICMET '08)*, 27-31 July 2008, Cape Town, South Africa.

Solomon, C.D, and Thal, A.E. Jr., "Enhancing Military Rapid Product Delivery Capabilities," *Proceedings of the Portland International Conference on Management of Engineering and Technology (PICMET '08)*, 27-31 July 2008, Cape Town, South Africa.

TURNER, JASON M., Maj

Turner, J. M., "Towards a social affordances perspective of media capabilities and interface design," *Proceedings of the American Society for Information Science and Technology (ASSI&T2007)*, 19-24 October 2007, Milwaukee, WI.

CONFERENCE PAPERS ACCEPTED ON THE BASIS OF ABSTRACT REVIEW

BADIRU, ADEDEJI B.

Badiru, A. and Freeman, G.R., "Project System Modeling and Simulation Approach to Human-Machine Resource Interface," *Proceedings of 2008 Industrial Engineering Research Conference (IERC)*, May 17-21, 2008, Vancouver, Canada.

Badiru, A., "Qualitative Approach to Engineering Project Optimization," *Proceedings of 2008 Industrial Engineering Research Conference (IERC)*, 17-21 May, 2008, Vancouver, Canada.

Olunloyo, V.O., Ajofoyinbo, A., and Badiru, A., "An Alternative Approach for Computing the Union and Intersection of Fuzzy Sets: A Basis for Design of Robust Fuzzy Controller," *Proceedings of 7th WSEAS International Conference on Artificial Intelligence, Knowledge Engineering and Data Bases (AIKED '08)*, 23-25 February 2008 Cambridge, UK.

Badiru, A., "Survival Toolkit for Engineering Faculty," *Proceedings of 2008 ASEE North Central Section Conference*, 28-29 March 2008, Dayton, OH.

GOLTZ, MARK N.

Goltz, M.N., Craig, D., Thal A.E. Jr., Felker, D.L, Powell, W., Patterson, J., Parette, R., Cannon, F., Peschman, T., Gillen, D., and Lutes, C., "A Screening Model for Design and Costing of an Innovative Technology to Treat Perchlorate-Contaminated Groundwater, Paper N-008," *Proceedings of the Sixth International Conference on Remediation of Chlorinated and Recalcitrant Compounds*, May 2008, Monterey, CA.

Henderson, T., Garcia, D., Lutes, C.C., Liles, Graham, J. Peschman, T, Cannon, F., Patterson, J., Parette, R., Goltz, MN., Felker, D., Thal, A., and Craig D., "Tailored Granular Activated Carbon for Wellhead Perchlorate Treatment, Paper J-010," *Proceedings of the Sixth International Conference on Remediation of Chlorinated and Recalcitrant Compounds*, May 2008, Columbus, OH, 2008.

SLAGLEY, JEREMY M., Maj

Slagley, J.M. and Smith, D.A., "Designing a New Program for ABET Accreditation," *Proceedings of the 2008 ASEE North Central Section Conference*, 28-29 March 2008, Dayton, OH.

SMITH, DAVID A., Lt Col

Slagley, J.M. and Smith, D.A., "Designing a New Program for ABET Accreditation," *Proceedings of the 2008 ASEE North Central Section Conference*, 28-29 March 2008, Dayton, OH.

5.6.7. SUBSTANTIAL CONSULTATIONS

BADIRU, ADEDEJI B.

Badiru, Adedeji B., "Getting Things done through project management," Wright State University, Center for Performance Excellence, October 10, 2007.

COLOMBI, JOHN M.

Colombi, John M. and Barker, Richard W., "Examination of the Operationally Responsive Space (ORS) Enterprise Architecture," AFRL/ORS, Kirtland AFB, NM, June-September 2008.

Colombi, John M. and Knorr, Laurie C. "Requirements and Test Analysis for the AFRL's High Efficiency Sodium Guidestar System," AFRL/RDSO, Kirtland AFB, NM, March-June 2008.

Colombi, John M and Spindler, Jason A., "Examination of Modern Interface Considerations for Satellite Control Networks," SCNG/EN, Los Angeles, CA, October-December 2007.

Colombi, John M, Jacques, David R., Sprenkle, Dennis, Bornejko, Trina, and Glasscock, Charles, "Examination of the Military Worth of an Electronic Warfare Battle Manager Within An Airborne Electronic Attack Architecture," ASC/XR (Capability/ Development Planning), Wright-Patterson AFB OH, October 2007-June 2008.

GRMAILA, MICHAEL R.

Grimaila, Michael R., “Advisor: Analysis of the Critical Program Identification and Protection Process,” U.S. Army Core of Engineers - Security and Intelligence Division; Washington, D.C., 2008-Present.

Grimaila, Michael R., “Advisor: Quantification of Security within Embedded Weapon Systems,” Aeronautical Systems Division; Security Assessment Group; Wright-Patterson AFB, OH, 2007-Present.

Grimaila, Michael R., “Advisor: Improving First Responder Technologies,” Air Force Radiation Assessment Team (AFRAT); San Antonio, TX; 2007-Present.

HASTY, BRYAN K.

Alan R. Heminger, Hasty, Bryan K., and Strouble, Dennis D., “Defense Ammunition Center (DAC) Knowledge Management Review”, an assessment of DAC’s status of knowledge management (KM) capabilities and recommendations for future development in this area, Defense Ammunition Center, July 2008.

HEMINGER, ALAN R.

Heminger, Alan R and Turner, Jason M., “Defense Ammunition Center (DAC) Report – June 2008”, an assessment of DAC’s readiness for information Systems Integration, including implementation issues and recommended way ahead, Defense Ammunition Center, June 2008.

Alan R. Heminger, Hasty, Bryan K., and Strouble, Dennis D., “Defense Ammunition Center (DAC) Knowledge Management Review”, an assessment of DAC’s status of knowledge management (KM) capabilities and recommendations for future development in this area, Defense Ammunition Center, July 2008.

JACQUES, DAVID R.

Jacques, David R. – Scholar in Residence for the Air Force Center for Systems Engineering. Provided consultation services regarding implementation of capability based development and early application of Systems Engineering to numerous high level DoD acquisition executives, user requirements organizations and external review panels. Provided support and report findings to Independent Review Team for the Air Force Research Laboratory surveying the application of Systems Engineering in the Defense Laboratory environment.

STROUBLE, DENNIS D.

Alan R. Heminger, Hasty, Bryan K., and Strouble, Dennis D., “Defense Ammunition Center (DAC) Knowledge Management Review”, an assessment of DAC’s status of knowledge management (KM) capabilities and recommendations for future development in this area, Defense Ammunition Center, July 2008.

TURNER, JASON M., Maj

Heminger, Alan R and Turner, Jason M., “Defense Ammunition Center (DAC) Report – June 2008”, an assessment of DAC’s readiness for information Systems Integration, including implementation issues and recommended way ahead, Defense Ammunition Center, June 2008.

5.6.8. BOOKS AND CHAPTERS IN BOOKS

BADIRU, ADEDEJI B.

Badiru, Adedeji B., Triple C Model of Project Management: Communication, Cooperation, and Coordination, Boca Raton, FL: Taylor & Francis/CRC Press, 2008.

5.6.9. OTHER PRESENTATIONS, PUBLICATIONS AND PROFESSIONAL ACTIVITIES

BADIRU, ADEDEJI, B.

Badiru, Adedeji B., "New Power Generation: Energy Requirements Planning Must Drive Future Product Development," *Industrial Engineer*, September 2008, pp. 36-40.

Badiru, Adedeji B., "An IE's Guide to NAFTA," *Industrial Engineer*, July 2008, pp. 30-34.

Badiru, Adedeji B., "Long live work measurement," *Industrial Engineer*, March 2008, p. 24.

Badiru, Adedeji B., "Publish and Flourish: A New Paradigm for OR/MS Faculty," *OR/MS Today*, February 2008, pp. 18-19.

Badiru, Adedeji B.; "World Citizenship and Global Economic Development," Invited Seminar, Symposium on Democracy: Citizenship in the Age of Globalization, Westminster College, Fulton, MO, Nov 18, 2008.

Badiru, Adedeji B.; "Managing World Industrial Development Projects," Invited Seminar, Symposium on Democracy: Citizenship in the Age of Globalization, Westminster College, Fulton, MO, Nov 18, 2008.

COLOMBI, JOHN M.

Freeman, G.R., Bullard, R., and Colombi, J., "The Global Positioning System: A Case Study in Systems Engineering." *INCOSE INSIGHT*, Vol 11, Issue 4, pg 40-44, Sep 2008.

Hardman, N., Colombi, J., Jacques, D., Hill, R., "What Systems Engineers Need to Know About Human-Computer Interaction," *INCOSE INSIGHT*, Vol 11, Issue 2, Special Issue on Human Systems Integration, April 2008.

Colombi, J.M., Jacques, D.R., Wilson, M.K., and Griffin, J.M., "An Assessment of the Systems Engineering Continuum", *Defense AT&L*, DAU Press, Sep-Oct 2007.

Colombi, J. and Carl, J., "Addressing Complex Systems," *INCOSE INSIGHT*. Vol 11, Issue 3, pg 46-48, July 2008.

Colombi, J., "Systems Engineering for Complex Systems", Invited speaker, INCOSE Wright-Brothers Chapter meeting, June 2008.

Hardman N., J. Colombi, D. Jacques and J. Miller, "Human Systems Integration within the DoD Architecture Framework", 2008 Industrial Engineering Research Conference, May 2008.

Ford T., J. Colombi, S. Graham and D. Jacques, "Measuring System Interoperability", 2008 Conference on Systems Engineering Research, March 2008.

Ford, T., Colombi, J., Graham, S., and Jacques, D., "Measuring System Interoperability: An i-Score Improvement," *6th Annual Conference on Systems Engineering Research*, April 2008.

Jacques, D. and Colombi, J., "Architecture-Based Concept Evaluation in Support of JCIDS," Presented at *10th Annual Systems Engineering Conference* (National Defense Industrial Association, IEEE, INCOSE), 22-25 Oct 2007.

Colombi, J. and Jacques, D., "System of Systems Implications for Operational Test." Presented at *10th Annual Systems Engineering Conference* (National Defense Industrial Association, IEEE, INCOSE), 22-25 Oct 2007.

GOLTZ, MARK N.

Goltz, M.N., Groundwater Contaminant Mass Flux Measurement Methods, Stanford Hydrogeology Seminar Series, Stanford, CA, 7 November 2007.

Goltz, M.N., Secody, R., Huang, J., Hatzinger, P., "Modeling In Situ Bioremediation of Perchlorate-Contaminated Groundwater;" *American Geophysical Union Fall Meeting*, 10-14 December 2007, San Francisco, CA.

Lutes, C.C., Henderson, T., Liles, D., Peshcman, T., Graham, J., Hinson, W., Cannon, F., Patterson, J., Parette, R., Goltz, M.N., Craig, D., Felker, D., and Thal, A., "Tailored Granular Activated Carbon (TGAC) for Well-Head Perchlorate Treatment," *Partners in Environmental Technology Technical Symposium and Workshop*, 3-6 December 2007, Washington DC.

GRMAILA, MICHAEL R.

Grimaila, M.R. and Fortson, L.W., "Improving the Accuracy and Timeliness of Cyber Incident Damage and Mission Impact Assessment," *Information Assurance Technology Analysis Center (IATAC) IA Newsletter*, Spring 2008. [CCR]

Grimaila, M.R., International Command and Control Research and Technology Symposium (ICCRTS 2008), "An Automated Information Asset Tracking Methodology to Enable Timely Cyber Incident Mission Impact Assessment," Bellevue, WA, 17-19 June 2008.

Grimaila, M.R., Cyber Security and Information Intelligence Research Workshop, "Improving the Cyber Incident Mission Impact Assessment Process," Oak Ridge National Laboratory, Oak Ridge, TN, May 12-14, 2008.

Grimaila, M.R., International Conference on Information Warfare and Security (ICIW 2008), "A Framework for Improving Consistency of the Protection of Critical Technologies," Peter Kiewit Institute, University of Nebraska Omaha, 24-25 April 2008.

Grimaila, M.R., Southern Association for Information Systems Conference, "Detecting Insider Threats in Embedded Weapon Systems," Virginia Commonwealth University, Richmond, Virginia, 13-15 March 2008.

Grimaila, M.R., Southern Association for Information Systems Conference, "Information Technology Contingency Planning in a Resource Constrained Environment," Virginia Commonwealth University, Richmond, Virginia, 13-15 March 2008.

Grimaila, M.R., "Improving the Cyber Incident Mission Impact Assessment Process," *Cyber Security and Information Intelligence Research Workshop (CSIIRW 2008)*, 12-14 May 2008, Oak Ridge National Laboratory, Oak Ridge, TN. [CCR]

HOLT, DANIEL T., Lt Col

Wollard, J. Z., Holt, D. T., Bush, J. P., and Lovette, D. A., "Inferences concerning junior officers' abilities and traits based on United States Air Force officer evaluation reports," *Annual meeting of Southwestern Academy of Management*, 4-8 March 2008, Houston, TX.

Bigelow, P; Holt, D; Franche, R-L; Subrata, P; Zohar, D; Hunt, S; Krepostman, S; Van Eerd, D; Wells, R; Ferrier, S; Kramer, D; Cole, D, & McKean, C., "Adaptation of a readiness for organizational change scale for participatory ergonomics". *Poster presented at the Canadian Association for Research on Work and Health's Occupational Health and Safety Conference*, 15-17 June 2008, Montreal, Canada.

Rehg, M. T., Holt, D. T., and Toney, R. P., "A comparative study of factors affecting training transfer," *Annual meeting of the Southern Management Association*, 7-10 November 2007, Nashville, TN.

Heilmann, S. G., Holt, D. T., and Rilovick, C., "Effects of career plateauing on turnover: A test of a model," Annual meeting of Midwestern Academy of Management, 4-6 October 2007, Kansas City, MO.

JACQUES, DAVID R.

Bode J., D. Jacques and M. Pachter, "Optimal Control of the Weapon Operating Characteristic with Control Inequality Constraints", Optimization and Cooperative Control Strategies, Springer Lecture Notes in Computer Science, 2008.

Kish B., D. Jacques and M. Pachter, "Effectiveness Measures for UAV Operations in Uncertain Environments", UAV Cooperative Decision and Control: Challenges and Practical Approaches, SIAM, 2008.

Jacques, D.R. and D. Strouble, "A-10 Thunderbolt II (Warthog) Systems Engineering Case Study", AF Center for Systems Engineering Case Study Series, June 2008.

Hardman, N., J. Colombi, D. Jacques and R. Hill, "What Systems Engineers Need to Know About Human-Computer Interaction", INCOSE Insight, April 2008.

Hardman N., J. Colombi, D. Jacques and J. Miller, "Human Systems Integration within the DoD Architecture Framework", 2008 Industrial Engineering Research Conference, May 2008.

Ford T., J. Colombi, S. Graham and D. Jacques, "Measuring System Interoperability", 2008 Conference on Systems Engineering Research, March 2008.

SLAGLEY, JEREMY M., Maj

Wells, T.S., Webb, T.S., Batten, T.W., and J.M. Slagley. A Retrospective Cohort Study of Respiratory Health Effects from Airborne Particulate Matter in Deployed Environments. Poster Presentation at 2nd Annual AFIT CBRN Research Symposium, Kettering, OH, 16-17 Sep 08.

Sweeney, D.D., and J.M. Slagley. Passive Noise and Dust Control for Coal Mine Longwall Shearer. Presentation at NoiseCon 2008, Dearborn, MI, 30 Jul 08.

Slagley, J.M., D.A. Smith, and S.E. Guffey. Possible Noise Exposure Assessment Compliance Strategy for Mining. Presentation at NoiseCon 2008, Dearborn, MI, 30 Jul 08.

Sweeney, D.D., and J.M. Slagley. Noise and Dust Control in Simulated Coal Mine Longwall Shearer Operation. Poster Presentation at AIHCE, Minneapolis, MN, Jun 08. Awarded best student poster by AIHA Engineering Technology Committee.

Slagley, J.M., and D.A. Smith. Designing a New Program for ABET Accreditation. Presentation at the 2008 ASEE North Central Section Conference. Dayton, OH, 28-29 Mar 2008.

Slagley, J., and D. Sweeney. Partial Enclosures for Noise and Dust Control in Underground Longwall Coal Mining. Poster presentation at the U of Cincinnati NIOSH Education and Research Center Pilot Research Project Symposium, Cincinnati, OH, 4-5 Oct 07.

SMITH, DAVID A., Lt Col

Slagley, J.M., D.A. Smith, and S.E. Guffey. Possible Noise Exposure Assessment Compliance Strategy for Mining. Presentation at NoiseCon 2008, Dearborn, MI, 30 Jul 08.

Slagley, J.M., and D.A. Smith. Designing a New Program for ABET Accreditation. Presentation at the 2008 ASEE North Central Section Conference. Dayton, OH, 28-29 Mar 2008.

Chaparro, O., D. Smith, S. Rademacher, D. Thomas, S. Glover, and H. Spitz (2008). An Evaluation of First Responder Radiation Exposures Resulting from the 1960 Boeing Michigan Aeronautical Research Center Missile Fire at McGuire Air Force Base, New Jersey, as an Indicator of Future Exposure Risk. Presentation at Health Physics Society Conference, Pittsburgh, PA, 13-17 July, 2008.

Seaman, G., Shelley, M., Gearhart, J., and Smith, D. (2008). Optimization of Therapeutic Strategies for Organophosphate Poisoning: A Physiologically-based Model, i.e. Nerve Agent Exposure Medical Response. 2nd Annual AFIT CBRNE Research and Education Symposium, Dayton OH, 16-17 Sep 2008.

Legradi, J. and D. Smith (2008). A Social Network Analysis (SNA) of Military and Civilian Emergency Operations Centers (EOC) Focusing on the Common Operating Picture (COP) and Organization Structure. Poster presentation at the 2nd Annual AFIT CBRNE Research and Education Symposium, Dayton OH, 16-17 Sep 2008.

Kearns, C., K. Yu, S. Hussain, D. Smith (2008). In Vitro Toxicity of Silver Nanoparticles in Human Lung Epithelial Cells. Poster presentation at the 2nd Annual AFIT CBRNE Research and Education Symposium, Dayton OH, 16-17 Sep 2008.

Ledford, B. and D. Smith (2008). Static and Dynamic Modeling of the Impact of a Radiological Terrorist Attack. Poster presentation at the 2nd Annual AFIT CBRNE Research and Education Symposium, Dayton OH, 16-17 Sep 2008.

Smith, D. and J. Slagley (2007). Graduate Education Opportunities at the Air Force Institute of Technology. Poster presentation at the DoD Force Health Protection Conference, 6-10 Aug, 2007, Louisville KY.

SONI, SOM R.

Underwood, R.T., Swenson, E.D., and Soni, S.R., "Structural Health Monitoring of Aerospace Applications with Restricted Geometry", *SPIE Smart Structures Conference*, 13 March 2008, San Diego, CA.

Soni, S.R., Freels, J., and Kuhn, J., "Mode I Failure in Z-Pinned Co-Cured Laminated Composites", *SAMPE Fall Technical Conference and Exhibition*, 8-11 September 2008, Cook Convention Center, Memphis, TN.

THAL, ALFRED E., Jr.

Goltz, M., D. Craig, A. Thal, D. Felker, W. Powell, J. Patterson, R. Parette, F. Cannon, T. Peschman, D. Gillen, C. Lutes, "A Screening Model for Design and Costing of an Innovative Technology to Treat Perchlorate-Contaminated Groundwater," Proceedings, Sixth International Conference on Remediation of Chlorinated and Recalcitrant Compounds, Monterey, California, 19-22 May 2008.

Henderson, T., D. Garcia, C.C. Lutes, D.S. Liles, J. Graham, T. Peschman, F. Cannon, J. Patterson, R. Parette, M.N. Goltz, D. Felker, A. Thal, and D. Craig, "Tailored Granular Activated Carbon for Wellhead Perchlorate Treatment," Proceedings, Sixth International Conference on Remediation of Chlorinated and Recalcitrant Compounds, Monterey, California, 19-22 May 2008.

Thal, Alfred E., Jr., Larry K. Isaacs, and Sonia E. Leach, "Using Statistics to Make Environmental Decisions," paper presented at 2008 Environment, Safety, and Occupational Health Training Symposium Proceedings, Reno, Nevada, 268-275, 2008.

Lutes, C.C., T. Henderson, D. Liles, T. Peschman, J. Graham, W. Hinson, F. Cannon, J. Patterson, R. Parette, M. Goltz, D. Craig, D. Felker, A. Thal, Tailored Granular Activated Carbon (TGAC) for Well-Head Perchlorate Treatment, Partners in Environmental Technology Technical Symposium and Workshop, Washington DC, 4-6 December 2007.

Bedingfield, J.D., D.E. Shahady, A.E. Thal, Jr., and A.B. Badiru, "Incorporating Customer Values in Trade-Off Decisions," INFORMS Annual Meeting, Seattle, Washington, November 4-7, 2007.

Braziel, C., Thal, A.E. Jr., and Weir, J.D., "Evaluating the Effectiveness of Utility Privatization Efforts," *Decision Sciences Institute Annual Meeting*, 18-21 November 2007, Phoenix, AZ.

WEST, CHRISTOPHER J., Lt Col

West, C. Oct 2008. Invited Presentation Experiences from US Army In-Lieu-Of Deployment as Bagram Facility Engineer Team Commander Jan-Aug 2008. Air Force Institute of Technology School of Civil Engineering, Wright Patterson AFB, OH.

West, C. Nov 2008. Invited Presentation Experiences from US Army In-Lieu-Of Deployment as Bagram Facility Engineer Team Commander Jan-Aug 2008. Society for American Military Engineers, Kitty Hawk Chapter, Fairborn, OH.

West C. and Landaeta. R., "The Challenges of Researching Team Cognition in Real World Crisis Contexts," *American Society of Engineering Management Annual Conference*, November 2007, Chattanooga, TN.

6. RESEARCH CENTER PUBLICATIONS AND FUNDING INFORMATION

The contents of this section are duplicated data, grouped by center. The information is previously listed within each project's specific department.

6.1. ADVANCED NAVIGATION TECHNOLOGY CENTER

Advanced Navigation Technology Center (ANT)

Director 255-3636 x4580

Executive Program Coordinator 255-3636 x4583

Laboratory Manager 255-3636 x4911

Homepage: <http://www.afit.edu/en/ant>

6.1.1. FUNDED RESEARCH PROJECTS

BLUE, PAUL A., Maj

“Planning, Guidance, and Control for Multiple UAV Cooperative Operations.” Sponsor: AFRL/RB.

Funding: \$35,000. [ANT]

COBB, RICHARD G.

“Systems Engineering Support for Urgent Needs Efforts.” Sponsor: AFRL/RV. Funding: \$35,000. [ANT]

HUFFMAN, RICHARD E., Maj

“Airborne Application of Gravity Gradiometry for Navigation.” Sponsor: AFRL/RW. Funding: \$7,500. [ANT]

“Airborne Application of Gravity Gradiometry for Navigation.” Sponsor: AFRL/RV. Funding: \$7,500. [ANT]

MARTIN, RICHARD K.

“Fusion of Inertial Sensors and Signals of Opportunity for Unassisted Navigation.” Sponsor: AFOSR.

Funding: \$34,507. [ANT]

PACHTER, MEIR,

“New Navigation Techniques.” Sponsor: AFRL/RV. Funding: \$15,000. [ANT]

PETERSON, GILBERT L.

“CANIS-Related Navigation Research Projects for the ANT Laboratory.” Sponsor: AFRL/RV. Funding: \$100,000. [ANT]

“Technical Support: Autonomic Infusion.” Sponsor: AFRL/RV. Funding: \$152,676. [ANT]

RAQUET, JOHN F.

“ANT Center and Laboratory Support per ANT Center Appendix of MOA.” Sponsor: AFRL/RV. Funding: \$196,000. [ANT]

“Development of High Accuracy TSPI Systems.” Sponsor: 746 TS. Funding: \$45,900. [ANT]

“Image-Aided Aerial Refueling.” Sponsor: AFRL/RV. Funding: \$35,000. [ANT]

“Overcoming Geometric Deficiencies in Pseudolite Navigation Systems.” Sponsor: AFOSR. Funding: \$99,752. [ANT]

“Vision Aided Navigation and Control.” Sponsor: AFRL/RW. Funding: \$47,232. [ANT]

VETH, MICHAEL J., Lt Col

“Autonomous Indoor Micro Air Vehicle.” Sponsor: AFRL/RW. Funding: \$125,000. [ANT]

“Synchronized Image-Inertial Data Collection and Processing System.” Sponsor: NGA. Funding: \$30,000. [ANT]

6.1.2. REFEREED JOURNAL PUBLICATIONS

RAQUET, JOHN F.

Jordt, G., Baldwin, R., Raquet, J., and Mullins, B., “Energy Cost and Error Performance of Range-Aware, Anchor-Free Localization Algorithms,” *Ad hoc Networks*, Vol. 6, No. 4, pp. 539-559, June 2008. [ANT]

6.1.3. REFEREED CONFERENCE PUBLICATIONS

CONFERENCE PAPERS ACCEPTED ON THE BASIS OF FULL PAPER REVIEW

LAMONT, GARY B.

Nowak, D. J., Price, I., and Lamont, G. B., “Self Organized UAV Swarm Planning Optimization for Search And Destroy Using Swarmfare Simulation,” *Winter Simulation Conference*, Washington, D.C., December 2007. [ANT]

Nowak, D. J., and Lamont, G. B., “Autonomous Agent Behavior Generation Using Multiobjective Evolutionary Optimization,” *ACM Genetic and Evolutionary Computation Conference (GECCO)*, Atlanta, GA, 12-16 July, 2008. [ANT]

Nowak, D. J., Lamont, G. B., and Peterson, G. L., “Emergent Architecture in Self Organized Swarm Systems for Military Applications,” *ACM Genetic and Evolutionary Computation Conference (GECCO)*, Atlanta, GA, 12-16 July, 2008. [ANT]

Ozemir, H. I., Raquet, J. F., and Lamont, G. B., “*Design of a Regional Navigation Satellite System Constellation Using Genetic Algorithms*,” Savannah, GA, August, 2008. [ANT]

MARTIN, RICHARD K.

Martin, R. K., Velotta, J. S., and Raquet, J. F., “Multicarrier Modulation as a Navigation Signal of Opportunity,” in *Proc. IEEE Aerospace Conference*, Big Sky, MT, March 2008. [ANT]

Raquet, J. F., and Martin, R. K., “Non-GNSS Radio Frequency Navigation,” in *Proceedings of International Conference on Acoustics, Speech, and Signal Processing (ICASSP)*, Las Vegas, NV, April 2008. [ANT]

RAQUET, JOHN F.

Martin, R., Velotta, J., and Raquet, J., “Multicarrier Modulations as a Navigation Signal of Opportunity,” *Proceedings of IEEE Aerospace Conference*, Big Sky, MT, Mar 2008. [ANT]

Raquet, J., and Amt, J., “Flight and Ground Testing of a Beacon-Based Precision Navigation System at non-GPS Frequencies,” *Proceedings of AIAA Test & Evaluation Conference*, Los Angeles, CA, Feb 2008. [ANT]

Dainty, B., Raquet, J., and Beckman, R., "Improving Geostationary Satellite GPS Positioning Error Using Dynamic Two-Way Time Transfer Measurements," *Proceedings of 39th Annual Precise Time and Time Interval (PTTI) Systems And Applications Meeting*, Long Beach, CA, Nov 2007. [ANT]

CONFERENCE PAPERS ACCEPTED ON THE BASIS OF ABSTRACT REVIEW

LAMONT, GARY B.

Nowak, D. J., Price, I., and Lamont, G. B., "Self Organized UAV Swarm Planning Optimization for Search And Destroy Using Swarmfare Simulation," *Winter Simulation Conference*, Washington, D.C., December 2007. [ANT]

Nowak, D. J., and Lamont, G. B., "Autonomous Agent Behavior Generation Using Multiobjective Evolutionary Optimization," *ACM Genetic and Evolutionary Computation Conference (GECCO)*, Atlanta, GA, 12-16 July, 2008. [ANT]

Nowak, D. J., Lamont, G. B., and Peterson, G. L., "Emergent Architecture in Self Organized Swarm Systems for Military Applications," *ACM Genetic and Evolutionary Computation Conference (GECCO)*, Atlanta, GA, 12-16 July, 2008. [ANT]

Nowak, D. J., and Lamont, G. B., "Autonomous Self Organized UAV Swarm Systems," *National Aerospace and Electronics Conference (NAECON)*, Dayton, OH, July, 2008. [ANT]

Ewing, R.L., Kadrovach, B.A., Eyster, M.D., Lamont, G.B., and Talbert, M.L., "LSA-2m Image Registration for Formation Flying," *National Aerospace and Electronics Conference (NAECON)*, OH, July, 2008. [ANT]

Ozemir, H. I., Raquet, J. F., and Lamont, G. B., "*Design of a Regional Navigation Satellite System Constellation Using Genetic Algorithms*," Savannah, GA, August, 2008. [ANT]

RAQUET, JOHN F.

Schexnayder, C., Raquet, J., Martin, R., and Velotta, J., "Effects of Oversampling and Multipath on Navigation Using OFDM Signals of Opportunity," *Proceedings of ION GNSS-2008*, Savannah, GA, Sep 2008. [ANT]

Ozdemir, H., Raquet, J., and Lamont, G., "Design of a Regional Satellite Navigation System Constellation Using Genetic Algorithms," *Proceedings of ION GNSS-2008*, Savannah, GA, Sep 2008. [ANT]

Nielsen, M., Raquet, J., Veth, M., and Pachter, M., "Development and Flight Test of a Robust Optical-Inertial Navigation System Using Low-Cost Sensors," *Proceedings of ION GNSS-2008*, Savannah, GA, Sep 2008. [ANT]

Amt J, J., Raquet, J.F., and Pachter, M., "Accurate Positioning Using a Planar Pseudolite Array," *Proceedings of IEEE/ION PLANS 2008*, Monterey, CA, May 2008. Raquet J. and Martin, R., "Non-GNSS Radio Frequency Navigation," *Proceedings of ICASSP 2008*, Las Vegas, NV, Mar 2008. [ANT]

VETH, MICHAEL J., Lt Col

Webber, F., Veth, M., Anderson, R., Nielsen, M., "Tightly-Coupled INS, GPS, and Imaging Sensors for Low-Cost, Precision Geolocation," presented at *the Joint Navigation Conference*, Las Vegas, NV, March 2008. [ANT]

Weaver, A., Veth, M., "Autonomous Aerial Refueling: An Image-Aided Approach," presented at *the Joint Navigation Conference*, Las Vegas, NV, March 2008. [ANT]

Gray, J., Veth, M., Raquet, J., “Deeply Integrated Feature Tracking for Embedded Image-Aided Navigation,” presented at *the Joint Navigation Conference*, March 2008. [ANT]

Veth, M.J., Anderson, R., Webber, F., Nielsen, M., “Tightly-Coupled INS, GPS, and Imaging Sensors for Precision Geolocation,” *Sensor Geopositioning Workshop 2008*, National Geospatial-Intelligence Center, Reston, VA, August 2008. [ANT]

Veth, M.J., Anderson, R., Webber, F., “Tightly-Coupled INS, GPS, and Imaging Sensors for Precision Geolocation,” *GeoINT Symposium, National Geospatial-Intelligence Center*, St. Louis, MO, September 2008. [ANT]

Veth, M.J., Anderson, R., Webber, F., Nielsen, M., “Tightly-Coupled INS, GPS, and Imaging Sensors for Precision Geolocation,” *Proceedings of the ION National Technical Meeting*, February 2008. [ANT]

6.2. CENTER FOR DIRECTED ENERGY

Center for Directed Energy [CDE]

Director 255-3636 x7294

Program Coordinator 255-3636

Homepage: <http://www.afit.edu/de/>

6.2.1. FUNDED RESEARCH PROJECTS

BAILEY, WILLIAM F.

“Single Surface Multipactor.” Sponsor: AFRL/RD. Funding: \$30,000. [CDE]

CUSUMANO, SALVATORE J.

“Airborned Aero-Optic Laboratory.” Sponsor: HELJTO. Funding: \$200,760. [CDE]

“HELJTO Model & Simulation.” Sponsor: HELJTO. Funding: \$400,000. [CDE]

“High Energy Laser-Laser Communications Performance Assessments from Remotely-Sensed Measurements of Atmospheric Beam Scatter.” Sponsor: NSF. Funding: \$230,000. [CDE]

PERRAM, GLEN P.

“AFIT Analysis Support to the Joint Improvised Explosive Device Defeat Organization.” Sponsor: JIEDDO. Funding: \$100,300. [CDE]

“AFOSR Center of Excellence in High Power Gas Phase Electric and Hybrid Laser Kinetics and Spectroscopy.” Sponsor: AFOSR. Funding: \$89,877. [CDE]

“Center of Excellence for Gas Phase Hybrid Lasers: Additional Student Support.” Sponsor: AFOSR. Funding: \$58,492. [CDE]

“Characterization of Excited Atomic Oxygen in RF and Microwave Discharges” Sponsor: AFRL/RD. Funding: \$52,500. [CDE]

“Hazard Analysis for a Forward-Looking Interferometer.” Sponsor: NASA. Funding: \$19,995. [CDE]

“High Power Diode Pumped Alkali Vapor Lasers and Analog Systems.” Sponsor: AFRL/RD. Funding: \$176,000. [CDE]

“Iron Rose II Muzzle Flash Field Test.” Sponsor: NASIC. Funding: \$40,000. [CMSR]

“Measure High Priority Kinetic Rates for DPALS.” Sponsor: AFRL/RD. Funding: \$78,750. [CDE]

“Technical and Administrative Support for the AFOSR Center of Excellence in High Power Gas Phase and Electric Lasers.” Sponsor: AFRL/RD. Funding: \$220,000. [CDE]

RUSSELL, TIMOTHY H., Maj

“Stimulated Brillouin Scattering Phase Conjugation in Optical Fiber.” Sponsor: AFRL/RD. Funding: \$60,000. [CDE]

SCHMIDT, JASON D., Maj

“Advanced Wavefront Control.” Sponsor: AFRL/RD. Funding: \$30,000. [CDE]

6.2.2. FUNDED EDUCATIONAL PROJECTS

CUSUMANO, SALVATORE J.

“2008 AFIT Center for Directed Energy Summer Internship Program.” Sponsor: AFRL/RD. Funding: \$51,168. [CDE]

6.2.3. REFEREED JOURNAL PUBLICATIONS

RUSSELL, TIMOTHY, H., Maj

S. M. Massey and T. H. Russell, “Phase analysis of stimulated Brillouin scattering in long, graded-index optical fiber,” *Opt Express* **16**, 11496-11505 (2008). [CDE]

S. M. Masey, J. B. Spring, and T.H. Russell, “Stimulated Brillouin scattering continuous wave phase conjugation in step-index fiber optics,” *Opt. Express*, **16** 10873-10885 (2008). [CDE]

SCHMIDT, JASON D., Maj

Venema, T. M., and Schmidt, J. D., “Optical Phase Unwrapping in the Presence of Branch Points,” *Opt. Express*, Vol. 16, p. 6985, May 2008. [CDE]

Louthain, J. A., and Schmidt, J. D., “Anisoplanatism in Airborne Laser Communication,” *Opt. Express*, Vol. 16, p. 10769-10785. July 2008. [CDE]

6.2.4. REFEREED CONFERENCE PUBLICATIONS

CONFERENCE PAPERS ACCEPTED ON THE BASIS OF A FULL PAPER REVIEW

BAILEY, WILLIAM, F.

M. J. Krizo, S. J. Cusumano, R. J. Bartell, S. T. Fiorino, W.F. Bailey, R. L. Beauchamp, M. A. Marciniak, and K. P. Moore, “A worldwide physics-based high-spectral resolution atmospheric characterization and propagation package for UV to RF wavelengths,” SPIE Defense and Security Symposium, Algorithms and Technologies for Multispectral, Hyperspectral, and Ultraspectral Imagery XIV Orlando, FL, March 2008; Proc. SPIE volume 6966, article no. 696619 (12 pages) (2008). [CDE]

CUSUMANO, SALVATORE J.

Fiorino, S.T., Bartell, R.J. Krizo, M.J. Moore, K.P. and Cusumano, S.J. “Validation of a worldwide physics-based high-spectral resolution atmospheric characterization and propagation package for UV to RF wavelengths,” Proc. SPIE 7090-70900I (12 pages), SPIE Optics and Photonics, San Diego, CA, August 2008. [CDE]

Krizo, M.J., Cusumano, S.J. Bartell, R.J. Fiorino, S.T., Bailey, W.F, Beauchamp, R.L. Marciniak, M.A. and Moore, K.P. “A worldwide physics-based high-spectral resolution atmospheric characterization and propagation package for UV to RF wavelengths,” Proc. SPIE 6966, 696619 (12 pages) SPIE Defense and Security Symposium, Orlando, FL, March 2008. [CDE]

Fiorino, S.T., Bartell, R.J. Krizo, M.J. and Cusumano, S.J. “*Propagation variability assessments of ship defense HEL and HPM performance in worldwide maritime boundary layer environments at wavelengths of 1.0642 μm , 2.141 μm , 3.16 mm and 12.2 cm,*” Proc. SPIE 6951, 69510G (12 pages) SPIE Defense and Security Symposium, Orlando, FL, March 2008. [CDE]

Fiorino, S.T., Bartell, R.J. Krizo, M.J. Caylor, G.L. Moore, K.P. Harris, T.R. and Cusumano, S.J. “*A First Principles Atmospheric Propagation & Characterization Tool: The Laser Environmental Effects Definition and Reference (LEEDR),*” Proc. SPIE 6878, 68780B (12 pages) SPIE Photonics West, Laser Applications in Science and Engineering (LASE), San Jose, CA, January 2008. [CDE]

FIORINO, STEVEN T., Lt Col

Fiorino, S.T., R.J. Bartell, G.P. Perram, M.J. Krizo, D.J. Fedyk, B.W. Wisdom, and S.J. Cusumano, “*Worldwide Estimates and Uncertainty Assessments of Laser Propagation for Diverse Geometries for Paths in the Altitude Regime of 3 km and Below at Wavelengths of 0.355 μm to 10.6 μm ,*” SPIE Paper (6551-03) SPIE Defense and Security Symposium 2007, Orlando, FL, April 2007. SPIE Proceedings 655104 (2007). [CDE]

Fiorino, S.T., Bartell, R.J. Krizo, M.J. Moore, K.P. and Cusumano, S.J. “*Validation of a worldwide physics-based high-spectral resolution atmospheric characterization and propagation package for UV to RF wavelengths,*” Proc. SPIE 7090-70900I (12 pages), SPIE Optics and Photonics, San Diego, CA, August 2008. [CDE]

Krizo, M.J., Cusumano, S.J. Bartell, R.J. Fiorino, S.T., Bailey, W.F, Beauchamp, R.L. Marciniak, M.A. and Moore, K.P. “*A worldwide physics-based high-spectral resolution atmospheric characterization and propagation package for UV to RF wavelengths,*” Proc. SPIE 6966, 696619 (12 pages) SPIE Defense and Security Symposium, Orlando, FL, March 2008. [CDE]

Fiorino, S.T., Bartell, R.J. Krizo, M.J. and Cusumano, S.J. “*Propagation variability assessments of ship defense HEL and HPM performance in worldwide maritime boundary layer environments at wavelengths of 1.0642 μm , 2.141 μm , 3.16 mm and 12.2 cm,*” Proc. SPIE 6951, 69510G (12 pages) SPIE Defense and Security Symposium, Orlando, FL, March 2008. [CDE]

Fiorino, S.T., Bartell, R.J. Krizo, M.J. Caylor, G.L. Moore, K.P. Harris, T.R. and Cusumano, S.J. “*A First Principles Atmospheric Propagation & Characterization Tool: The Laser Environmental Effects Definition and Reference (LEEDR),*” Proc. SPIE 6878, 68780B (12 pages) SPIE Photonics West, Laser Applications in Science and Engineering (LASE), San Jose, CA, January 2008. [CDE]

MARCINIAK, MICHAEL A.

Krizo, M.J., Cusumano, S.J. Bartell, R.J. Fiorino, S.T., Bailey, W.F, Beauchamp, R.L. Marciniak, M.A. and Moore, K.P. “*A worldwide physics-based high-spectral resolution atmospheric characterization and propagation package for UV to RF wavelengths,*” Proc. SPIE 6966, 696619 (12 pages) SPIE Defense and Security Symposium, Orlando, FL, March 2008. [CDE]

PERRAM, GLEN P.

G.Hager, J.McIver, D.Hostutler, G.Pitz, and G.Perram, “*A Quasi-Two Level Analytic Model For End-Pumped Alkali Metal Vapor Laser,*” SPIE Proceedings of High Energy Laser Ablation, 700528 (2008). [CDE]

Greg A. Pitz and Glen P. Perram, “*Pressure Broadening of the D1 and D2 lines in Diode Pumped Alkali Lasers,*” SPIE High Energy Laser Ablation, 700526 (2008). [CDE]

Fiorino, S.T., R.J. Bartell, G.P. Perram, M.J. Krizo, D.J. Fedyk, B.W. Wisdom, and S.J. Cusumano, “*Worldwide Estimates and Uncertainty Assessments of Laser Propagation for Diverse Geometries for Paths in the Altitude Regime of 3 km and Below at Wavelengths of 0.355 μm to 10.6 μm ,*” SPIE Defense and Security Symposium Proceedings 655104 (2007). [CDE]

6.2.5. OTHER PRESENTATIONS, PUBLICATIONS AND PROFESSIONAL ACTIVITIES

CUSUMANO, SALVATORE J.

Fiorino, S.T., Bartell, R.J. Krizo, M.J., Moore, K.P. and Cusumano, S.J. “*Comparison of a Worldwide, Hyperspectral Atmospheric Characterization Package to Measurements and MODTRAN,*” 30th Review of Atmospheric Transmission Models Meeting, Lexington, MA, 10-12 June 2008. [CDE]

Bartell, R.J., Fiorino, S.T. Krizo, M.J. and Cusumano, S.J. “*Comparison of HEL Effective Range and Target Tracking Range as a Function of Aperture Diameter Over Diverse Low Altitude Scenarios,*” DEPS 6th Annual Directed Energy Professional Society Modeling and Simulation Conference, Monterey, CA, March 2008. [CDE]

FIORINO, STEVEN T., Lt Col

Fiorino, S.T., Bartell, R.J. ,Krizo, M.J. Moore, K.P. and Cusumano, S.J. “*Comparison of a Worldwide, Hyperspectral Atmospheric Characterization Package to Measurements and MODTRAN,*” 30th Review of Atmospheric Transmission Models Meeting, Lexington, MA, 10-12 June 2008. [CDE]

Bartell, R.J., Fiorino, S.T. Krizo, M.J. and Cusumano, S.J. “*Comparison of HEL Effective Range and Target Tracking Range as a Function of Aperture Diameter Over Diverse Low Altitude Scenarios,*” DEPS 6th Annual Directed Energy Professional Society Modeling and Simulation Conference, Monterey, CA, March 2008. [CDE]

RUSSELL, TIMOTHY, H., Maj

Massey, S. M., Spring, J. B., and Russell, T. H., “*Continuous wave stimulated Brillouin scattering phase conjugation in step index optical fibers,*” Solid State and Diode Laser Technology Review, Albuquerque, NM, 2-5 June 2008. [CDE]

SCHMIDT, JASON D., Maj

Louthain, J. A., and Schmidt, J. D., “*Integrated Approach to Airborne Laser Communication,*” Optics in Atmospheric Propagation and Adaptive Systems. *Proc. SPIE.* September 2008. [CDE]

Vitayaudom, K. P., Vincent, T. R., Schmidt, J. D., and Sanchez, D. J., “*Analysis of Non-Uniform Gain for Control of a Deformable Mirror in an Adaptive-Optics System,*” Advanced Wavefront Control: Methods, Devices, and Applications VI. *Proc. SPIE.* August 2008. [CDE]

Plourde, M. D., and Schmidt, J. D., “*Limitations of Segmented Wavefront Control Devices in Emulating Optical Turbulence,*” Advanced Wavefront Control: Methods, Devices, and Applications VI. *Proc. SPIE.* August 2008. [CDE]

6.3. CENTER FOR CYBERSPACE RESEARCH

Center for Cyberspace Research (CCR)

Director 255-6565 x4278

Associate Director 255-6565 x4445

Executive Program Coordinator 255-3636 x4602

Homepage: <http://www.afit.edu/ccr/>

6.3.1. FUNDED RESEARCH PROJECTS

BALDWIN, RUSTY O.

“Emerging Technologies (IA).” Sponsor: NSA. Funding: \$87,084. [CCR]

GRIMAILA, MICHAEL R.

“Towards Real-Time Cyber Incident Mission Impact Assessment.” Sponsor: AFRL/RH. Funding: \$25,000. [CCR]

McDONALD, J. TODD, Lt Col

“Architectural Framework for Evaluating General, Efficient, and Measurable Program Protection.” Sponsor: AFOSR. Funding: \$27,661. [CCR]

“Cyber Defense Applications Using Polymorphic Dynamic Decoy Network Topology.” Sponsor: 8AF/CYBER (P). Funding: \$50,000. [CCR]

MILLS, ROBERT F.

“Technical Support, Information/Cyber Operations.” Sponsor: AFIOC. Funding: \$25,010. [CCR]

MULLINS, BARRY E.

“Air Force Communications Systems Modeling.” Sponsor: AFCA. Funding: \$19,520. [CCR]

“Ground Mobility Objective Gateways.” Sponsor: AFRL/RW. Funding: \$25,000. [CCR]

“Technical Support: Cyber Operations.” Sponsor: AFRL/RI. Funding: \$20,000. [CCR]

RAINES, RICHARD A.

“Target Discovery, Sensor Fusion, and Mitigation Analysis.” Sponsor: AFRL/RV. Funding: \$60,000. [CCR]

TEMPLE, MICHAEL A.

“EME Characterization and Exploitation.” Sponsor: Naval Surface Warfare Center (NSWC). Funding: \$73,549. [CCR]

“Technical Support: Opportunistic Channel Access.” Sponsor: Laboratory for Telecommunications Sciences. Funding: \$47,480. [CCR]

WILLIAMS, PAUL D., Maj

“AFIT Support for AFRL Cybercraft Project.” Sponsor: AFOSR. Funding: \$50,000. [CCR]

“Support to JCTD Vulnerability Assessment.” Sponsor: JIOWC. Funding: \$25,000. [CCR]

6.3.2. FUNDED EDUCATIONAL PROJECTS

RAINES, RICHARD A.

“AFIT Transformation Chair.” Sponsor: DoD/OSD. Funding: \$200,000. [CCR]

“Anti-Tamper Software Protection Initiative Education, Outreach and Research.” Sponsor: AFRL/R.Y.
Funding: \$200,000. [CCR]

“Development of a Federal Cyber Force at the Air Force Institute of Technology.” Sponsor: NSF. Funding:
\$528,424. [CCR]

“IASP Tuition and Resource Support for the AFIT Center for Cyberspace Research.” Sponsor: NSA.
Funding: \$312,848. [CCR]

6.3.3. REFEREED JOURNAL PUBLICATIONS

BALDWIN, RUSTY O.

Mann, C. R., Baldwin, R. O., Kharoufeh, J. P., and Mullins, B. E., “A Queueing Approach to Optimal Resource Replication in Wireless Sensor Networks,” *Performance Evaluation*, Vol. 65, No. 10, pp. 689-700, October 2008. [CCR]

Phillips, A. N., Mullins, B. E., Raines, R. A., and Baldwin, R. O., “A Secure Group Communication Architecture for Autonomous Unmanned Aerial Vehicles,” *Security and Communication Networks*, John Wiley and Sons, DOI: 10.1002/sec.55, pp. 1-15, 28 August 2008. [CCR]

Marsh, D. W., Baldwin, R. O., Mullins, B. E., Mills, R. F., and Grimaila, M. R., “A Security Policy Language for Wireless Sensor Networks,” *Journal of Systems and Software*, Vol. 82, No. 1, pp. 101-111, January 2009. [CCR]

Peterson, G. L., Raines, R. A., and Baldwin, R. O., “Digital Forensics Educational Needs in the Miami Valley Region,” *Journal of Applied Security Research*, Vol. 3, No. 3-4, pp. 429-439, June 2008. [CCR]

Jordt, G. J., Baldwin, R. O., Raquet, J. F., and Mullins, B. E., “Energy Cost and Error Performance of Range-Aware, Anchor-Free Localization Algorithms,” *Ad hoc Networks*, Vol. 6, No. 4, pp. 539-559, June 2008. [CCR]

Mann, C. R., Baldwin, R. O., Kharoufeh, J. P., and Mullins, B. E., “Energy-efficient Agent Replication for Finite-lifetime Resources in Wireless Sensor Networks with Time-constrained Queries,” *Mobile Computing and Communications Review*, Vol. 12, No. 2, pp. 31-39, April 2008. [CCR]

Dube, T. E., Birrer, B. D., Raines, R. A., Baldwin, R. O., Mullins, B. E., Bennington, R. F., and Reuter, C. E., “Hindering Reverse Engineering: Thinking Outside the Box,” *IEEE Security and Privacy*, Vol. 6, No. 2, pp. 58-65, March/April 2008. [CCR]

GRIMAILA, MICHAEL R.

Marsh, D.W., Baldwin, R.O., Mullins, B.E., Mills, R.F., and Grimaila, M.R., “A Security Policy Language for Wireless Sensor Networks,” *Journal of Systems and Software*, Vol. 82, No. 1, May 2009, pp. 101-111. [CCR]

Choobineh, J., Dhillon, G., Grimaila, M.R., and Rees, J., “Management of Information Security: Challenges and Research Directions,” *Communications of the Association for Information Systems*, Vol. 20, No.57, 2008, 958-971. [CCR]

Yates, H. and Grimaila, M.R., "A Systematic Approach to Securing our Space Assets," *High Frontier Journal*, Vol. 4, No. 2, March 2008, pp. 48-53. [CCR]

McDONALD, J. TODD., Lt Col

McDonald, J. T., Kim, Y. C., and Yasinsac, A., "Software Issues in Digital Forensics," *ACM SIGOPS OS Review, Special Issue on Forensics*, Vol. 42, No. 3, April 2008. [CCR]

Yasinsac, A., and McDonald, J. T., "Tamper Resistant Software through Intent Protection," *International Journal of Network Security*, Vol. 7, No. 3, pp. 370-382, November 2008. [CCR]

MENDENHALL, MICHAEL, J., Maj

Suski, W., Temple, M. A., Mendenhall, M. J., and Mills, R. F., "Radio Frequency Fingerprinting Commercial Communication Devices to Enhance Electronic Security," *International Journal of Electronic Security and Digital Forensics*, Vol. 1, No. 3, pp 301-322, 2008. [CCR]

MILLS, ROBERT F.

Suski, W., Temple, M. A., Mendenhall, M. J., and Mills, R. F., "Radio Frequency Fingerprinting Commercial Communication Devices to Enhance Electronic Security," *International Journal of Electronic Security and Digital Forensics*, Vol. 1, No. 3, pp 301-322, 2008. [CCR]

Hansen, A. P., Williams, P. D., Mills, R. F., and Kanko, M.A., "Cyber Flag: A Realistic Training Environment for the Future," *Air and Space Power Journal*, Vol. XXII, No. 3, Fall 2008. [CCR]

Franz, T. P., Durkin, M., Williams, P. D., Raines, R. A., and Mills, R. F., "Defining IO Forces," *Air and Space Power Journal – Chinese Edition*, Vol. 2, No. 3, Summer 2008. [CCR]

Hamill, J. T., Deckro, R. F., Chrissis, J. W., and Mills, R. F., "Layered Social Networks," *IO Sphere, Professional Journal of Joint Information Operations*, pages 27-33, Winter 2008.

Mullins, B. E., Lacey, T. H., Mills, R. F., Trechter, J. M., and Bass, S. D., "How the Cyber Defense Exercise Shaped an Information-Assurance Curriculum," *IEEE Security and Privacy*, Vol. 5, No. 5, pp 40-49, Fall 2007. [CCR]

Okolica, J. S., Peterson, G. L., and Mills, R. F., "Using PLSI-U to Detect Insider Threats by Datamining Email," *Special Issue on Network Forensics of the International Journal of Security and Networks (IJSN)*, Vol. 3, No 2, pp. 114-121, 2008. [CCR]

MULLINS, BARRY E.

Jordt, G. J., Baldwin, R. O., Raquet, J. F., and Mullins, B. E., "Energy Cost and Error Performance of Range-Aware, Anchor-Free Localization Algorithms," *Ad Hoc Networks*, Vol. 6, No. 4, pp. 539-559, June 2008. [CCR]

Mann, C. R., Baldwin, R. O., Kharoufeh, J. P., and Mullins, B. E., "Energy-efficient Search for Finite-lifetime Resources in Sensor Networks with Time-constrained Queries," *Mobile Computing and Communications Review*, Vol. 12, No. 2, pp. 31-39, April 2008. [CCR]

Dube, T. E., Birrer, B. D., Raines, R. A., Baldwin, R. O., Mullins, B. E., Bennington, R. F., and Reuter, C. E., "Hindering Reverse Engineering: Thinking Outside the Box," *IEEE Security and Privacy*, Vol. 6, No. 2, pp. 58-65, March/April 2008. [CCR]

Augeri, C. J., Mullins, B. E., Baird, L. C., Bulutoglu, D. A., and Baldwin, R. O., "An Algorithm for Determining Isomorphism Using Lexicographic Sorting and the Matrix Inverse," *Congressus Numerantium*, Utilitas Mathematica Publishing, Vol. 184, pp. 97-120, December 2007. [CCR]

PETERSON, GILBERT L.

Peterson, G. L., Raines, R. A., and Baldwin, R. O., "Digital Forensics Educational Needs in the Miami Valley Region," *Journal of Applied Security Research*, Vol. 3, No. 3-4, pp. 429-439, June 2008. [CCR]

RAINES, RICHARD A.

Peterson, G. L., Raines, R. A., and Baldwin, R. O., "Digital Forensics Educational Needs in the Miami Valley Region," *Journal of Applied Security Research*, Vol. 3, No. 3-4, pp. 429-439, June 2008. [CCR]

Dube, T. E., Birrer, B. D., Raines, R. A., Baldwin, R. O., Mullins, B. E., Bennington, R. F., and Reuter, C. E., "Hindering Reverse Engineering: Thinking Outside the Box," *IEEE Security and Privacy*, Vol. 6, No. 2, pp 58-65, March/April 2008. [CCR]

6.3.4. REFEREED CONFERENCE PUBLICATIONS

REFEREED CONFERENCE PAPERS BASED ON FULL PAPER REVIEW

BALDWIN, RUSTY O.

Kelly, D. J., Raines, R. A., Baldwin, R. O., Mullins, B. E., and Grimaila, M. R., "A Framework for Classifying Anonymous Networks in Cyberspace," *Proceedings of the International Conference on Information Warfare and Security (ICIW 2008)*, Athens, Greece, June 2008, pp. 221-232. [CCR]

Kelly, D. J., Raines, R. A., Baldwin, R. O., Mullins, B. E., and Grimaila, M. R., "Analyzing Anonymity in Cyberspace," *3rd International Conference on Information Warfare and Security*, Omaha NE, 24-25 April 2008, pp. 233-244. [CCR]

Gorsuch, J. E., Mullins, B. E., Raines, R. A., and Baldwin, R. O., "Analysis of Routing Worm Infection Rates on an IPv4 Network" *3rd International Conference on Information Warfare and Security*, Omaha NE, 24-25 April 2008, pp. 143-152. [CCR]

Hubenko, V. P., Raines, R. A., Baldwin, R. O., Mullins, B. E., Mills, R. F., and Grimaila, M. R., "A Secure and Efficient Satellite-based Multicast Architecture," *2008 IEEE Radio and Wireless Symposium*, Orlando, FL, January 2008, pp. 227-230. Finished 3rd place in "Best Student Paper" competition. [CCR]

GRAMAILA, MICHAEL R.

Grimaila, M.R., Mills, R.F., and Fortson, L.W., "An Automated Information Asset Tracking Methodology to Enable Timely Cyber Incident Mission Impact Assessment," *Proceedings of the 2008 International Command and Control Research and Technology Symposium (ICCRTS 2008)*, 17-19 June 2008, Bellevue, WA. [CCR]

Ashe, E., Grimaila, M.R., and Carter, B.6, "A Framework for Improving Consistency of the Protection of Critical Technologies," *Proceedings of the 2008 International Conference on Information Warfare and Security (ICIW 2008)*, Peter Kiewit Institute, 24-25 April 2008, University of Nebraska Omaha NE. [CCR]

Cowan, R., Grimaila, M.R., and Patel, R., "Using Attack and Protection Trees to Evaluate Risk in an Embedded Weapon System," *Proceedings of the 2008 International Conference on Information Warfare and Security (ICIW 2008)*, Peter Kiewit Institute, 24-25 April 2008, University of Nebraska Omaha NE. [CCR]

- Haan, N., Grimaila, M.R., and Patel, R., "Insider Threat Detection within Embedded Weapon Systems," *Proceedings of the 2008 International Conference on Information Warfare and Security (ICIW 2008)*, 24-25 April 2008, Peter Kiewit Institute, University of Nebraska Omaha NE. [CCR]
- Hellesen, D., Grimaila, M.R., Fortson, L.W., and Mills, R.F., "Information Asset Value Quantification," *Proceedings of the 2008 International Conference on Information Warfare and Security (ICIW 2008)*, 24-25 April 2008, Peter Kiewit Institute, University of Nebraska Omaha NE. [CCR]
- Sorrels, D., Grimaila, M.R., Fortson, L.W., and Mills, R.F., "An Architecture for Cyber Incident Mission Impact Assessment (CIMIA)," *Proceedings of the 2008 International Conference on Information Warfare and Security (ICIW 2008)*, 24-25 April 2008, Peter Kiewit Institute, University of Nebraska Omaha NE. [CCR]
- Strouble, D. and Grimaila, M.R., "Legal Aspects of Warfare in Cyberspace," *Proceedings of the 2008 International Conference on Information Warfare and Security (ICIW 2008)*, 24-25 April 2008, Peter Kiewit Institute, University of Nebraska Omaha NE. [CCR]
- Carls, J., Raines, R.A., Grimaila, M.R., and Rogers, S., "Biometric Security Enhancements Through Template Aging matching Score Analysis," *Proceedings of the 2008 International Conference on Information Warfare and Security (ICIW 2008)*, 24-25 April 2008, Peter Kiewit Institute, University of Nebraska Omaha NE. [CCR]
- Scheeres, J., Mills, R., and Grimaila, M.R., "Establishing the Human Firewall: Improving Resistance to Social Engineering Attacks," *Proceedings of the 2008 International Conference on Information Warfare and Security (ICIW 2008)*, 24-25 April 2008, Peter Kiewit Institute, University of Nebraska Omaha NE. [CCR]
- Kelly, D., Raines, R.A., Baldwin, R., Mullins, B., and Grimaila, M.R., "A Framework for Classifying Anonymous Networks in Cyberspace," *Proceedings of the 2008 International Conference on Information Warfare and Security (ICIW 2008)*, 24-25 April 2008, Peter Kiewit Institute, University of Nebraska Omaha NE. [CCR]
- Kelly, D., Raines, R.A., Baldwin, R., Mullins, B., and Grimaila, M.R., "Analyzing Anonymity in Cyberspace," *Proceedings of the 2008 International Conference on Information Warfare and Security (ICIW 2008)*, 24-25 April 2008, Peter Kiewit Institute, University of Nebraska Omaha NE. [CCR]
- Grimaila, M.R., Stratton, M.A., Leach, S.E., and Roehl, J., "An Investigation of Limitations in the Accuracy of Time-To-Location Internet Protocol Geolocation," *Proceedings of the 2008 Phoenix Challenge Conference (PC 2008)*, 1-5 April 2008, Monterey, CA. [CCR]
- Griffin, J. and Grimaila, M.R., "Insider Threats to Information Systems," *Proceedings of the 2008 Southern Association for Information Systems Conference (SAIS 2008)*, 13-15 March 2008, Virginia Commonwealth University, Richmond, VA. [CCR]
- Nicholson, B., Grimaila, M.R., Strouble, D., "Electronic Medical Record (EMR) Informatics Security," *Proceedings of the 2008 Southern Association for Information Systems Conference (SAIS 2008)*, 13-15 March 2008, Virginia Commonwealth University, Richmond, VA (Nominated for Best Paper Award). [CCR]
- Harris, R. and Grimaila, M.R., "Information Technology Contingency Planning," *Proceedings of the 2008 Southern Association for Information Systems Conference (SAIS 2008)*, 13-15 March 2008, Virginia Commonwealth University, Richmond, VA. [CCR]
- Hubenko, V.P., Raines, R.A., Baldwin, R.O., Mullins, B.E.5, Mills, R.F.5, and Grimaila, M.R., "A Secure and Efficient Satellite-based Multicast Architecture," *Proceedings of the 2008 IEEE Radio and Wireless Symposium*, 21-23 January 2008, Orlando FL. [CCR]
- Hubenko, V.P., Raines, R.A., Baldwin, R.O., Mullins, B.E., Mills, R.F., and Grimaila, M.R., "Applying a Secure and Efficient Low Earth Orbit Satellite-Based Multicast Architecture in a Deployed Environment," *Proceedings of the 2007 IEEE Military Communications Conference (MILCOM 07)*, 29-31 October 2007, Orlando FL. [CCR]

HOPKINSON, KENNETH M.

Wilkins, D.C., Kolbe, M.B., Raines R.A., Williams, P.D., Hopkinson, K., "Designing and Implementing a Critical Infrastructure Lab for Educational Research", *3rd International Conference on Information Warfare and Security*, Omaha, NE, USA., pp. 1-5. [CD], 24-25 April 2008. [CCR]

Kolbe, M.B., Wilkin, D.C., Williams, R.A., Raines, R.A., Hopkinson, K., "Taxonomy of Critical Infrastructure Control System Effects," *3rd International Conference on Information Warfare and Security*, Omaha, NE, USA., pp. 1-5. [CD], 24-25 April 2008. [CCR]

Wilkins, D.C., Kolbe, M.B., Raines R.A., Williams, P.D., Hopkinson, K., "Cyberspace Policies and Politics for Critical Infrastructure," *2nd IFIP WG 11.10 International Conference on Critical Infrastructure Protection*, Arlington, VA, USA, pp. 1-6, 16-19 March 2008. [CCR]

KIM, YONG C.

Judge, M., Williams, P., Kim, Y. C., and Mullins, B. E., "Software Cannot Protect Software: An Argument or Dedicated Hardware in Security and a Categorization of the Trustworthiness of Information," *Workshop in Information Security Theory and Practices*, Sevilla, Spain, May 13, 2008. [CCR]

MILLS, ROBERT F.

Skarda, B., Mills, R.F., McDonald, J.T., and Strouble, D., "Operationalizing Social Engineering for Offensive Cyber Operations," *13th International Command and Control Research and Technology Symposium (ICCRTS)*, Bellevue WA, (Best Student Paper: Concepts, Theory, and Policy Track), June 2008. [CCR]

Grimaila, M.R., Mills, R.F., and Fortson, L.W., "An Automated Information Asset Tracking Methodology to Enable Timely Cyber Incident Mission Impact Assessment," *13th International Command and Control Research and Technology Symposium (ICCRTS)*, Bellevue, WA, June 2008. [CCR]

Grimaila, M.R., Mills, R.F., and Fortson, L., "Improving the Cyber Incident Mission Impact Assessment (CIMIA) Process," *Cyber Security and Information Intelligence Research Workshop*, Oak Ridge National Laboratory TN, May 12-14 2008. [CCR]

Scheeres, J.W., Mills, R.F., and Grimaila, M.R., "Establishing the Human Firewall: Improving Resistance to Social Engineering Attacks," *3rd International Conference on Information Warfare and Security (ICIW 2008)*, Omaha NE, April 2008. [CCR]

Hansen, A., Williams, P., Mills, R., "Red Flag; A Realistic Training Environment for the Future," *3rd International Conference on Information Warfare and Security (ICIW 2008)*, Omaha, NE, April 2008. [CCR]

Sorrels, D., Grimaila, M.R., Fortson, L.W., and Mills, R.F., "CIMIA: An Architecture for Near Real-Time Situational Awareness in Cyberspace," *3rd International Conference on Information Warfare and Security (ICIW 2008)*, Omaha NE, April 2008. [CCR]

Hellesen, D.L., Grimaila, M.R., Fortson, L.W., and Mills, R.F., "Information Asset Value Quantification," *3rd International Conference on Information Warfare and Security (ICIW 2008)*, Omaha NE, April 2008. [CCR]

Lacey, T.H., Mills, R.F., Raines, R.A., Williams, P.D., Oxley, M.E., Bauer, K.W., and Rogers, S.K., "A Qualia Representation of Cyberspace," *Proceedings of the SPIE Conference*, Vol. 6964, 69640C, April 11, 2008. [CCR]

Hubenko, V.P., Raines, R.A., Baldwin, R.O., Mullins, B.E., Mills, R.F., and Grimaila, M.R., "A Secure and Efficient Satellite-based Multicast Architecture," *IEEE Radio and Wireless Symposium*, Orlando FL, 3rd Place Best Student Papers, 21-23 January, 2008. [CCR]

Roberts, M.L., Temple, M.A. and Mills, R.F., "An SMSE Implementation of CDMA with Partial Band Interference Suppression", *2007 IEEE Global Communication Conference (GLOBECOMM 07)*, Washington, DC, 26-30 Nov 2007. [CCR]

Hubenko, V.P., Raines, R.A., Baldwin, R.O., Mullins, B.E., Mills, R.F., and Grimaila, M.R., "Applying a Secure and Efficient Low Earth Orbit Satellite-Based Multicast Architecture in a Deployed Environment," *IEEE Military Communications Conference (MILCOM 07)*, Orlando FL, pp. 1-7, Oct 2007. [CCR]

Lacey, T.H., Mills, R.F., Raines, R.A., Williams, P.D., and Rogers, S.K., "A Qualia Framework for Awareness in Cyberspace," *IEEE Military Communications Conference (MILCOM 07)*, Orlando FL, Oct 2007. [CCR]

MULLINS, BARRY E.

Judge, M. G., Williams, P. D., Kim, Y. C., and Mullins, B. E., "Software Cannot Protect Software: An Argument for Dedicated Hardware in Security and a Categorization of the Trustworthiness of Information," *Workshop in Information Security Theory and Practices*, Sevilla, Spain, pp. 36-48, 13-16 May 2008. [CCR]

Gorsuch, J. E., Mullins, B. E., Raines, R. A., and Baldwin, R. O., "Analysis of Routing Worm Infection Rates on an IPv4 Network" *3rd International Conference on Information Warfare and Security*, Omaha NE, pp. 143-152, 24-25 April 2008. [CCR]

Kelly, D. J., Raines, R. A., Baldwin, R. O., Mullins, B. E., and Grimaila, M. R., "Analyzing Anonymity in Cyberspace," *3rd International Conference on Information Warfare and Security*, Omaha NE, pp. 221-232, 24-25 April 2008. [CCR]

Kelly, D. J., Raines, R. A., Baldwin, R. O., Mullins, B. E., and Grimaila, M. R., "A Framework for Classifying Anonymous Networks in Cyberspace," *3rd International Conference on Information Warfare and Security*, Omaha NE, pp. 233-244, 24-25 April 2008. [CCR]

Hubenko, V. P., Raines, R. A., Baldwin, R. O., Mullins, B. E., Mills, R. F., and Grimaila, M. R., "A Secure and Efficient Satellite-based Multicast Architecture," *IEEE Radio and Wireless Symposium 2008*, Orlando FL, pp. 227-230, Third place in Best Student papers, 21-23 January 2008. [CCR]

Hubenko, V. P., Raines, R. A., Baldwin, R. O., Mullins, B. E., Mills, R. F., and Grimaila, M. R., "Applying A Secure And Efficient Low Earth Orbit Satellite-Based Multicast Architecture in a Deployed Environment," *MILCOM 2007*, Orlando FL, pp. 1-7, October 2007. [CCR]

RAINES, RICHARD A.

Carls, J. W., Raines, R. A., Grimaila, M. R., and Rogers, S. K., "Biometric Enhancements: Template Aging Error Score Analysis," *IEEE Biometrics Symposium*, Amsterdam, Netherlands, September 2008. [CCR]

McDonald, J. T., Raines, R. A., Kurkowski, S., and Bennington, R. W., "Practical Methods for Software Security Education," *Faculty Workshop on Secure Software Development*, Orlando, FL, pp. 1-5 (CD), April 2008. [CCR]

Lacey, T. H., Mills, R. F., Raines, R. A., Williams, P. D., Oxley, M. E., Bauer, K. W., Rogers, S. K., "A Qualia Representation of Cyberspace," *Proceedings of the SPIE Conference*, Vol. 6964, 69640C, Orlando FL, April 2008. [CCR]

Kelly, D. J., Raines, R. A., Baldwin, R. O., Mullins, B. E., and Grimaila, M. R., "Analyzing Anonymity in Cyberspace," *3rd International Conference on Information Warfare and Security*, Omaha NE, pp 1-5 (CD), April 2008. [CCR]

Gorsuch, J. E., Mullins, B. E., Raines, R. A., and Baldwin, R. O., "Analysis of Routing Worm Infection Rates on an IPv4 Network" *3rd International Conference on Information Warfare and Security*, Omaha NE, 24-25 April 2008. [CCR]

Kolbe, M. B., Wilkin, D. C., Williams, P. D., Raines, R. A., and Hopkinson, K., "Taxonomy of Critical Infrastructure Control System Effects," *3rd International Conference on Information Warfare and Security*, Omaha NE, pp 1-5 (CD), April 2008. [CCR]

Wilkin, D. C., Kolbe, M. B., Raines, R. A., Williams, P. D., and Hopkinson, K., "Designing and Implementing a Critical Infrastructure Lab for Educational Research," *3rd International Conference on Information Warfare and Security*, Omaha NE, pp 1-5 (CD), April 2008. [CCR]

Wilkin, D. C., Raines, R. A., Williams, P. D., and Hopkinson, K., "Cyberspace Policies and Politics for Critical Infrastructure," *2nd IFIP WG 11.10 International Conference on Critical Infrastructure Protection*, Arlington VA, pp. 1-6 (CD), March 16-19, 2008. [CCR]

Kelly, D. J., Raines, R. A., Baldwin, R. O., Mullins, B. E., and Grimaila, M. R., "A Framework for Classifying Anonymous Networks in Cyberspace," *3rd International Conference on Information Warfare and Security*, Omaha NE, pp 1-5 (CD), April 2008. [CCR]

Carls, J. W., Raines, R. A., Grimaila, M. R., and Rogers, S. K., "Biometric Security Enhancements Through Template Aging Matching Score Analysis," *3rd International Conference on Information Warfare and Security*, Omaha NE, pp 1-5 (CD), April 2008. [CCR]

Lacey, T. H., Mills, R. F., Raines, R. A., and Rogers, S. K., "Towards A Qualia Representation of Cyberspace," *2nd annual Defense and Security Symposium's "Evolutionary and Bio-Inspired Computation: Theory and Application (EBICOMP) II" Conference*, February 2008. [CCR]

Hubenko, V. P., Raines, R. A., Baldwin, R. O., Mullins, B. E., Mills, R. F., and Grimaila, M. R., "A Secure and Efficient Satellite-based Multicast Architecture," *IEEE Radio and Wireless Symposium*, 3rd Place Best Student Papers, Orlando FL, January 2008. [CCR]

Hubenko, V. P., Raines, R. A., Baldwin, R. O., Mullins, B. E., Mills, R. F., and Grimaila, M. R., "Applying a Secure and Efficient Low Earth Orbit Satellite-Based Multicast Architecture in a Deployed Environment," *IEEE Military Communications Conference (MILCOM)*, Orlando FL, pp 1-7 (CD), October 2007. [CCR]

Roberts, M. L., Temple, M. A., Mills, R. F., and Raines, R. A., "An SMSE Implementation of CDMA with Partial Band Interference Suppression," *2007 IEEE Global Communications Conference (GLOBECOMM)*, Washington DC, pp. 1-6 (CD), October 2007. [CCR]

Lacey, T. H., Mills, R. F., Raines, R. A., Williams, P. D., and Rogers, S.K., "A Qualia Framework for Awareness in Cyberspace," *2007 IEEE Military Communications Conference (MILCOM)*, Orlando FL, pp 1-6 (CD), October 2007. [CCR]

STROUBLE, DENNIS D.

Strouble, D. and Grimaila, M.R., "Legal Aspects of Warfare in Cyberspace," *Proceedings of the 2008 International Conference on Information Warfare and Security (ICIW 2008)*, 24-25 April 2008, Peter Kiewit Institute, University of Nebraska Omaha NE. [CCR]

Nicholson, B., Grimaila, M.R., Strouble, D., "Electronic Medical Record (EMR) Informatics Security," *Proceedings of the 2008 Southern Association for Information Systems Conference (SAIS 2008)*, 13-15 March 2008, Virginia Commonwealth University, Richmond, VA (Nominated for Best Paper Award). [CCR]

6.3.5. OTHER PUBLICATIONS, PRESENTATIONS AND PROFESSIONAL ACTIVITIES

MULLINS, BARRY E.

Augeri, C. J. , Mullins, B. E., Baldwin, R. O., Bulutoglu, D. A., and Baird, L. C., "On Some Results in Unmanned Aerial Vehicle Swarms," *presented at the Weekly Mathematics Colloquium, Department of Mathematics, University of Dayton*, Dayton, OH, 17 April 2008. [CCR]

Augeri, C. J., Mullins, B. E., Baird, L. C., Bulutoglu, D. A., and Baldwin, R. O., "Linear Systems and k-Dimensional Weisfeiler-Lehman Stabilization," *presented at the Discrete Mathematics Seminar, Department of Mathematics, Wright State University*, Dayton, OH, 10 January 2008. [CCR]

SAVILLE, MICHAEL A., Maj

Özer, S. , Saville, M. A., Collins, P. J., Terzuoli, A. J., and Martin, R. K., "Modeling of a Strike Formation with Coherent Self-protection Jammers," *IEEE Radar Conference*, Rome, Italy, 26-30 May 2008. [CCR]

Townsend, J., Saville, M. A., Hong, S. M., and Martin, R. K., "Simulator for Velocity Gate Pull-Off Electronic Countermeasure Techniques," *IEEE Radar Conference*, Rome, Italy, 26-30 May 2008. [CCR]

Townsend, J., Saville, M. A., Hong, S. M., Mayhew, O P., and Simpson, C., "Waveform Optimization for Electronic Countermeasure Technique Generation," *IEEE Radar Conference*, Rome, Italy, 26-30 May 2008. [CCR]

Hong, S., Longbrake, M., Saville, M., and Wu, Z., "Non-coherent Cooperative Jammer for Multi-Platform Applications," *IEEE Radar Conference*, Rome, Italy, 26-30 May 2008. [CCR]

6.3.6. BOOKS AND CHAPTERS IN BOOKS

RAINES, RICHARD A.

Wilkin, D. C., Raines, R. A., Williams, P. D., and Hopkinson, K., "Cyberspace Policies and Politics for Critical Infrastructure," *Critical Infrastructure Protection II*, S. Sheno, and M. Goetz, eds., Springer Science+Business Media, New York, NY, Chapter 2, pp. 17-30, 2008. [CCR]

Todd, A. D., Benson, J. A., Peterson, G. L., Franz, T. P., Stevens, M. R., and Raines, R. A., "An Analysis of Forensic Tools in Detecting Rootkits and Hidden Processes," *Advances in Digital Forensics III*, S. Sheno, and P. Craiger, eds., Springer Science+Business Media, New York, NY, pp. 89-106, 2007. [CCR]

6.4. CENTER FOR MASINT STUDIES AND RESEARCH

Center for MASINT Studies and Research [CMSR]

Director 255-3636 x4536
Executive Program Coordinator 255-7287
FAX 656-6000
Homepage: <http://www.afit.edu/cmsr/>

6.4.1. FUNDED RESEARCH PROJECTS

BUNKER, DAVID J.

“ONIR Ground Truth.” Sponsor: NASIC. Funding: \$140,160. [CMSR]

GROSS, KEVIN C.

“Novel use of Advanced Sensors for Battlespace Characterizations.” Sponsor: SAF. Funding: \$49,000. [CMSR]

TERZUOLI, ANDREW J., Jr.

“Remote Sensing and Communication for MASINT.” Sponsor: NASIC. Funding: \$150,000. [CMSR]

TUTTLE, RONALD F.

“Advanced Technical Intelligence Research Support.” Sponsor: NASIC. Funding: \$114,576. [CMSR]

“Advanced Sensor Integration Study.” Sponsor: OSD. Funding: \$14,000. [CMSR]

“Integration of a Sensor Package for Identifying Radical Extremist (INSPIRE).” Sponsor: West Virginia High Technology Consortium (WVHTC). Funding: \$44,308. [CMSR]

6.4.2. FUNDED EDUCATIONAL PROJECTS

TUTTLE, RONALD F.

“Advanced Geospatial Intelligence Education.” Sponsor: NGA. Funding: \$756,000. [CMSR]

6.4.3. REFEREED CONFERENCE PUBLICATIONS

REFEREED CONFERENCE PAPERS BASED ON FULL PAPER REVIEW

GROSS, KEVIN C.

Kevin C. Gross, Joseph Wymann, and Glen P. Perram, “*Phenomenological Fireball Model for Remote Identification of High-Explosives*,” SPIE Proceedings Defense and Security Symposium, 656613 (2007). [CMSR]

PERRAM, GLEN P.

Bill Smith, Sr., Stanislav Kireev, Leanne West, Gary Gimmetstad, Larry Cornman, Wayne Feltz, Glen Perram, Taumi Daniels, “*Interferometric radiometer for in-flight detection of aviation hazards*,” SPIE Proceedings of Optical Engineering and Applications, 70880A (2008). [CMSR]

Kevin C. Gross, Joseph Wymann, and Glen P. Perram, “*Phenomenological Fireball Model for Remote Identification of High-Explosives*,” SPIE Proceedings Defense and Security Symposium, 656613 (2007). [CMSR]

Michael Hawks and Glen P. Perram, “*Passive Ranging of Boost Phase Missiles*,” SPIE Proceedings Defense & Security Symposium, Acquisition, Tracking, Pointing, and Laser Systems Technologies XXI, 65690G (2007). [CMSR]

TUTTLE, RONALD, L.

K. Graham, R. Tuttle, and J. Jordan, “*A Cognitive Analytical Approach: Identification of Problem Complexity, Indicators, and the Need for Signatures to Reveal Foreign Denial and Deception*,” The 76th Proceedings of the Military Operations Research Society Symposium, 10-12 June 2008, United Coast Guard Academy, New London, CT, USA. [CMSR]

6.4.4. OTHER PRESENTATIONS, PUBLICATIONS AND PROFESSIONAL ACTIVITIES

BUNKER, DAVID, J.

Kevin C. Gross, Glen P. Perram, Ronald F. Tuttle, David J. Bunker, “*Using fireball phenomenology to assess the applicability of current and future BATTLESPACE sensors to the C-IED fight*” JIEDDO IPT Meeting, Scitor, Chantilly, VA, 25–26 March 2008. [CMSR]

GROSS, KEVIN, C.

Gross, Kevin C. and Perram, Glen P. “*Mid Infrared Imaging FTIR for Battlespace Combustion Events*” Telops Scientific Workshop 2008, Washington, DC, 25-26 September 2008. [CMSR]

Bradley Kenneth, Gross, Kevin and Perram, Glen “*Imaging Fourier Transform Spectrometry (IFTS) of Combustion Events with the Telops FIRST-MW*” 2008 International Symposium on Spectral Research Meeting, Hoboken, NJ, June 23-27, 2008. [CMSR]

Steward, B. J. Sinha, N. DeMagistris, M. Gross, K. C., and Perram, G. P. “*Iron Rose 2 Ground Truth and Modeling Review*” 55th Joint Army-Navy-NASA-Air Force (JANNAF) Propulsion Meeting, Boston, MA 12-16 May 2008. [CMSR]

Gross, Kevin C. Perram, Glen P. Tuttle, Ronald F. Bunker, David J. “*Using fireball phenomenology to assess the applicability of current and future BATTLESPACE sensors to the C-IED fight*” JIEDDO IPT Meeting, Scitor, Chantilly, VA, 25–26 March 2008. [CMSR]

PERRAM, GLEN, P.

Gross, Kevin C. and Perram, Glen P. “*Mid Infrared Imaging FTIR for Battlespace Combustion Events*” Telops Scientific Workshop 2008, Washington, DC, 25-26 September 2008. [CMSR]

Bradley Kenneth, Gross, Kevin and Perram, Glen, “*Imaging Fourier Transform Spectrometry (IFTS) of Combustion Events with the Telops FIRST-MW*” 2008 International Symposium on Spectral Research Meeting, Hoboken, NJ, June 23-27, 2008. [CMSR]

Steward, B. J. Sinha, N. DeMagistris, M. Gross, K. C., and Perram, G. P. “*Iron Rose 2 Ground Truth and Modeling Review*” 55th Joint Army-Navy-NASA-Air Force (JANNAF) Propulsion Meeting, Boston, MA 12-16 May 2008. [CMSR]

Gross, Kevin C. Perram, Glen P. Tuttle, Ronald F. Bunker, David J. “*Using fireball phenomenology to assess the applicability of current and future BATTLESPACE sensors to the C-IED fight*” JIEDDO IPT Meeting, Scitor, Chantilly, VA, 25–26 March 2008. [CMSR]

TUTTLE, RONALD, L.

Gross, Kevin C. Perram, Glen P. Tuttle, Ronald F. Bunker, David J. *“Using fireball phenomenology to assess the applicability of current and future BATTLESPACE sensors to the C-IED fight”* JIEDDO IPT Meeting, Scitor, Chantilly, VA, 25–26 March 2008. [CMSR]

6.5. CENTER FOR OPERATIONAL ANALYSIS

Center for Operational Analysis (COA)

Director 255-6565 x4538
Projects Director 255-6565 x4251
Homepage: <http://www.afit.edu/coa/>

6.5.1. FUNDED RESEARCH PROJECTS

BAUER, KENNETH W., Jr.

“Sensor Fusion for Automatic Target Recognition (Combat ID Research).” Sponsor: ACC. Funding: \$33,000. [COA]

CHAMBAL, STEPHEN P., Lt Col

“COA Support.” Sponsor: AFMC/A9. Funding: \$175,000. [COA]

MILLER, JOHN O.

“AFIT Analysis Support to the Joint Improvised Explosive Device Defeat Organization.” Sponsor: JIEDDO. Funding: \$346,910. [COA]

“Air Force Standard Analysis Toolkit (AFSAT) Support.” Sponsor: AF/A9. Funding: \$35,000. [COA]

MOORE, JAMES T.

“Application of Metaheuristics to Air Force Problems.” Sponsor: AFOSR. Funding: \$51,500. [COA]

OGDEN, JEFFREY A.

“ECSS Research.” Sponsor: ECSS. Funding: \$36,293. [COA]

OXLEY, MARK E.

“Qualia Exploitation of Sensor Technology (QUEST) for Structural Health Management.” Sponsor: AFRL/RB. Funding: \$8,000. [COA]

PETERSON, GILBERT L.

“AFIT Analysis Support to the Joint Improvised Explosive Device Defeat Organization.” Sponsor: JIEDDO. Funding: \$110,800. [COA]

WEIR, JEFFERY D., Lt Col

“AFIT Analysis Support to the Joint Improvised Explosive Device Defeat Organization.” Sponsor: JIEDDO. Funding: \$11,700. [COA]

6.5.2. REFEREED JOURNAL PUBLICATIONS

BAUER, KENNETH W., Jr.

Bednar, E.M., Bauer, K.W., and Miller, J.O., “Use of Control Variates in a Large-Scale Aggregated Combat Model”, *Journal of Defense Modeling and Simulation*, 4(1):29-42 (2007). [COA]

Laine, T. I. and Bauer, K.W., "A mathematical framework to optimize ATR systems with non-declarations and sensor fusion", *Computers & Operations Research*, 35(6):1789-1812 (2008). [COA]

CHRISSIS, JAMES W.

Abramson, M., Audet, C. Chrissis, J., and Walston, J., "Mesh Adaptive Direct Search Algorithms for Mixed Variable Optimization", *Optimization Letters*, 3(1): 35-47 (available online 2008). [COA]

Y. Chan , J. Mahan , J. Chrissis, D. Drake, and D. Wang, "Hierarchical Maximal-Coverage Location-Allocation Case of Generalized Search-and-Rescue", *Computers and Operations Research*, vol. 35, no. 6, June 2008, pp.1886-1904. [COA]

COCHRAN, JEFFERY K.

Cochran, J.K. and Kaylani, H., "Optimal Design of a Hybrid Push/Pull Serial Manufacturing System with Multiple Part Types", *International Journal of Production Research* 46(4): 949-965 (2008). [COA]

Cochran, J.K. and Roche, K.T., "A Queuing-Based Methodology for Hospital Inpatient Bed Planning", *Journal of the Operational Research Society* 59(11): 1471-1482 (2008). [COA]

COOPER MARTHA C.

Charvet F., Cooper, M.C., and Gardner, J. "The Intellectual Structure of Supply Chain Management: A Bibliometric Approach", *Journal of Business Logistics*, 29(1): 47-73 (2008). [COA]

CUNNINGHAM, WILLIAM A.

Heilmann, S., Cunningham, W. A. and Ward, C., "User Perceptions of In-Transit Visibility Architecture Utility", *Air Force Journal of Logistics*, 32(2): 92-99 (2008). [COA]

HILL, RAYMOND R.

Marsh, W. E. and Hill, R.R., "An Initial Agent Behavior Modeling and Definition Methodology as Applied to Unmanned Aerial Vehicle Simulations", *International Journal of Simulation and Process Modeling*, 4(2): 119-129 (2008). [COA]

Cho, Y. K., Moore, J.T., Hill, R.R. and Reilly, C. H., "Exploiting Empirical Knowledge for Bi-Dimensional Knapsack Problem Heuristics", *International Journal of Industrial and Systems Engineering*, 3(5): 530-548 (2008). [COA]

Hiremath, C.S. and Hill, R.R., "New Greedy Heuristics for the Multiple-Choice Multidimensional Knapsack Problem", *International Journal of Operational Research*, 2(4): 495-512 (2008). [COA]

JOHNSON, ALAN W.

Maynard, T., Bell, J. and Johnson, A., "Frustrated Hazardous Material: Military and Commercial Training Implications", *Transportation Journal* 47(1): 30-42 (2008). [COA]

MOORE, JAMES T.

Cho, Y. K., Moore, J.T., Hill, R.R. and Reilly, C.H., "Exploiting Empirical Knowledge for Bi-Dimensional Knapsack Problem Heuristics", *International Journal of Industrial and Systems Engineering*, 3(5): 530-548 (2008). [COA]

6.5.3. REFEREED CONFERENCE PUBLICATIONS

CONFERENCE PAPERS ACCEPTED ON THE BASIS OF FULL PAPER REVIEW

BAUER, KENNETH W., Jr.

Oxley, M.E., Thorsen, S.N., Schubert, C.M., and Bauer, K.W., "The Evaluation of an ATR System via its ROC Manifold", *11th International Conference on Information Fusion (FUSION 2008)*, June – July 2008 Cologne, Germany. [COA]

Lacey, T.H., Mills, R.F., Raines, R. A., Williams, P. D., Oxley, M.E., Bauer, K.W. and Rogers, S.K., "A Qualia Representation of Cyberspace", *Proceedings of the International Society for Optical Engineering (SPIE) Conference*, April 2008. [COA]

Rogers, S. K., Sadowski, C., Bauer, K. W., Oxley, M. E., Kabrisky, M., Rogers, A. S. and Mott, S. D., "The life and death of ATR/Sensor Fusion and the hope for resurrection" , *Proceedings of SPIE*, March 2008. [COA]

Turnbaugh, M.A. and Bauer, K.W., "HRR Signature Classification using Syntactic Pattern Recognition", *IEEE Aerospace Conference*, March 2008, Big Sky, Montana, USA. [COA]

Turnbaugh, M.A. and Bauer, K.W., "HRR Signature Classification using a Hybrid Composite Classification System", *International Society for Optical Engineering (SPIE) Defense and Security Symposium, Conference on Automatic Target Recognition XVIII*, March 2008, Orlando, Florida, USA. [COA]

Leap, N.J. and Bauer, K.W., "A Confidence Paradigm for Classification Systems," *Proceedings of SPIE – Volume 6968, Signal Processing, Sensor Fusion, and Target Recognition XVII*, Editor: Ivan Kadar, March 2008. [COA]

Friend, M. A. and Bauer, K.W., "Non-Declaration Measures for Classifier Accuracy", *Proceedings of the Artificial Neural Networks in Engineering Conference (ANNIE 2006)*, November 2007, St. Louis, Missouri, USA. [COA]

Rodriguez, J., Miller, J.O., Bauer, K.W. Jr., and Neher, R.E. Jr., "Methodologies for Aggregating Large Hierarchical Simulation Models" *Proceedings of SPIE Vol 6965-11*, 2008. [COA]

Rodriguez, J., Bauer, K.W. Jr., Miller, J.O., and Neher, R.E. Jr., "Building Prediction Models of Large Hierarchical Simulation Models with Artificial Neural Networks and other Statistical Techniques." *Proceedings of SPIE Vol 6978-21*, 2008. [COA]

Leap, N. J. and Bauer, K.W., "Confidence Framework in Classification", *Proceedings of the Artificial Neural Networks In Engineering Conference (ANNIE 2006)*, November 2007, St. Louis, Missouri, USA. [COA]

COCHRAN, JEFFERY K.

Burdick, T.L. and Cochran, J.K., "Right on 'Queue': Engineers Set the Stage for Healthcare Improvement" with Associated Paper "Forming a Healthcare Engineering Partnership: The Banner Health / Arizona State University Experience", *HIMSS Conference & Exhibition*, 2008, Orlando, Florida, USA. [COA]

COOPER, MARTHA C.

Cooper, M. C., Helper, A., and Ogden, J., "Evaluating the Effectiveness of Balanced Score Card Implementations", *2008 SOLE Symposium*, August 2008, Orlando, Florida, USA. [COA]

Cooper, M.C., Helper, A. and Ogden, J., "Business Methods Applied in Government", *2008 POMS Conference*, May 2008, La Jolla, California, USA. [COA]

Burgos-Dominguez, A., Cartwright, H., Cooper, M. C. and Hurst, D., "Women in Logistics 2007: A Global Perspective", *Council of Supply Chain Management Professionals Annual Meeting*, October, 2007, San Antonio, Texas, USA. [COA]

HILL, RAYMOND R.

Hardman, N., Colombi J., Jacques, D. and Hill, R.R., "Improved User Interface Design through Graph-Theoretic Modeling", *2008 IEEE International Conference on Distributed Human-Machine Systems*, March 2008, Athens, Greece. [COA]

Champagne, L.E., and Hill, R.R., "Agent-Model Validation Based on Historical Data" *Proceedings of the 2007 Winter Simulation Conference*, Institute of Electrical and Electronics Engineers, December 2007, Washington, DC, USA. [COA]

JOHNSON, ALAN W.

Cole, G., Johnson, A.W., and Miller, J.O., "Feasibility Study of Variance Reduction in the Logistics Composite Model", *Proceedings of the Winter Simulation Conference*, December 2007, Washington, DC, USA. [COA]

MILLER, JOHN O.

Miller, J.O., "Tutorial: Military Applications of Modeling and Simulation", *Proceedings of the Industrial Engineering Research Conference 2008*, May 2008, Vancouver, B.C. Canada. [COA]

Rodriguez, J., Miller, J.O., Bauer, K.W. Jr., and Neher, R.E. Jr., "Methodologies for Aggregating Large Hierarchical Simulation Models" *Proceedings of SPIE Vol 6965-11*, 2008. [COA]

Rodriguez, J., Bauer, K.W. Jr., Miller, J.O., and Neher, R.E. Jr., "Building Prediction Models of Large Hierarchical Simulation Models with Artificial Neural Networks and other Statistical Techniques." *Proceedings of SPIE Vol 6978-21*, 2008. [COA]

CONFERENCE PAPERS ACCEPTED ON THE BASIS OF ABSTRACT REVIEW

HALL, SHANE N., Maj

Jacobson, S. H., Sewell, E. C. and Hall, S. N., "Analyzing the General Minimum Cost Vaccine Formulary Selection Problem," *Proceedings of the 2008 NSF Design, Service, and Manufacturing Grantees and Research Conference*, Knoxville, Tennessee, January 2008. [COA]

Kappedal, R., Roesener, A. G. and Hall, S. N., "Intelligence Surveillance and Reconnaissance Asset Assignment for Optimal Mission Effectiveness", *Military Operations Research Society Symposium*, United States Coast Guard Academy, Connecticut, June 2008. [COA]

Illig, A.A., Roesener, A.G., Knighton, S. A. and Hall, S. N., "Hurry Up and Wait ...Optimizing the Initial Skills Training Scheduling Process", *Military Operations Research Society Symposium*, United States Coast Guard Academy, Connecticut, June 2008. [COA]

HILL, RAYMOND R.

Miller, J. O. and Hill, R.R., "Military Applications of Modeling and Simulation", *Proceedings of the 2008 Industrial Engineering Research Conference*, Vancouver, BC, May 2008. [COA]

Heath, B. L. and Hill, R.R., "The Early History of Agent-Based Modeling", *Proceedings of the 2008 Industrial Engineering Research Conference*, Vancouver, BC, Canada, May 2008. [COA]

JOHNSON, ALAN W.

Johnson, A.W. and Servidio, J., “Ground Support Process Time Refinement for Reusable Launch Vehicle Regeneration Modeling”, *Proceedings of the American Institute of Aeronautics and Astronautics Space 2008 Conference*, San Diego California, AIAA-2008-7647. [COA]

PETTIT, TIMOTHY, J., Lt Col

Pettit, T.J., “Ensuring Supply Chain Resilience,” presentation at the 43rd Annual International Logistics Conference and Exhibition, *The International Society of Logistics (SOLE)*, Orlando, Florida, August 2008. [COA]

6.5.4. BOOKS AND CHAPTERS IN BOOKS

BAUER, KENNETH W., Jr.

Rodriguez, B.M., Peterson, G.L., and Bauer, K.W., “Fusion of Steganalysis Systems Using Bayesian Model Averaging”, *Advances in Digital Forensics IV*, eds. Sheno, S., and Ray, I. (2008). [COA]

HALL, SHANE N., Maj

Hall, S.N., Jacobson, S.H., and Sewell, E.C., “Optimizing Pediatric Vaccine Formularies”, *Optimization in Medicine and Biology*, Chapter 4, pp 117-145. Auerbach Publications (Taylor and Francis Group), (2008). [COA]

HILL, RAYMOND R.

Prabhala,S., Ganapathy, S. Narayanan, S., Gallimore, J. J. and Hill, R.R., Model-Based Simulation to Examine Command and Control Issues with Remotely Operated Vehicles. “*Simulation and Modeling: Current Technologies and Applications*”, Chapter 7, El Sheikh, A A.A., Ajeeli, R. A. and Abu-Taieh, E. M. O. eds. IGI Publishing, Hershey, PA., 199-218, (2008). [COA]

6.6. CENTER FOR SYSTEMS ENGINEERING

Center for Systems Engineering

Education and Training Division

Homepage: <http://cse.afit.edu/>

Chief 937-255-3355 x3363

Fax 937-255-4981

6.6.1. FUNDED RESEARCH PROJECTS

HAVLICEK, JEFFREY D., Maj

“Net-Centric Joint Force Protection Values.” Sponsor: 642nd ESS. Funding: \$40,578. [CSE]

“Resourcing Global Strike or Global Persistent Attack Architecture.” Sponsor: ACC. Funding: \$28,974. [CSE]

JACQUES, DAVID R.

“AFIT Analysis Support to the Joint Improvised Explosive Device Defeat Organization.” Sponsor: JIEDDO. Funding: \$322,140. [CSE]

“Human Systems Interface Research.” Sponsor: AFRL/RH. Funding: \$30,000. [CSE]

“Space Systems Engineering Case Studies.” Sponsor: SAF. Funding: \$60,000. [CSE]

SONI, SOM R.

“Optimization of Z-Pinning Volume Fraction in Joints for Structural Integrity.” Sponsor: DAGSI. Funding: \$20,160. [CSE]

STROUBLE, DENNIS D.

“Strategic Information System Architecture.” Sponsor: HQ AFMC/A6. Funding: \$30,000. [CSE]

WALTER, JOERG D., Maj

“Impacts of Uninhabited Long-Range Strike Aircraft.” Sponsor: AFRL/RB. Funding: \$25,000. [CSE]

6.6.2. REFEREED JOURNAL PUBLICATIONS

COLOMBI, JOHN M.

Ford, T.C., Colombi, J.M., Jacques D.R., and Graham, S.R., (8 Aug 2008). “On the application of classification concepts to systems engineering design and evaluation,” *Journal of Systems Engineering*. Available: www3.interscience.wiley.com/journal/116837515/issue. [CSE]

JACQUES, DAVID R.

Ford, T.C., Colombi, J.M., Jacques D.R., and Graham, S.R., (8 Aug 2008). “On the application of classification concepts to systems engineering design and evaluation,” *Journal of Systems Engineering*. Available: www3.interscience.wiley.com/journal/116837515/issue. [CSE]

6.6.3. REFEREED CONFERENCE PUBLICATIONS

CONFERENCE PAPERS ACCEPTED ON THE BASIS OF FULL PAPER REVIEW

COLOMBI, JOHN. M.

Bullard, R., Colombi, J. and Freeman, R., Global Positioning System: A Case Study Focused on Systems Engineering, Proceedings and Oral Presentation at the 19th International Conference on Systems Engineering (ICSEng), August 2008. [CSE]

Bullard, R., Colombi, J. and Freeman, R., Global Positioning System (GPS) Systems Engineering Case Study, *Proceedings and for Oral Presentation at INCOSE Symposium*, June 2008. [CSE]

Hardman N., Colombi, J., Jacques. D. and Hill, R. “Improved User Interface Design Through Graph-Theoretic Modeling”, *Proceeding of the IEEE International Conference on Distributed Human-Machine Systems*, 9-12 March 2008, Athens, Greece. Available: <http://www.action-m.com/dhms2008/> [CSE]

O’Malley, D., Zall, J., Colombi J., and Carl, J., “Integrating Cognition into System Design,” WORLDCOMP’08, World Congress in Computer Science, Computer Engineering, and Applied Computing, July 2008. [CSE]

Ford T., J. Colombi, S. Graham and D. Jacques, “Measuring System Interoperability”, 2008 Conference on Systems Engineering Research, 4-5 April 2008, Redondo Beach, CA. Available: <http://incose-la.org/events/conferences/cser-2008.html> [CSE]

Hardman, N., Colombi, J., Jacques, D., Miller, J., “Human Systems Integration within the DoD Architecture Framework”, *Proceedings of the 2008 Industrial Engineering Research Conference*, J. Fowler and S. Mason, eds., April 2008. [CSE]

JACQUES, DAVID R.

Hardman N., Colombi, J., Jacques. D. and Hill, R. “Improved User Interface Design Through Graph-Theoretic Modeling”, *Proceeding of the IEEE International Conference on Distributed Human-Machine Systems*, 9-12 March 2008, Athens, Greece. Available: <http://www.action-m.com/dhms2008/> [CSE]

Hardman N., J. Colombi, D. Jacques and J. Miller, “Human Systems Integration within the DoD Architecture Framework”, 2008 Industrial Engineering Research Conference, Canada, 17-21 May 2008, Vancouver, British Columbia. [CSE]

Ford T., J. Colombi, S. Graham and D. Jacques, “Measuring System Interoperability”, 2008 Conference on Systems Engineering Research, 4-5 April 2008, Redondo Beach, CA. Available: <http://incose-la.org/events/conferences/cser-2008.html> [CSE]

APPENDICES

APPENDIX A: FACULTY CREDENTIALS

NOTE: Additional information may be obtained from the AFIT Yellow Pages at <http://www.afit.edu/YellowPages/default.cfm>

DEPARTMENT OF AERONAUTICS AND ASTRONAUTICS

Access Phone: 937-255-3069, DSN 785-3069

Fax: 937-656-7621, DSN 986-7621

Homepage: <http://www.afit.edu/en/eny/>

BLACK, JONATHAN T., Assistant Professor of Aerospace Engineering, Department of Aeronautics and Astronautics, AFIT Appointment Date: 2007 (AFIT/ENY); BS Industrial Engineering, University of Illinois at Urbana-Champaign, 2001; MS Mechanical and Aerospace Engineering, Joint Institute for Advancement of Flight Sciences (joint NASA Langley Research Center and George Washington University program), 2003; PhD Mechanical Engineering, University of Kentucky, 2006. Dr. Black's research interests include lightweight and inflatable aerospace structures, structural and nonlinear dynamics, noncontact measurement systems, and computational structural mechanics. His current work involves developing novel measurement and modeling techniques to characterize the static and dynamic behavior of new, stiff, self-deploying lightweight aerospace structures. He recently received an AFOSR Young Investigator Award. Tel. 255-3636 x4578, email: Jonathan.Black@afit.edu

BLUE, PAUL A., Maj, Instructor of Aerospace Engineering, Department of Aeronautics and Astronautics, AFIT Appointment Date: 2004 (AFIT/ENY); BS, University of Nebraska - Lincoln, 1993; MS, University of Minnesota - Twin Cities, 1995; PhD (ABD), University of Minnesota - Twin Cities, 2004. Maj Blue's research interests include the guidance and control of aerospace vehicles and the flight-testing of advanced control concepts. His current research is focused on guidance, navigation, and control of small unmanned aircraft systems, operator interfaces, and developing techniques to evaluate a controlled system's performance (e.g. an aircraft's handling qualities) based on the operators ability to perform a given task. Maj Blue's prior assignments include Flight Control Research Engineer at the Air Vehicles Directorate of the Air Force Research Laboratory and Exchange Engineer at the German Aerospace Center. He has several publications, including a textbook on robust control with Prof. Juergen Ackermann et al.

BRANAM, RICHARD D., Lt Col, Assistant Professor of Aeronautical Engineering, Department of Aeronautics and Astronautics, AFIT Appointment Date: 2005 (AFIT/ENY); BS, Aerospace Engineering, The Ohio State University, 1993; MS, Aeronautical Engineering, Air Force Institute of Technology, 1997; PhD, Aerospace Engineering, The Pennsylvania State University, 2005. Major Branam's primary research areas of interest are rocket propulsion and hypersonics. Previous assignments include research scientist at the German Aerospace Center in the area of supercritical injection and as program manager of the upper stage rocket demonstration at the Air Force Research Laboratory. Tel. 937-255-3636 x7485 (DSN 785-3636 x7485), email: Richard.Branam@afit.edu

CALICO, ROBERT A., Jr., Dean Emeritus of Aerospace Engineering, AFIT Appointment Date: 1972 (AFIT/EN); BS, University of Cincinnati, 1966; MS, University of Cincinnati, 1968; PhD, University of Cincinnati, 1971. Dr. Calico's research interests include aircraft stability and control, analytical dynamics, stability of non-linear systems, satellite dynamics, control theory, and vibration analysis. Tel. 937-255-3025 (DSN 785-3025), email: Robert.Calico@afit.edu

CANFIELD, ROBERT A., Professor in Aeronautics and Astronautics, Department of Aeronautics and Astronautics, 2000 (AFIT/ENY); BSE, Mechanical Engineering, Duke University, 1983; MS, Aeronautics and Astronautics, Stanford University, 1984; PhD, Engineering Mechanics, Virginia Polytechnic Institute and State University, 1992. Dr. Canfield's research interests include structural optimization, multidisciplinary analysis and design methods, structural dynamics and controls, and aeroelasticity. He has published a book, 34 journal articles and 66 papers in conference proceedings on these topics. Dr. Canfield is the former Program Manager for Computational Mathematics at the Air Force Office of Scientific Research (AFOSR) and AFOSR Director of Policy and Integration. He is an Associate Fellow of the American Institute of Aeronautics and Astronautics.

COBB, RICHARD G., Assistant Professor of Aerospace Engineering, Department of Aeronautics and Astronautics, AFIT Appointment Date: 2001 (AFIT/ENY); BS, the Pennsylvania State University, 1988; MS, Air Force Institute of Technology, 1992; PhD, Air Force Institute of Technology, 1996. Research interests include dynamics and control of flexible space structures for remote sensing applications, system identification techniques, control of micro air vehicles, and applications of optimal control theory. Prior to teaching at AFIT, Dr. Cobb was responsible for the establishment of an Air Force wide Reliability Centered Maintenance program to enhance jet engine reliability. In recognition of his accomplishments, Dr. Cobb was selected as the 2001 Senior Military Engineer of the Year for the Aeronautical Systems Center. Prior to his assignment at WPAFB in September 1999, Dr. Cobb served as program manager for the Air Force Research Laboratory's TechSat 21 program, a revolutionary satellite technology program investigating the feasibility of using distributed micro-satellite constellations to satisfy Air Force global sensing requirements. While at Kirtland AFB NM, Dr. Cobb also served as the technical advisor for the Space Vehicles Technology Branch, and Chief of the Dynamic Systems Group. Dr. Cobb is an Associate Fellow of AIAA. Tel. 937-255-3636 x4559 (DSN 785-3636 x4559), email: Richard.Cobb@afit.edu

DECKER, DOUGLAS D., Assistant Professor of Aerospace Engineering, Department of Aeronautics and Astronautics, AFIT Appointment Date: 2008 (AFIT/ENY); BS, University of Kansas, 1987; MS, Air Force Institute of Technology, 1994; PhD, Air Force Institute of Technology, 2004. Research interests include nonlinear control, optimal control, optimization, applications of nonlinear/optimal control, astrodynamics, satellite attitude control, control of unmanned air vehicles, search theory. Previous assignments include serving as a SCRAMJET Controls Engineer, GPS Satellite Engineering Officer and Systems Analyst, and Satellite Vehicle Crew Evaluator. He is a member of Sigma Gamma Tau, Tau Beta Pi, and is a Senior Member of AIAA. Tel. 937-255-3636 x7465 (DSN 785-3636 x7465), email: Douglas.Decker@afit.edu

FRANKE, MILTON E., Professor Emeritus of Aerospace Engineering, Department of Aeronautics and Astronautics, AFIT Appointment Date: 1959 (AFIT/ENY); BME, University of Florida, 1952; MSME, University of Minnesota, 1954; PhD, The Ohio State University, 1967. Research interests include fluid transmission lines, thrust vector control, high lift aerodynamics, fluidics, cavity acoustics, thrust augmenting ejectors, heat transfer, electrostatic cooling, boundary layers, aerodynamic in-ground effects, lean aerospace initiatives, reusable launch vehicles, and engineering of complex systems. Dr. Franke has authored or co-authored over 130 technical articles. He holds five patents, was the recipient of the AFIT Charles A. Stone Award in 1986 and the AFIT Bernard A. Schriever Award in 1993. Dr. Franke is a retired colonel in the Air Force Reserve. He is chair of the Committee on Organization and Rules (a committee of the ASME Board of Governors), past Vice President for Communications of the ASME (1990-1992), past Vice President for Systems and Design of the ASME (1993-1996), co-chair of the AIAA Weapon System Effectiveness Technical Committee, a Fellow of the ASME, and Associate Fellow of the AIAA. Dr. Franke retired 31 March 2007. Tel. 937-255-3636, x 4720 (DSN 785-3636, x 4720), email: Milton.Franke@afit.edu

GREENDYKE, ROBERT B., Associate Professor of Aeronautics and Astronautics and Director, AFIT Scientist and Engineer Education Programs at Kirtland AFB; Appointment Date: 2005 (AFIT/ENY); BBA, Economics, Baylor University, 1979; BS, Aerospace Engineering, Texas A&M University, 1986; MS, Aerospace Engineering, Texas A&M University, 1988; PhD, Interdisciplinary Engineering, Texas A&M University, 1998. Dr Greendyke research interests include computational fluid dynamics, Direct Simulation Monte Carlo methods, hypersonic and reacting flows, radiation simulation, thermophysics, and plasma simulation. Dr Greendyke was a Research Scientist at NASA-Langley Research Center studying re-entry and aerobraking flows, and an Associate Professor in the University of Texas at Tyler establishing a start-up Mechanical Engineering Program from concept through accreditation. He has published over 30 journal articles, technical reports and conference publications in multiple fields. He is an Associate Fellow of the American Institute of Aeronautics and Astronautics. Tel. 937-255-3636 x4567, email: Robert.Greendyke@afit.edu

HARMON, FREDERICK G., Lt Col, Assistant Professor of Aeronautical Engineering, BS, Electrical Engineering, Embry-Riddle Aeronautical University, 1992; MS, Electrical Engineering, Air Force Institute of Technology, 1996; PhD, Mechanical Engineering, University of California-Davis, 2005. Lt Col Harmon's research interests include the cooperative control of multiple unmanned aerial vehicles, autonomous vehicle guidance and control, bio-inspired control and technologies, adaptive and reconfigurable flight control, nonlinear control, robotics, alternative energy systems, and fuel cell technology. He has published several conference papers and journal articles. His previous assignments were in research labs, intelligence organizations, and flight test squadrons. He has published several conference papers and journal articles as well as DoD publications. He is a member AIAA, IEEE, and AUUSI. Tel. 937-255-3636, x7478 (DSN 785-3636, x7478), e-mail: Frederick.Harmon@afit.edu

HICKS, KERRY D., Lt Col, Assistant Professor of Aerospace Engineering, Department of Aeronautics and Astronautics, AFIT Appointment Date: 2004 (AFIT/ENY), BS Aeronautical and Astronautical Engineering, University of Illinois (UIUC), 1985; MS Astronautical Engineering, Air Force Institute of Technology, 1986; PhD Astronautical Engineering, Air Force Institute of Technology, 1989. Lt Col Hicks' research interests include astrodynamics, re-entry dynamics, and electric space propulsion with emphasis on numerical solutions and mathematical modeling. He has published several conference papers and journal articles as well as DoD publications. He is a member of Tau Beta Pi and a Senior Member of AIAA. Tel. 937-255-3636 x4568 (DSN 785-3636 x4568), email: Kerry.Hicks@afit.edu

HUFFMAN Jr., RICHARD E., Assistant Professor of Aerospace Engineering, Department of Aeronautics and Astronautics, AFIT Appointment Date: 2007 (AFIT/ENY); BS Aeronautical and Astronautical Engineering, Purdue University, 1994; MS Aeronautical Engineering, Air Force Institute of Technology 1995; PhD Aerospace Engineering, University of Illinois at Urbana-Champaign, 2007. Major Huffman's research interests include weapon design, combat survivability enhancement, plasma dynamics, non-intrusive fluid diagnostics and covert navigation systems. His current work involves using the earth's gravity field for unique navigation techniques and the creation of non-intrusive diagnostics to measure plasma propulsion and control devices. Major Huffman's prior assignments include airframe and avionics flight test on the F-22, instructor at the USAF Test Pilot School, avionics integration flight testing in the Air Force Research Laboratory's Air Vehicles Directorate and combat simulation with the National Air and Space Intelligence Center. Tel. 255-6565 x7490, email: Richard.Huffman@afit.edu

KING, PAUL I., Professor of Aerospace Engineering, Department of Aeronautics and Astronautics, AFIT Appointment Date: 1991 (AFIT/ENY); BS, Arizona State University, 1971; MS, Air Force Institute of Technology, 1972; PhD, Oxford University, England, 1986. Former faculty member at the U.S. Air Force Academy and Cleveland State University, Cleveland, Ohio. Dr. King's research interests include internal and external aerodynamics and heat transfer (wings and bodies, turbomachinery and other applications). His research emphasizes experimentation and simulations. Tel. 937-255-3636 x4628 (DSN 785-3636 x4628), email: Paul.King@afit.edu.

KUNZ, DONALD L., Associate Professor of Aerospace Engineering, Department of Aeronautics and Astronautics, AFIT Appointment Date: 2003 (AFIT/ENY); BS, Syracuse University, 1971; MS, Georgia Institute of Technology, 1972; PhD, Georgia Institute of Technology, 1976; Dr. Kunz's research interests include rotorcraft dynamics, vibrations, and loads, structural dynamics, aeroelasticity, multibody dynamics, smart structures, and computational structural mechanics. He has published more than 60 journal articles, conference papers, and technical reports. Prior to coming to AFIT, Dr. Kunz worked at the US Army Aeroflightdynamics Directorate, McDonnell Douglas Helicopter Company, Old Dominion University, and the US Army Aviation and Missile Command. He is an Associate Fellow of AIAA; a member of AHS and ASME; and a licensed professional engineer in the Commonwealth of Virginia. Tel. 937-255-3636 x4548 (DSN 785-3636 x4548), email: Donald.Kunz@afit.edu

LIEBST, BRADLEY S., Professor of Aerospace Engineering and Head, Department of Aeronautics and Astronautics, AFIT Appointment Date: 1989 (AFIT/ENY); BS, Wichita State University, 1978; MS, Massachusetts Institute of Technology, 1979; PhD, Massachusetts Institute of Technology, 1981. Dr. Liebst's research interests include eigenstructure assignment and control, stability and control of aerospace vehicles, passive and active control of large flexible structures, and aircraft handling qualities. He has published over 30 articles and reports and chaired over 40 theses and dissertations. Prior to teaching at AFIT, Professor Liebst was Assistant Professor of Aerospace Engineering for 6 years at the University of Minnesota where he was voted the 1987 Best Institute of Technology (U of M) Professor. Tel. 937-255-3636 x4636 (DSN 785-6565 x4636), email: Bradley.Liebst@afit.edu

LOFTHOUSE, ANDREW J., Maj, Assistant Professor of Aeronautical Engineering, Department of Aeronautics and Astronautics, AFIT Appointment Date: 2008 (AFIT/ENY); BS Mechanical Engineering, Brigham Young University, 1997; MS Aeronautical Engineering, Air Force Institute of Technology, 2002; PhD Aerospace Engineering, University of Michigan, 2008. Maj Lofthouse's research interests include all aspects of computational fluid dynamics, both continuum-based and kinetic methods, with specific interest in hypersonic reacting flows and nonequilibrium gas dynamics. He has published several conference papers and journal articles. He is a member of Tau Beta Pi and a Senior Member of AIAA. Tel. 937-255-3636 x4537 (DSN 785-3636 x4537), email: Andrew.Lofthouse@afit.edu

MALL, SHANKAR, Professor, Department of Aeronautics and Astronautics, AFIT Appointment Date: 1986 (AFIT/ENY); BS, Mechanical Engineering, Banaras Hindu University, India, 1964; MS, Mechanical Engineering, Banaras Hindu University, 1966; PhD, Mechanical Engineering, University of Washington, 1977. Dr. Mall's research centers on composite and smart materials, fatigue and fracture. Dr. Mall has authored over 100 papers and has been the co-editor of a book and five conference proceedings. He is a Fellow of ASME, Associate Fellow of AIAA. He is also the Principal Materials Research Engineer, Materials and Manufacturing Directorate, Air Force Research Laboratory. He is associate editor of several journals. Tel. 937-255-3636 x4587 (DSN 785-3636 x4587), email: Shankar.Mall@afit.edu

MAPLE, RAYMOND C., Lt Col, Associate Professor of Aerospace Engineering, Department of Aeronautics and Astronautics, AFIT Appointment Date: 2002 (AFIT/ENY); BS, Cornell University, 1985; MS, Air Force Institute of Technology, 1989; PhD, Air Force Institute of Technology, 2002. Lt Col Maple's interests include computational fluid dynamics and parallel computing, with an emphasis on algorithm development, visualization, fluid-structure interaction, and aircraft store separation applications. Lt Col Maple is a senior member of the American Institute of Aeronautics and Astronautics (AIAA).

PALAZOTTO, ANTHONY N., Professor of Aerospace Engineering, Department of Aeronautics and Astronautics, AFIT Appointment Date: 1975 (AFIT/ENY); BS, New York University, 1955; MS, Brooklyn Polytechnic Institute, 1961; PhD, New York University, 1968. Professor Palazotto's interests include nonlinear mechanics, shell analysis, finite elements, composite materials, viscoplasticity and nonlinear dynamics. Dr. Palazotto is the co-author of a textbook, "The Nonlinear Analysis of Shell Structures," published in 1992 by the AIAA. In addition he has authored over 193 archival technical publications and more than 410 technical presentations and manuscripts. Dr. Palazotto received the Hetanyi Award in 1982 from the Society of Experimental Mechanics, the Cleary Award in 1981 from the Air Force Materials Lab, the Structures and Materials Award from the ASCE in 1986 and the AIAA Sustained Service Award in 2004. Dr. Palazotto is a Fellow of the ASCE; a Fellow of the AIAA and a Fellow of the American Academy of Mechanics. He is a registered Professional Engineer in the state of Ohio. Tel. 937-255-3636 x4599 (DSN 785-3636 x4599), email: Anthony.Palazotto@afit.edu

REEDER, MARK F., Assistant Professor of Aerospace Engineering, AFIT Appointment Date: 2002 (AFIT/ENY); BS, Mechanical Engineering, West Virginia University, 1989; MS, Mechanical Engineering, Ohio State University, 1991; PhD, Mechanical Engineering, Ohio State University, 1994; Prior to accepting a position with AFIT, Dr. Reeder served as an NRC Research Associate at NASA Glenn and subsequently as the manager of Research and Development for a manufacturer of industrial mixing equipment. Dr. Reeder's research interests include all aspects of fluid mechanics with an emphasis on experimental applications involving external aerodynamics, mixing enhancement and propulsion. Recent publications include a characterization of store separation from a cavity using pressure sensitive paint and measurements of a micro air vehicle using a 6-DOF balance. He has been published in a variety of journals including the Journal of Fluid Mechanics, The AIAA Journal, The AIAA Journal of Propulsion and Power, Physics of Fluids, NASA Tech Briefs, and Chemical Engineering Progress. He has three patents to his credit and is a licensed Professional Engineer in the State of Ohio. Dr. Reeder is an Associate Fellow of the AIAA and a member of ASME. Tel. 937-255-3636 x4530 (DSN 785-3636 x4530), email: Mark.Reeder@afit.edu

RUGGLES-WRENN, MARINA B., Associate Professor of Aerospace Engineering, Department of Aeronautics and Astronautics, AFIT Appointment Date: 2003 (AFIT/ENY); BS, Polytechnic Institute of New York, 1981; MS Rensselaer Polytechnic Institute, 1983; PhD, Rensselaer Polytechnic Institute, 1987. Dr. Ruggles-Wrenn's interests center on mechanics of materials and structures, including experimental investigation of time-dependent material behavior, high-temperature structural materials, advanced composite materials, high-temperature structural design methods, and viscoplasticity. Dr. Ruggles-Wrenn has published over 80 journal articles and technical reports, and has co-authored 5 books on fatigue, fracture, and high temperature structural design methods. Dr. Ruggles-Wrenn received several research and best paper awards as well as the Col. Gage H. Crocker Outstanding Professor Award. Prior to joining AFIT Dr. Ruggles-Wrenn was a research staff member at the Oak Ridge National Laboratory (1987-2003). She served as an associate technical editor of the ASME Journal of Pressure Vessel Technology (1996-2002). She currently chairs the ASME PVPD Design & Analysis Technical Committee. Dr. Ruggles-Wrenn is a Fellow of the ASME. Tel. 937-255-3636 x4641 (DSN 785-3636 x4641), email: Marina.Ruggles-Wrenn@afit.edu

SHEARER, CHRISTOPHER M., Lt Col, Deputy Department Head and Assistant Professor of Aerospace Engineering, AFIT Appointment Date: September 2006 (AFIT/ENY); BS Aerospace Engineering, Texas A&M University, 1992, MS Aerospace Engineering, AFIT, 1997; PhD Aerospace Engineering, University of Michigan, 2006. Maj Shearer's research interests include computational and experimental structural dynamics of High Altitude Long Endurance (HALE) aircraft. He is also interested in flight dynamics and control of aircraft as well as aircraft design. Previous research has focused on Model Predictive Control (MPC) methods used on a nonlinear aircraft model, flight testing of auto ground collision avoidance systems, and HALE aircraft. He is a licensed FAA Certified Flight Instructor and a member of AIAA, Tau Beta Pi, and the Experimental Aircraft Association. Tel. 937-255-3636 x4643 (DSN 785-3636 x4643), email: Christopher.Shearer@afit.edu

SONI, SOM R., Associate Professor of Aerospace Engineering, AFIT Appointment Date: 2006 (AFIT/ENY); BS (Hons), Punjab University, 1967; MS, University of Roorkee (renamed as IIT Roorkee) India, 1969; PhD, University of Roorkee (renamed as IIT Roorkee) India, 1972. Dr. Soni's interests include teaching and research related to systems engineering design, analytical and experimental mechanics of composite materials and structures. Recent studies include: a) Systems Engineering Approach to Integrated Health Monitoring System for Aging Aircrafts. b) Ballistic response of co-cured adhesive bonded composite joints; c) Embedded MEMS devices in composite material structures and measure pressure and strain; d) "CrackTrack" electronic system to measure high strain rate crack growth in DCB specimens; e) Bonded and Bolted Joints which resulted in a fully documented software package called **BBJ**; f) Failure Mechanisms in Braided and Woven Fabric Composites; g) Multidirectional analytical and experimental failure of composite cruciform specimens. Dr. Soni is author/ co-author of 80+ research publications in the field of mechanics of solids and structures with special emphasis on composites. Dr. Soni is a Fellow of the American Society for Composites, an Associate Fellow of AIAA and a member of SAMPE. He has won numerous awards including Cleary Award, Edison Emerging Technology Award, Enterprise Spirit Award, and Dayton Affiliate Society Council Award for his professional accomplishments. Tel. 937-255-3355 x3420 (DSN 785-3636 x3420), email: Som.Soni@afit.edu

SWENSON, ERIC D., Assistant Professor of Aerospace Engineering, AFIT Appointment Date: August 2005 (AFIT/ENY); BS Civil Engineering, The Ohio State University, 1993, MS Astronautical Engineering, AFIT; PhD Aerospace Engineering, University of Texas at Austin, 2006. Maj Swenson's research includes computational and experimental structural dynamics of complex structures with passive and active damping. Previous research has focused on dynamics and control of spacecraft, highly accurate model tuning of satellites, and development damage detection techniques on geometrically constrained problems. solving multi-million degree of freedom finite element models with viscoelastic materials, damage detection techniques, and system identification through optimization. He is a member of AIAA, Chi Epsilon, SAME, and Tau Beta Pi. Tel. 937-255-3636 x4628 (DSN 785-3636 x4628), email: Eric.Swenson@afit.edu

TITUS, NATHAN A., Lt Col, Assistant Professor of Aerospace Engineering, Department of Aeronautics and Astronautics, AFIT Appointment Date: 2004 (AFIT/ENY); BS Aeronautics & Astronautics, University of Washington, 1986; MS Astronautical Engineering, Air Force Institute of Technology, 1992; PhD Astronautical Engineering, Air Force Institute of Technology, 1998. Lt Col Titus' research interests include spacecraft attitude dynamics and control, spacecraft systems, robotic manipulators, nonlinear control, and applied optimal control. His dissertation work investigated nonlinear techniques for the control of a robotic manipulator mounted on a free-flying satellite, with a focus on the management and avoidance of singular configurations.

TORVIK, PETER J., Professor Emeritus of Aerospace Engineering and Engineering Mechanics, Department of Aeronautics and Astronautics, (AFIT/ENY); BS, University of Minnesota, 1960; MS, University of Minnesota, 1962; PhD, University of Minnesota, 1965; BA, Wright State University, 1980. Professor Torvik is a specialist in theory of elasticity, wave propagation, shock and vibration, impact damage in aircraft systems, laser-material interactions, and aircraft survivability/ vulnerability. His primary research interests include structural dynamics, specifically, damping, impact, and penetration mechanics. Dr. Torvik is the author of over 100 technical papers and reports and some 30 other publications. He served as Head of the Department of Aeronautics and Astronautics, 1980-1990. He is the recipient of the AF Meritorious Civilian Service Award, the AF Exceptional Civilian Service Award, the Outstanding Civilian Career Service Award, USAF, and the John Leland Atwood Award and Medal, AIAA and ASEE. Dr. Torvik is a Fellow of AIAA, a Fellow of the ASME, and a Fellow of Ohio Academy of Science. Tel. 937-255-3636 x4740 (DSN 785-3636 x4740), email: Peter.Torvik@afit.edu

WIESEL, WILLIAM E., Jr., Professor of Astronautical Engineering, Department of Aeronautics and Astronautics, AFIT Appointment Date: 1977 (AFIT/ENY); BS, University of Massachusetts, 1970; MS, Harvard University, 1972; PhD, Harvard University, 1974. Dr. Wiesel's research interests include orbital mechanics and astrodynamics, chaotic systems, estimation and control, planetary astronomy, stability theory, and optimal control. Dr. Wiesel is the author of Spaceflight Dynamics, the leading introductory text on astronautical engineering. He has authored over 30 technical papers and has been a member of the department for 31 years. Tel. 937-255-3636 x4312 (DSN 785-3636 x4312), email: William.Wiesel@afit.edu

DEPARTMENT OF ELECTRICAL AND COMPUTER ENGINEERING

Access Phone: 937-255-2024, DSN 785-2024

Fax: 937-656-7061, DSN 986-7061

Homepage: <http://www.afit.edu/en/eng/>

ANDEL, TODD R., Maj, Assistant Professor of Computer Engineering, Department of Electrical and Computer Engineering, AFIT Appointment Date: 2007 (AFIT/ENG), BSCE, University of Central Florida, 1998; MSCE, Air Force Institute of Technology, 2002; PhD 2007, Computer Science, Florida State University, 2006. His research interests include formal methods, secure routing protocols, and network simulation. Tel. 937-255-3636 x4901 (DSN 785-3636 x4901), email: Todd.andel@afit.edu

BALDWIN, RUSTY O., Associate Professor of Computer Engineering, Department of Electrical and Computer Engineering, AFIT Appointment Date: 1999 (AFIT/ENG), BSEE, New Mexico State University, 1987; MS, Computer Engineering, Air Force Institute of Technology, 1992; PhD, Virginia Polytechnic Institute and State University, 1999. His research interests include computer communication networks, information warfare, performance modeling, and analysis and simulation of real-time communication systems. Tel. 937-255-6565 x 4445 (DSN 785-6565 x4445), email: Rusty.Baldwin@afit.edu

BORGHETTI, BRETT J., Lt Col, Assistant Professor of Computer Engineering, Department of Electrical and Computer Engineering, AFIT Appointment Date: 2008; (AFIT/ENG), BSEE, Worcester Polytechnic Institute (WPI), 1992; MSCS, Air Force Institute of Technology, 1996; PhD, Computer Science, University of Minnesota, 2006. His research interests include machine learning, autonomous agents, and multi-agent systems. Tel. 937-255-3636 x4612 (DSN 785-3636 x4612), email: Brett.Borghetti@afit.edu

CAIN, STEPHEN C., Associate Professor of Electrical Engineering, Department of Electrical and Computer Engineering, AFIT Appointment Date: 2003 (AFIT/ENG), BSEE, University of Notre Dame, 1992; MSEE, Michigan Technological University, 1994; PhD, University of Dayton, 2001. His research interests include electro-optics, remote sensing, and signal processing. Tel. 937-255-3636 x4625 (DSN 785-3636 x4625), email: Stephen.Cain@afit.edu

COLLINS, PETER J., Associate Professor of Electrical Engineering, Department of Electrical and Computer Engineering, AFIT Appointment Date: 2006 (AFIT/ENG); BA, Bethel College, MN, 1985; BSEE, University of Minnesota, 1985; MSEE, Air Force Institute of Technology, 1990; PhD, Air Force Institute of Technology, 1996. His research interests include low observables, computational electromagnetics, radar cross section metrology, remote sensing, and electromagnetic material design and analysis. He is a senior member of the IEEE. Tel. 937-255-3636 x7256 (DSN 785-3636 x7256), email: Peter.Collins@afit.edu

COUTU, RONALD, A., JR., Maj, Assistant Professor of Electrical Engineering, Department of Electrical and Computer Engineering, AFIT Appointment Date: 12 August 2008 (AFIT/ENG); BSEE, University of Massachusetts at Amherst, 1993; MSEE, California Polytechnic (CalPoly) State University, San Luis Obispo, 1995; PhD, Air Force Institute of Technology, 2004. Major Coutu's research interests include microelectromechanical systems (MEMS), microelectronic devices, metamaterials, and nanotechnology. His areas of expertise include design, fabrication, and test of micro/nano devices, micro-contact mechanics & materials, and micro-UAVs. He is a member of Tau Beta Pi, Eta Kappa Nu and a Senior Member of the IEEE. Tel. 937-255-3636 x7230 (DSN 785-3636 x7230), email: Ronald.Coutu@afit.edu

DAVIS, NATHANIEL. J. IV, Professor and Head, Department of Electrical and Computer Engineering, AFIT Appointment Date: 2005 (AFIT/ENG), BSEE, Virginia Polytechnic Institute and State University, 1976, MSEE, Virginia Polytechnic Institute and State University, 1977, Ph.D. Purdue University, 1985. His research interests include computer communications networks, cyber operations, and large scale computer architectures. Tel. 937-255-3636 x7218 (DSN 785-3636 x7218), email: Nathaniel.Davis@afit.edu

FELLOWS, JAMES A., Lt Col, Assistant Professor of Electrical Engineering, Department of Electrical and Computer Engineering, AFIT Appointment Date: 2004 (AFIT/ENG); BSEE, Clarkson University, 1987; MSEE, Air Force Institute of Technology, 1993; PhD, Air Force Institute of Technology, 2001. Lt Col Fellows' research interests include microelectronic device fabrication & test, infrared detectors, and nanotechnology. His areas of expertise include semiconductor materials characterization and semiconductor physics.

GUSTAFSON, STEVEN C., Associate Professor of Electrical Engineering, Department of Electrical and Computer Engineering, AFIT Appointment Date: 1998 (AFIT/ENG); BS, University of Minnesota, 1967; MS, Duke University, 1969; PhD, Duke University, 1974. Dr. Gustafson is an author of more than 200 publicly available technical papers, proceedings, and reports, most of which relate to optical processing and pattern recognition technology. He has been initiator and principal investigator on more than \$2 million in research contracts in these areas since 1990. Tel. 937-255-3636 x4598 (DSN 785-3636 x4598), email: Steven.Gustafson@afit.edu

HARTRUM, THOMAS C., Associate Professor Emeritus of Electrical Engineering, Department of Electrical and Computer Engineering, (AFIT/ENG); BEE, The Ohio State University, 1969; MS, The Ohio State University, 1969; MBA, Wright State University, 1979; PhD, The Ohio State University, 1973. Dr. Hartrum's research interests include parallel and distributed computing, and formal methods in software engineering. He has authored or co-authored over 20 conference and journal articles. He is currently conducting research in object-oriented modeling and formal methods in software engineering. He is a member of the IEEE.

HAVRILLA, MICHAEL J., Associate Professor of Electrical Engineering, Department of Electrical and Computer Engineering, AFIT Appointment Date: 2002 (AFIT/ENG); BS, Michigan State University, 1987, MSEE, Michigan State University, 1989, PhD, Michigan State University, 2001. His research interests include electromagnetics, guided wave theory and applications, material characterization, low observables, electromagnetic scattering and antenna theory. He is a member of HKN and a Senior member of the IEEE. Tel. 937-255-3636 x4582 (DSN 785-3636 x4582), email: Michael.Havrilla@afit.edu

HEMMES, JEFFREY M., Maj, Instructor of Computer Science, Department of Electrical and Computer Engineering, AFIT Appointment Date: 2008 (AFIT/ENG), BS, Computer Science, Indiana University, 1997; MS, Computer Systems, Air Force Institute of Technology, 1999. His research interests include software engineering. Tel. 937-255-3636 x4619 (DSN 785-3636 x4619), email: Jeffrey.Hemmes@afit.edu

HOPKINSON, KENNETH M., Assistant Professor of Computer Science, Department of Electrical and Computer Engineering, AFIT Appointment Date: 2004 (AFIT/ENG), BS, Computer Science, Rensselaer Polytechnic Institute, 1997; MS, Computer Science, Cornell University, 2002; PhD, Computer Science, Cornell University 2004. His research interests include distributed systems, networking, and simulation. Tel. 937-255-3636 x4579 (DSN 785-3636 x4579), email: Kenneth.Hopkinson@afit.edu

HOUPIS, CONSTANTINE H., Professor Emeritus of Electrical Engineering, Department of Electrical and Computer Engineering, (AFIT/ENG); BS, University of Illinois, 1947; MS, University of Illinois, 1948; PhD, University of Wyoming, 1971. His research interests include guidance and control of aerospace vehicles, application of optimal control theory to engineering systems, flight control systems, digital control systems, computational and numerical methods for control system design, linear and nonlinear control theory, multivariable theory, and quantitative feedback theory. Professor Houpis has published numerous technical articles and textbooks. He is a registered professional engineer and a Fellow of the IEEE. Tel. 937-255-3636 x4615 (DSN 785-3636 x4615), email: Constantine.Houpis@afit.edu

HUMPHRIES, JEFFREY W., Lt Col, Assistant Professor of Computer Science, Department of Electrical and Computer Engineering, AFIT Appointment Date: 2008 (AFIT/ENG), BS Computer Science, United States Air Force Academy, 1992; MS Computer Science, Georgia Institute of Technology, 1993; PhD, Texas A&M University, 2001. His research interests include cryptography, computer/network security, information assurance, cyber operations, and software protection. Tel. 937-255-3636 x7253 (DSN 785-3636 x7253), email: Jeffrey.Humphries@afit.edu

KABRISKY, MATTHEW, Professor Emeritus, Department of Electrical and Computer Engineering, (AFIT/ENG); BEE, Polytechnic Institute of Brooklyn, 1951; MEE, Polytechnic Institute of Brooklyn, 1952; PhD, University of Illinois, 1964. His areas of expertise include information processing in the human central nervous system and mathematical models of the man machine interface. Dr. Kabrisky is the author and co-author of two books and 60 technical articles. He has chaired over 100 theses and dissertations in his 30+ years in the Department.

KIM, YONG C., Assistant Professor of Computer Engineering, Department of Electrical and Computer Engineering, AFIT Appointment Date: 2003 (AFIT/ENG); BSCE, University of Washington, 1995; MSECE, University of Wisconsin, 1997; PhD, University of Wisconsin, 2002. His areas of interest are anti-tamper methodology for circuits, advanced computer architecture, VLSI design, test, design for testability, synthesis, CAD tools, reconfigurable and fault-tolerant computing. Tel. 937-255-3636 x4620 (DSN 785-3636 x4620), email: Yong.Kim@afit.edu

KURKOWSKI, STUART H., Lt Col, Assistant Professor of Computer Science, Department of Electrical and Computer Engineering, AFIT Appointment Date: 2006 (AFIT/ENG), BSCS, United States Air Force Academy, 1991; MSIM, Troy State University, 1995; MSCS, Air Force Institute of Technology, 2000; PhD, Colorado School of Mines, 2006. His research interests include networking, simulation, and information visualization. Tel. 937-255-3636 x7228 (DSN 785-3636 x7228), email: Stuart.Kurkowski@afit.edu

LAMONT, GARY B., is a Professor in the Department of Electrical and Computer Engineering, AFIT Appointment Date: 1970 (AFIT/ENG), B. of Physics, 1961; MSEE, 1967, PhD, 1970; University of Minnesota. He teaches courses in computer science and computer engineering. His research interests include: evolutionary computation, artificial immune systems, information security, parallel and distributed computation, combinatorial optimization problems (single objective and multi-objective), software engineering, digital signal processing, and intelligent and distributed control. He has advised many MS and PhD students in these disciplines. Dr. Lamont has authored several textbooks (Multi-Objective EAs, Computer Control), various book chapters as well as numerous papers. He is a member of IEEE (senior member) ACM, ASEE, SIAM, Tau Beta Pi (chapter advisor) and Eta Kappa Nu. Tel. 937-255-2626x4718; email: Gary.Lamont@afit.edu

MARTIN, RICHARD K., Assistant Professor of Electrical Engineering, Department of Electrical and Computer Engineering, AFIT Appointment Date: 2004 (AFIT/ENG), BSEE & BS Physics, University of Maryland at College Park, 1999; MSEE, Cornell University, 2001; PhD, Cornell University, 2004. His research interests include signal processing for communication systems, source localization, and non-GPS navigation. Tel. 937-255-3636 x4625, (DSN 785-3636 x4625), email: Richard.Martin@afit.edu

MAYBECK, PETER S., Professor Emeritus of Electrical Engineering, Department of Electrical and Computer Engineering, AFIT Appointment Date: 1973 (AFIT/ENG); BS, Massachusetts Institute of Technology, 1968; PhD, Massachusetts Institute of Technology, 1972. Dr. Maybeck's research interests include optimal estimation and stochastic control, Kalman filtering, adaptive estimation, pointing and tracking, optimally aided inertial navigation systems, multiple model adaptive filtering. He is the author of the widely recognized three-volume reference text, "Stochastic Models, Estimation and Control" and of over 100 technical articles. Dr. Maybeck has received numerous national and local awards including the C. Holmes MacDonald Distinguished Young Electrical Engineering Teacher and the ASEE Frederick Emmons Terman Award as the outstanding Electrical Engineering Professor in the US for 1985. He is a Fellow of the IEEE. Tel. 937-255-3636 x4581 (DSN 785-3636 x4581), email: Peter.Maybeck@afit.edu

MAYER, CHRISTOPHER B., Maj, Assistant Professor of Computer Science, Department of Electrical and Computer Engineering, AFIT Appointment Date: 2003 (AFIT/ENG); BSEE, Texas A&M University, 1992; MSEE, Air Force Institute of Technology, 1997; PhD, Arizona State University 2005. His research interests include combinatorial optimization problems, data mining, and swarm intelligence.

McDONALD, J. TODD, Lt Col, Assistant Professor of Computer Science, Department of Electrical and Computer Engineering, AFIT Appointment Date: 2006 (AFIT/ENG), BSCS, United States Air Force Academy, 1986; MBA, University of Phoenix, 1996; MSCE, Air Force Institute of Technology, 2000; PhD, Computer Science, Florida State University, 2006. His research interests include software protection, mobile agents, software engineering, and databases. Tel. 937-255-3636 x4639 (DSN 785-3636 x4639), email: Jeffrey.McDonald@afit.edu

MENDENHALL, MICHAEL J., Maj, Assistant Professor of Electrical Engineering, Department of Electrical and Computer Engineering, AFIT Appointment Date: 2006 (AFIT/ENG), BS in Computer Engineering, Oregon State University, 1996; MS in Computer Engineering, Air Force Institute of Technology, 2001; Ph.D. in Electrical Engineering, Rice University, 2006. His research interests include machine learning, automatic target recognition, joint compression & classification, hyperspectral image processing. Tel. 937-255-3636 x4614 (DSN 785-3636 x4614), email: Michael.Mendenhall@afit.edu

MILLS, ROBERT F., Assistant Professor of Electrical Engineering, Department of Electrical and Computer Engineering, AFIT Appointment Date: 2003 (AFIT/ENG); BSEE, Montana State University, 1983; MSEE, Air Force Institute of Technology, 1987; PhD, University of Kansas, 1994. His areas of interest include digital and spread spectrum communications, electronic warfare, cyber operations and warfare, insider threat mitigation, and C4ISR architectures. Tel. 937-255-3636 x4527 (DSN 785-3636 x4527), email: Robert.Mills@afit.edu

MULLINS, BARRY E., Assistant Professor of Computer Engineering, Department of Electrical and Computer Engineering, AFIT Appointment Date: 2004 (AFIT/ENG), BS Computer Engineering, University of Evansville, 1983; MS Computer Engineering, Air Force Institute of Technology, 1987; PhD, Virginia Polytechnic Institute and State University, 1997. His research interests include cyber operations, computer communication networks, embedded (sensor) and wireless networking, and reconfigurable computing systems. Dr. Mullins has received the U.S. Air Force Academy's Outstanding Academy Educator award as well as the Brig. Gen. R. E. Thomas award for outstanding contribution to cadet education twice. He is a member of Tau Beta Pi, Eta Kappa Nu, ASEE and a senior member of IEEE. Tel. 937-255-3636 x7979 (DSN 785-3636 x7979), email: Barry.Mullins@afit.edu

PACHTER, MEIR, Professor, Department of Electrical and Computer Engineering, AFIT Appointment Date: 1993 (AFIT/ENG); BS, Israel Institute of Technology, 1967; MS, Israel Institute of Technology, 1969; PhD, Israel Institute of Technology, 1975. Dr. Pachter's fields of expertise include automatic control of aircraft and missiles, adaptive control and system identification, inertial and GPS Navigation, autonomous control/neural networks/fuzzy logic control, nonlinear control and applied mathematics. Dr. Pachter has published papers in these areas and in differential games, robotics, and the theory of computational geometry. Tel. 937-255-3636 x7247 (DSN 785-3636 x4593), email: Meir.Pachter@afit.edu.

PETERSON, GILBERT L., Associate Professor of Computer Engineering, Department of Electrical and Computer Engineering, AFIT Appointment Date: 2002 (AFIT/ENG); BS Architecture University of Texas at Arlington, 1995; MS, Computer Science, University of Texas at Arlington, 1998; PhD, University of Texas at Arlington, 2001. His research interests include uncertainty in artificial intelligence, robotics, machine learning, datamining, and digital forensics. Tel. 937-255-6565 x4281 (DSN 785-6565 x4281), email: Gilbert.Peterson@afit.edu

POTOCZNY, HENRY B., Professor of Computer Science, Department of Electrical and Computer Engineering, AFIT Appointment Date: 1981 (AFIT/ENG); BA, La Salle University, 1965; MA, University of Kentucky, 1967; PhD, University of Kentucky, 1969. Dr. Potoczny's interests include logic and number theory, specifically, novel methods of factoring large integers with a view to cracking various public key ciphersystems. Tel. 937-255-6565 x4282 (DSN 785-6565 x4282), email: Henry.Potoczny@afit.edu

PYATI, VITTAL P., Professor Emeritus of Electrical Engineering, Department of Electrical and Computer Engineering, (AFIT/ENG); BE, University of Madras, India, 1953; MSEE, Marquette University, 1962; PhD, Electrical Engineering, University of Michigan, 1966. Dr. Pyati's fields of expertise include electromagnetics, radar, low observables, and electronic warfare. Dr. Pyati has authored over 40 publications in journals and DOD Conferences. He has been a consultant to various Air Force organizations.

RAINES, RICHARD A., Director, Center for Cyberspace Research, Professor of Electrical Engineering, and DoD Force Transformation Chair, Department of Electrical and Computer Engineering, AFIT Appointment Date: 1994 (AFIT/ENG), BSEE, Florida State University 1985; MS, Computer Engineering, Air Force Institute of Technology, 1987; PhD, Virginia Polytechnic Institute and State University, 1994. His research interests include computer communication networks, satellite communications, performance modeling, information security, and system threat and vulnerability. Tel. 937-255-6565 x4278 (DSN 785-6565 x4278), email: Richard.Raines@afit.edu

RAQUET, JOHN F., Associate Professor of Electrical Engineering, Department of Electrical and Computer Engineering, AFIT Appointment Date: 1998 (AFIT/ENG); BS, US Air Force Academy, 1989; MS, Massachusetts Institute of Technology, 1991; PhD, University of Calgary, Canada, 1998. Dr. Raquet's areas of interest include Global Positioning System (GPS) precise positioning, non-GPS precision navigation, optically-aided navigation, navigation using signals of opportunity, integration of MEMS-based inertial measurement units with other sensors, autonomous vehicle navigation and control, and electromagnetic interference and mitigation techniques affecting GPS performance. Tel. 937-255-3636 x4580 (DSN 785-3636 x4580), email: John.Raquet@afit.edu

SAVILLE, MICHAEL A., Maj, Assistant Professor of Electrical Engineering, Department of Electrical and Computer Engineering, AFIT Appointment Date: 2006 (AFIT/ENG), BSEE, Texas A&M University, 1997; MSEE, Air Force Institute of Technology, 2000; PhD, University of Illinois at Urbana-Champaign, 2006. His research interests include synthetic aperture radar (SAR) imaging and inverse SAR imaging, radar signal processing, electromagnetic radiation and scattering phenomenology, computational electromagnetics, and electromagnetic theory. Tel. 937-255-3636 x4719 (DSN 785-3636 x4719), email: Michael.Saville@afit.edu

SCHMIDT, JASON D., Maj, Assistant Professor of Electro-Optics, Department of Electrical and Computer Engineering, AFIT, Appointment Date: 2006 (AFIT/ENG), BS in Physics, Marquette University 1998; MS in Physics 2000, The Ohio State University; PhD in Electro-Optics 2006, University of Dayton. His research interests include optical effects of atmospheric turbulence, adaptive optics, free-space optical communications, laser weapons, and optical modeling. He is a member of SPIE, OSA, and DEPS. Tel. 937-255-3636 x7224 (DSN 785-3636 x7224), e-mail: Jason.Schmidt@afit.edu

SEETHARAMAN, GUNA S., Associate Professor of Computer Engineering, Department of Electrical and Computer Engineering, AFIT Appointment Date: 2003 (AFIT/ENG); B.E. in Electronics & Communication Engineering, University of Madras, 1980; M. Tech. in Electrical Engineering, Indian Institute of Technology, 1982; PhD in Electrical and Computer Engineering, University of Miami, 1988. Dr. Seetharaman's areas of expertise are in integrated micro-systems, persistent and pervasive video surveillance, digital light processing, 3-D image displays, and hybrid CMOS / MEMS image sensors and micro-sensors.

STARMAN, LaVERN A., Maj, Assistant Professor of Electrical Engineering, Department of Electrical and Computer Engineering, AFIT Appointment Date: 2005 (AFIT/ENG): BSEE, University of Nebraska, Lincoln, 1994, MSEE, Wright State University, 1997; PhD, Air Force Institute of Technology, 2002. His areas of expertise include the design and fabrication of micro-electro-mechanical systems (MEMS) and microelectronics. He is a member of IEEE, Eta Kappa Nu, Sigma Xi and Tau Beta Pi. Tel. 937-255-3636 x4618 (DSN 785-3636 x4618), email: LaVern.Starman@afit.edu

STEPANIAK, MICHAEL J., Maj, Instructor of Electrical Engineering, Department of Electrical and Computer Engineering; BSEE, Carnegie Mellon University, 1994; MSEE, Air Force Institute of Technology, 1995. His research interests include laser-based navigation, stochastic estimation, and control theory. Tel. 937-255-3636 x4603 (DSN 785-3636 x4603), email: Michael.Stepaniak@afit.edu

TEMPLE, MICHAEL A., Professor of Electrical Engineering, Department of Electrical and Computer Engineering, AFIT Appointment Date: 1996 (AFIT/ENG); BSE, Southern Illinois University, 1985; MSE, Southern Illinois University, 1986; PhD, Air Force Institute of Technology, 1993. Dr. Temple's research interests include electromagnetic propagation phenomenology, Adaptive and Interferometric Clutter Erasure (ACE/ICE), High Range Resolution (HRR) radar, precision emitter location, digital and spread spectrum communications, and complex waveform generation and analysis. His sponsored research efforts in Command, Control, Communications and Intelligence (C3I), radar signal/signature processing, and Electronic Warfare (EW), as adopted by and/or transitioned to the DoD and other national agencies, has provided nearly \$1M in research and technology benefits. Tel. 937-255-6565 x4279 (DSN 785-6565 x4279), email: Michael.Temple@afit.edu

TERZUOLI, ANDREW J. Jr., Associate Professor of Electrical Engineering, Department of Electrical and Computer Engineering, AFIT Appointment Date: 1982 (AFIT/ENG); BS, Electrical Engineering, Polytechnic Institute of Brooklyn, 1969; MS, Electrical Engineering, Massachusetts Institute of Technology, 1970; PhD, Electrical Engineering, The Ohio State University, 1982. His research areas have included Antennas and Electromagnetics; Computer Model Based Studies; Application of Parallel Computation, VLSI Technology, and RISC Architecture to Numerical and Transform Methods; Remote Sensing & Communication; Passive RF Sensing; Wave Scattering, Radar Cross Section, and Stealth (LO/CLO) Technology; Machine Vision and Image Processing; Automated Object Recognition. He has published numerous reports and articles in journals and conference proceedings in these and related areas. His research is funded by various agencies including AFRL and NASIC. Prior to joining AFIT in 1982, Dr. Terzuoli was a research associate at the ElectroScience laboratory at the Ohio State University, and was a member of the technical staff at the Bell Telephone Laboratories in New Jersey. He is an active officer of IEEE, and a fellow of the Electromagnetics Academy. Tel. 937-255-3636 x4717 (DSN 785-3636 x4717), email: Andrew.Terzuoli@afit.edu

THOMAS, RYAN W., Capt, Assistant Professor of Electrical Engineering, Department of Electrical and Computer Engineering, AFIT Appointment Date: 2007 (AFIT/ENG); BS, Engineering, Harvey Mudd College, 1999; MSCE, Air Force Institute of Technology, 2001; PhD, Computer Engineering, Virginia Tech, 2007. His research interests include cognitive networks, cognitive radio networks, wireless ad-hoc networks, game theoretic analysis and modeling, spectrum reuse, secondary users and distributed networking protocols and security. Tel. 937-255-3636 x4613 (DSN 785-3636 x4613), email: Ryan.Thomas@afit.edu

TRIAS, ERIC D., Maj, Assistant Professor of Computer Science, Department of Electrical and Computer Engineering, AFIT Appointment Date: 2008 (AFIT/ENG), BSCS, University of California, Davis, 1998; MSCE, Air Force Institute of Technology, 2002; PhD, Computer Science, University of New Mexico, 2008. His research interests include database systems, information hiding, knowledge discovery and data mining. Tel. 937-255-3636 x4611 (DSN 785-3636 x4611), email: Eric.Trias@afit.edu

TOUSSAINT, GREGORY J., Lt Col, Deputy Department head and Assistant Professor of Electrical Engineering, Department of Electrical and Computer Engineering, AFIT Appointment Date: 2007 (AFIT/ENG); BS Electrical Engineering, Cornell University, 1989; MS Systems Engineering, Air Force Institute of Technology, 1992; PhD, University of Illinois at Urbana-Champaign, 2000. His research interests include control theory, nonlinear systems, tracking, and estimation. Tel. 937-255-3636 x7257 (DSN 785-3636 x7257), email: Gregory.Toussaint@afit.edu

VETH, MICHAEL J., Lt Col, Assistant Professor of Electrical Engineering, Department of Electrical and Computer Engineering, AFIT Appointment Date: 2006 (AFIT/ENG), BSEE, Purdue University, 1993; MSEE, Air Force Institute of Technology, 1994; PhD, Air Force Institute of Technology, 2006. His research interests include image-aided navigation, cooperative targeting and navigation, and bio-inspired systems. Tel. 937-255-3636 x7228 (DSN 785-3636 x4551), email: Michael.Veth@afit.edu

WILLIAMS, PAUL D., Maj, Chief, Computer Science and Computer Engineering Division, Deputy Director, Center for Cyberspace Research and Assistant Professor of Computer Science, Department of Electrical and Computer Engineering, AFIT Appointment Date: 2005 (AFIT/ENG), BS, University of Washington, 1996; MS, Air Force Institute of Technology, 2001; Ph.D., Purdue University, 2005, His research interests center on cyber operations, and include algorithms, artificial intelligence, and computer architecture.

DEPARTMENT OF ENGINEERING PHYSICS

Access Phone 937-255-2012, DSN 785-2012

Fax: 937-656-6000, DSN 786-6000

Homepage: <http://www.afit.edu/en/enp/>

ACEBAL, ARIEL O., Maj, Assistant Professor of Atmospheric Physics, Department of Engineering Physics, AFIT Appointment Date: 2004 (AFIT/ENP); B.S., Florida State University, 1993; M.S., Air Force Institute of Technology, 2000; Ph.D., Utah State University, 2008. Maj Acebal's research interests cover a range of topics under the broad umbrella of space physics. Recent work has focused primarily on solar radio emissions, with an emphasis on correlations with solar EUV emissions and ionospheric models. He is also interested in the transition of cutting edge research to operational forecast products. Previously he worked as the commander of the Palehua Solar Observatory and the branch chief for the Space Weather Branch at the Air Force Weather Agency. He is a member of the American Geophysical Union. Tel. 937-255-3636 x4518 (DSN 785-3636 x4518), email: Ariel.Acebal@afit.edu

BAILEY, WILLIAM F., Associate Professor of Physics, Department of Engineering Physics, AFIT Appointment Date: 1978 (AFIT/ENP); BS, United States Military Academy, 1964; MS, The Ohio State University, 1966; PhD, Air Force Institute of Technology, 1978. Professor Bailey's research interests center on weakly ionized gases and reactive kinetics, with special applications to semiconductor processing in gas discharges, shock characterization in ionized flows and solutions of the inhomogeneous electron kinetic equation. Dr. Bailey has published over 20 papers in refereed conference proceedings and international journals and chaired over 25 theses and dissertations. He is a member of Tau Beta Pi, Sigma Pi Sigma, and Sigma Xi. Tel. 937-255-3636 x4501 (DSN 785-3636 x4501), email: William.Bailey@afit.edu

BOHN, MATTHEW J., Lt Col, Assistant Professor of Physics, Department of Engineering Physics, AFIT Appointment Date: 2005 (AFIT/ENP); BS Physics, USAFA, 1988; MS Physics, 1993; PhD Optical Sciences, University of New Mexico, 1998. Lt Col Bohn's main research interests include ultrashort pulsed lasers, terahertz radiation and remote sensing. Specific application areas include compact monolithic femtosecond lasers for telecom and IR countermeasures; generation of high average power terahertz radiation in air plasma; detecting voids and damage in fiber composite materials using terahertz radiation; passive remote sensing of Uranyl compounds using phase fluorimetry. He previously taught at the US Air Force Academies and has conducted research in chemical lasers, nonlinear optical devices, laser gyroscopes, mid-infrared lasers, solid state lasers and remote sensing applications at the Air Force Research Laboratory and other assignments. He has published 19 technical papers, reports and presentations. He is a member of the Optical Society of America and the IEEE. Tel. 937-255-3636 x4573 (DSN 785-3636 x4573), email: Matthew.Bohn@afit.edu

BRIDGMAN, CHARLES J., Professor Emeritus of Nuclear Engineering, Department of Engineering Physics, (AFIT/ENP); BS, United States Naval Academy, 1952; MS, North Carolina State University, 1958; PhD, North Carolina State University, 1963. Dr. Bridgman's interests center around nuclear weapon effects and military nuclear power applications. He has been associated with nuclear weapon defense since 1952. He was a member of the first military team to be operational on the H-bomb. His current research interest is nuclear weapon fallout modeling. He is the author of a text book "Introduction to the Physics of Nuclear Weapons Effects" and of numerous technical articles in a wide variety of journals. In his 38 years on the AFIT faculty, he has chaired over 120 MS theses and PhD dissertations. He has received several awards including Tau Beta Pi Teacher of the Year and the Gage H. Crocker Outstanding Professor Award. Dr. Bridgman is a Fellow of the American Nuclear Society. Tel. 937-255-3636 x4679 (DSN 785-3636 x4679), email: Charles.Bridgman@afit.edu

BUNKER, DAVID J., Assistant Professor of Engineering Physics, Department of Engineering Physics, (AFIT/ENP); BS, Aerospace Engineering, Pennsylvania State University, 1984; MS, Mechanical Engineering, University of Dayton, 1988; PhD, Aerospace Engineering Sciences, University of Colorado, 1994. Dr Bunker's research interests include applications of measurement and signature technology, remote sensing, technical intelligence. Additional interests include high angle of attack and vertical flow structures, unsteady fluid dynamics, experimental wind tunnel testing, and low-speed fluid mechanics.

BURGGRAF, LARRY W., Professor of Engineering Physics and Chemical Physics, Department of Engineering Physics, AFIT Appointment Date: 1991 (AFIT/ENP); BA, Chemistry, Olivet Nazarene University, 1968; MS, Chemistry, Ohio State University, 1971; MA, Applied Mathematics, University of West Florida, 1977; PhD, Chemistry, University of Denver, 1981; Postdoctoral Associate, Computational Chemistry, Iowa State University, 1994. Dr. Burggraf conducts experimental and theoretical research in surface chemistry, surface spectroscopy and nuclear radiation spectroscopy to solve DoD and DOE problems in various areas including semiconductor materials; chemical, biochemical, and nuclear non-proliferation; radiation imaging; and nuclear fuels chemistry. Dr. Burggraf's research currently applies positron spectroscopy, gamma spectroscopy, photoluminescence spectroscopy, infrared spectroscopy, Raman spectroscopy, and atomic force microscopy to problems in solid state physics and problems in detection and non-proliferation of nuclear, chemical and biological weapons. Theoretical research to model surfaces and clusters centers on applying hybrid molecular mechanics/quantum mechanics models to predict structures, energies, spectroscopy and positron lifetimes. Dr. Burggraf has more than 30 publications. Tel. 937-255-3636 x4507 (DSN 785-3636 x4507), email: Larry.Burggraf@afit.edu

CUSUMANO, SALVATORE J., Director, Center for Directed Energy, Assistant Professor of Optical Engineering, Department of Engineering Physics, AFIT Appointment Date: 2005 (AFIT/ENP); BS in EE, The United States Air Force Academy, 1971; MS in EE, Air Force Institute of Technology, 1977; PhD, Control Theory, University of Illinois, 1988. Dr. Cusumano's research interests span his 26 years of experience in directed energy and include resonator alignment and stabilization, Intra-Cavity Adaptive Optics, Phased Arrays, telescope control, pointing and tracking, adaptive optics and component technology for directed energy. He holds two patents (jointly) for his work in Phased Arrays. Dr. Cusumano is a member of the Directed Energy Professional Society. Tel. 937-255-3636 x7294 (DSN 785-3636 x7294), email: Salvatore.Cusumano@afit.edu

FIORINO, STEVEN T., Lt Col, Assistant Professor of Atmospheric Physics, and Deputy Department Head, Department of Engineering Physics, AFIT Appointment Date: 2003 (AFIT/ENP); BS, Geography (Climatology), The Ohio State University, 1987; BS, Meteorology, Florida State University, 1989; MS, Atmospheric Dynamics, The Ohio State University, 1993; PhD, Physical Meteorology, Florida State University, 2002. Lt Col Fiorino's research interests include retrieval of environmental parameters via microwave remote sensing, development of signal processing algorithms to fuse meteorological data collection with non-weather ISR platforms, evaluating uncertainty in high-energy laser engagement due to atmospheric effects, and improving microphysical characterizations for nuclear fallout, transport, and dispersion. He has published broadly in meteorological, directed energy and military journals. Lt Col Fiorino is a member of the American Meteorological Society, the American Institute of Aeronautics and Astronautics, the Directed Energy Professional Society and additionally holds a Master of Military Operational Art and Science from Air University (2003). Tel. 937-255-3636 x4506 (DSN 785-3636 x4506), email: Steven.Fiorino@afit.edu

GROSS, KEVIN C., Assistant Professor of Physics, Department of Engineering Physics, AFIT Appointment Date: 2008 (AFIT/ENP); BS, Wright State University, 1998; MS, Wright State University, 2001; PhD, Air Force Institute of Technology, 2007. Dr. Gross' research is currently focused on the remote sensing of chemically-evolving systems in the battlespace (detonation fireballs, muzzle flashes, rocket plumes, jet engine exhaust, etc.) using spectroscopic, radiometric, and high-speed imagery techniques. He is also interested in the development of novel methods to accurately decouple atmospheric attenuation from source emission in remote spectroscopic measurements of targets. He is currently advising a PhD and a MS student and has received 2 research grants during his first year on the AFIT faculty. Tel. 937-255-3636 x4558 (DSN 785-3636 x4558), email: Kevin.Gross@afit.edu

HAWKS, MICHAEL R., Lt Col, Assistant Professor of Physics, Department of Engineering Physics, AFIT Appointment Date: 2008 (AFIT/ENP); BS Astrophysics, Michigan State University, 1991; MS Engineering Physics, AFIT, 1993; PhD Optical Sciences, AFIT, 2005. Lt Col Hawks' main research interests include electro-optic and infrared (EO/IR) remote sensing. Specific application areas include monocular passive ranging and hyperspectral and polarimetric imaging. He previously taught at the US Air Force Academy and has conducted research in chemical lasers, space object identification, chem/bio agent detection, infrared countermeasures, nuclear detonation detection, and other remote sensing applications at the Air Force Research Laboratory and other assignments. He has published 13 technical papers, reports and presentations. He is a Fellow of the Society of Optical Countermeasures Engineers, Managers and Scientists and a member of the Directed Energy Professional Society. Tel. 937-255-3636 x4828 (DSN 785-3636 x4828), email: Michael.Hawks@afit.edu

HENGHOLD, ROBERT L., Professor of Physics and Head, Department of Engineering Physics, AFIT Appointment Date: 1961 (AFIT/ENP); BA, Thomas More College, 1956; MS, University of Cincinnati, 1961; PhD, University of Cincinnati, 1965. Professor Hengehold's research areas center around experimental solid state physics, semiconductor physics, optical diagnostics and electron and laser spectroscopy. He is the author of over 100 archival publications and over 215 presentations at technical meetings. He has served as advisor on over 17 doctoral dissertations and 80 Master's theses. He is currently carrying out studies of (1) compound semiconductor materials and superlattice structures for mid-infrared diode lasers and detectors using hot electron spectroscopy, and (2) wide bandgap semiconductors for UV detectors using cathodo- and photo-luminescence. This work involves collaborative efforts with the Directed Energy and the Sensors Directorates of AFRL and the MIT Lincoln Laboratory. He has received the Air University Commander's Award for Faculty Achievement in 1982, the Gage H. Crocker Outstanding Professor Award in 1996, the Outstanding Professional Achievement Award from the Affiliate Society Council of the Engineering and Science Foundation of Dayton in 1997, and the General Bernard A. Schriever Award for 1999. Tel. 937-255-2012 (DSN 785-2012), email: Robert.Hengehold@afit.edu

HOLTGRAVE, JEREMY C., Lt Col, Assistant Professor of Physics and Deputy Head, Department of Engineering Physics, AFIT Appointment Date: 2007 (AFIT/ENP); BS Physics, University of Illinois, 1990; MS Engineering Physics, Air Force Institute of Technology, 1992; PhD Engineering Physics, Air Force Institute of Technology, 2003. Lt Col Holtgrave's main research interests include experimental atomic and molecular physics with applications to the area of directed energy weapons and measurement and signatures intelligence. Tel. 937-255-3636 x4649 (DSN 785-3636 x4649), email: Jeremy.Holtgrave@afit.edu

JOHN, GEORGE, Professor Emeritus of Nuclear Engineering, Department of Engineering Physics, (AFIT/ENP); BSc, Ohio State University, 1948; PhD, Ohio State University, 1952. Professor John's research areas are applications of nuclear radiation and radionuclides to problems in science and engineering. This includes applications of Mössbauer spectrometry to problems in materials sciences, analysis of radionuclides in the environment, development of nuclear radiation detectors and general techniques for detecting and analyzing nuclear radiation. Current research emphases are on applications of Mössbauer Spectrometry in the development of lubricants in collaboration with the Air Force Research Laboratory Materials Directorate at WPAFB. Other areas of interest are: the natural radiation background and health physics.

KOWASH, BENJAMIN R., Capt, Assistant Professor of Nuclear Engineering, Department of Engineering Physics, AFIT Appointment Date: 2008 (AFIT/ENP); BS, Nuclear Engineering, Oregon State University, 2000; BS, Mechanical Engineering, Oregon State University, 2000; MS, Nuclear Engineering, Air Force Institute of Technology, 2002; PhD, Nuclear Engineering, University of Michigan, 2008. Captain Kowash's research interests include the fields of radiation detection and measurements (emphasis on imaging) and nuclear reactor design and analysis. His current research considers autonomous radiation imaging systems for the stand-off detection (10-100 meters) of lost or hidden radioactive sources over wide fields of view. His other interests include adaptive imaging systems and models, radiation shielding, radiation interactions with matter, and the nuclear fuel cycle. He is a member of the American Nuclear Society and IEEE. Tel. 937-255-3636 x4571 (DSN 785-3636 x4571), email: Benjamin.Kowash@afit.edu

MAGNUS, AMY L., Maj, Assistant Professor of Physics, Department of Engineering Physics, AFIT Appointment Date: 2007 (AFIT/ENP); BSEE, Rochester Institute of Technology, 1990; MSEE, Air Force Institute of Technology, 1995; PhD, Air Force Institute of Technology, 2003. Maj Magnus's has conducted and managed research in near and remote sensing, pattern recognition, machine intelligence, network science, and distributed intelligence. Her research interests are comprehensive summaries of data collections and ubiquitous computing (i.e., sensing concepts and signal processing for local networks) including signal-to-symbol pattern recognition and query-based knowledge assessments of sensor management systems. Maj Magnus has published 11 articles and is writing a book on artificial intelligence and sensing networks. Tel. 937-255-3636 x4555 (DSN 785-3636 x4555), email: Amy.Magnus@afit.edu

MARCINIAK, MICHAEL A., Associate Professor of Physics, Department of Engineering Physics. AFIT Appointment Date: 1999 (AFIT/ENP); BS, St. Joseph's College, 1981; BSEE, University of Missouri, 1983; MSEE, Air Force Institute of Technology, 1987; PhD, Air Force Institute of Technology, 1995. Professor Marciniak's research interests include optical and infrared signatures, and opto-electronic material and device physics. He has published 12 refereed and 25 other publications, and has chaired two PhD and 33 MS thesis committees. He is a retired Lt Col, USAF, with 22 years of service. Tel. 937-255-3636 x4529 (DSN 785-3636 x4529), email: Michael.Marciniak@afit.edu

MATHEWS, KIRK A., Professor of Nuclear Engineering, Department of Engineering Physics, AFIT Appointment Date: 1987 (AFIT/ENP); BS, California Institute of Technology, 1971; MS, Air Force Institute of Technology, 1982; PhD, Air Force Institute of Technology, 1983. Dr. Mathews' research interests center on computational methods for neutral particle radiation transport and modeling and analysis of nuclear phenomena and measurements, including: enrichment cascade modeling, high altitude radiation transport, blast and shock, nuclear thermal radiation, deconvolution of radiation spectra, and statistical analysis of nuclear measurements. Dr. Mathews has published 19 papers in refereed journals and 16 conference proceedings, and has chaired 31 theses and 13 dissertations. He is a member of the American Nuclear Society and Tau Beta Pi. Tel. 937-255-3636 x4508 (DSN 785-3636 x4508), email: Kirk.Mathews@afit.edu

MCCLORY, JOHN W., LTC, Assistant Professor of Nuclear Engineering, Department of Engineering Physics, AFIT Appointment Date: 2008 (AFIT/ENP); BS, Physics, Rensselaer Polytechnic Institute, 1984; MS, Physics, Texas A&M University, 1993; PhD, Nuclear Engineering, Air Force Institute of Technology, 2008. Lieutenant Col McClory's expertise is in radiation effects on electronic devices, semiconductor device characterization, radiation detector development, and nuclear weapon effects. LTC McClory's research includes using combinations of electrical, optical and absorption spectroscopy to gain information on the damaging effects of ionizing and non-ionizing radiation on narrow and wide band gap materials. It also includes the interaction of radiation with matter, particularly focused on the characterization and improvement of nuclear radiation detectors. He is currently the advisor of one Master's and one PhD student. LTC McClory is a liaison officer from the Defense Threat Reduction Agency and the Senior US Army representative at AFIT. Tel. 937-255-3636 x7308 (DSN 785-3636 x7308), email: John.McClory@afit.edu

McCRAE, JACK E., Jr., Col, Assistant Professor of Physics, Department of Engineering Physics, AFIT Appointment Date: 2006 (AFIT/ENP) and Senior Military Professor, Graduate School of Engineering and Management (AFIT/EN); BS, Massachusetts Institute of Technology, 1984; MS, Air Force Institute of Technology, 1993; PhD, Force Institute of Technology, 1997. Col McCrae's research interests include laser radars, laser devices, non-linear optics, and solid-state and semiconductor physics. Col McCrae has conducted and managed research in semiconductor, solid-state, fiber, and gas laser systems, laser applications, laser infrared countermeasures, non-linear optics, and laser radar systems at the Air Force Research Laboratory, the Defense Advanced Research Projects Agency, and other assignments.

NIDAY, THOMAS A., Maj, Assistant Professor of Physics, Department of Engineering Physics, AFIT Appointment Date: 2004 (AFIT/ENP); BS, Physics and Applied Mathematics, with honors, California Institute of Technology, 1997; MS, Applied Physics, distinguished graduate, Air Force Institute of Technology, 1999; MS, Optical Science, University of Arizona, 2002; PhD, Optical Science, University of Arizona, 2004. Capt Niday's research interests include modeling and simulation of the atmospheric propagation of ultrashort, high power laser pulses. Such pulses, or light filaments, have potential applications in remote sensing, adaptive optics, and electromagnetic discharge control. Other areas of interest include the exploitation of data from novel hyperspectral imaging sensors.

PERRAM, GLEN P., Professor of Physics, Department of Engineering Physics, AFIT Appointment Date: 1989 (AFIT/ENP); BS, Cornell University, 1980; MS, Air Force Institute of Technology, 1981; PhD, Air Force Institute of Technology, 1986. Dr. Perram's research interests include high power chemical lasers, including the Chemical Oxygen-Iodine Laser and the Airborne Laser, infrared gas-phase lasers for counter-measure missions, reaction kinetics, atomic and molecular spectroscopy, environmental science, photochemistry, molecular dynamics, optical diagnostics, and remote sensing. He has advised 16 PhD and 28 MS students, received 22 research grants and published over 60 papers during his fifteen years on the AFIT faculty. Tel. 937-255-3636 x4504 (DSN 785-3636 x4504), email: Glen.Perram@afit.edu

PETROSKY, JAMES C., Assistant Professor of Nuclear Engineering, Department of Engineering Physics, AFIT Appointment Date: 2000 (AFIT/ENP); BA, (Engineering Physics/Computer Science) Millersville University of Pennsylvania, 1984; MS (Engineering Physics) Rensselaer Polytechnic Institute, 1992; PhD, (Engineering Physics) Rensselaer Polytechnic Institute, 1995. Dr. Petrosky has expertise in radiation effects on electronic devices, EMP, experimental design, radiation detection, and nuclear weapon effects. Dr. Petrosky's research spans narrow and wide band gap materials, using combinations of electrical, optical and absorption spectroscopy to gain information on the damaging effects of ionizing and non-ionizing radiation. Experimental techniques include: I-V(T), C-V(T), photoluminescence spectroscopy, Hall Effect, and Electron Paramagnetic Resonance spectroscopy (EPR); applications of measurement techniques in harsh environments/in-situ measurements and obtaining real-time data. Applications include electronic switches and actuators, RF/IR sensors, force transducers, and electronics controls for use in the space and nuclear weapons environment. Tel. 937-255-3636 x4562 (DSN 785-3636 x4562), email: James.Petrosky@afit.edu

RANDALL ROBB, M. Maj, Assistant Professor of Atmospheric Physics, Department of Engineering Physics, AFIT Appointment Date: 2007 (AFIT/ENP); BS, Meteorology, The University of Oklahoma, 1995; MS, Meteorology, Air Force Institute of Technology, 2002; PhD, Atmospheric Sciences, The University of Arizona, 2007. Maj Randall's research interests include understanding and characterizing the atmosphere and atmospheric effects of remote sensing retrievals, evaluating uncertainty in high-energy laser engagement due to atmospheric effects and understanding how climate change affects weapon systems and high altitude sensing platforms. Maj Randall is a member of the American Meteorological Society, American Geophysical Union and The Institute of Electrical and Electronics Engineers. Tel. 937-255-3636 x7423 (DSN 785-3636 x7423), email: Robb.Randall@afit.edu

RIES, HEIDI R., Associate Professor of Physics, Department of Engineering Physics AFIT Appointment Date: 1999 (AFIT/ENP) and Dean for Research, Graduate School of Engineering and Management (AFIT/ENR) BS, Physics, The Ohio State University, 1982; MS, Physics, The Ohio State University, 1984; PhD, Applied Physics, Old Dominion University, 1987. Dr. Ries' research interests include nonlinear optical materials, electron paramagnetic resonance spectroscopy, and laser processing of materials. Prior to joining the AFIT faculty, Dr Ries served as Director of the Center for Materials Research at Norfolk State University in Norfolk, VA and as Associate Director of the Applied Research Center at the Jefferson Center for Research and Technology Research Park, Newport News, VA. Tel. 937-255-3636, x4544 (DSN 785-3636, x4544), email: Heidi.Ries@afit.edu

RUSSELL, TIMOTHY H., Maj, Assistant Professor of Physics, Department of Engineering Physics, AFIT Appointment Date: 2005 (AFIT/ENP); BA, United States Air Force Academy, 1995; MS, University of Arizona, 1996; PhD, Air Force Institute of Technology, 2001. Maj Russell's research interests include nonlinear optics and fiber laser devices. Specific areas include coherent phasing of fiber amplifiers, phase conjugation, and stimulated Brillouin scattering. He has previously conducted and managed research into munition guidance using laser radar and high-power, solid-state laser systems. Maj Russell is a member of the Optical Society of America and Tau Beta Pi.

SMITHTRO, CHRISTOPHER G., Lt Col, Assistant Professor of Atmospheric Physics, Department of Engineering Physics, AFIT Appointment Date: 2004 (AFIT/ENP); B.S., Harvey Mudd College, 1991; M.S., Air Force Institute of Technology, 1999; Ph.D., Utah State University, 2004. Lt Col Smithtro's research interests include modeling of the ionosphere and thermosphere, and the transition of basic science results into operational space weather models. He has worked as a space weather forecaster and liaison officer to the NOAA Space Weather Prediction Center as well as a weather station commander. He is a member of the American Geophysical Union.

TUTTLE, RONALD F., Associate Professor of Nuclear Engineering and Director, Center for Measurement and Signature Intelligence (MASINT) Technologies, Department of Engineering Physics, AFIT Appointment Date: 2001 (AFIT/ENP); BS, Chemical Engineering, University of Missouri (Columbia), 1968; MS, Nuclear Engineering, University of Missouri (Columbia), 1970; PhD, Nuclear Engineering, University of Missouri (Columbia), 1980. Dr. Tuttle's research areas are applications of active and passive remote sensing, spectroscopy, diagnostics, and signals processing to problems in intelligence collection and exploitation. Other areas of interest are nuclear weapon effects and space nuclear power systems modeling and mechanics of aerosols. He has published in both unclassified and classified refereed archival journals and conference proceedings. Tel. 937-255-3636 x4536 (DSN 785-3636 x4536), email: Ronald.Tuttle@afit.edu

WEEKS, DAVID E., Professor of Physics, Department of Engineering Physics AFIT Appointment Date: 1993 (AFIT/ENP); BA Physics with honors, Colgate University, 1983; MS, Physics, Georgia Institute of Technology, 1985; PhD, Physics, University of Arkansas, 1989. Dr. Weeks' research interests include the development of time dependent wave packet methods to model the quantum mechanics of simple chemical reactions and to compute associated state to state reactive scattering matrix elements. A second area of interest centers on the application of k.p theory together with the envelope function approximation to model the electronic and optical properties of quantum well heterostructures. Tel. 937-255-3636 x4561 (DSN 785-3636 x4561), email: David.Weeks@afit.edu

WOLF, PAUL J., Professor of Physics, Department of Engineering Physics, AFIT Appointment Date: 1994 (AFIT/ENP); and Associate Dean for Academic Affairs, Graduate School of Engineering and Management, (AFIT/EN); BS, Regis College, 1978; MS, Air Force Institute of Technology, 1979; PhD, Air Force Institute of Technology, 1985. Dr. Wolf's research interests are concentrated in experimental atomic/molecular spectroscopy, reactive and non-reactive collision kinetics, thin film deposition processes by laser with applications toward laser devices, ionospheric and atmospheric chemistry, environmental monitoring, and thin film devices. He has published over 20 papers and advised two PhD and five MS students. Tel. 937-255-3636 x4560 (DSN 785-3636 x4560), email: Paul.Wolf@afit.edu

YEO, YUNG KEE, Professor of Physics, Dept of Engineering Physics, AFIT Appointment Date: 1984 (AFIT/ENP); BS, Seoul National University, 1961; PhD, University of Southern California, 1972. Professor Yeo's research interests are in the area of solid state physics, especially characterization of the electrical, magnetic, and optical properties of elemental, compound, ternary, and quaternary semiconductors using techniques such as Hall-effect measurement, deep level transient spectroscopy, superconducting quantum interference device, magnetic circular dichroism, cathodoluminescence, and photoluminescence. Professor Yeo has published more than 100 articles in archival journals, several technical reports, presented more than 190 papers at professional conferences, and holds one patent. He is a reviewer for the Applied Physics Letters, the Journal of Applied Physics, and Journal of Electronic Materials. He is currently funded by the AFOSR to study narrow band gap semiconductors such as InGaAs and InAsP. This work involves collaborative effort with the Air Force Research Laboratory. He has directed the research of six postdoc fellows, sixteen PhD students, and twenty two MS students. He received the Ezra Kotcher Award for 1990, received the Gage H. Crocker Outstanding Professor Award for 1992, and received General Bernard A. Schriever Award for 1997. Tel. 937-255-3636 x4532 (DSN 785-3636 x4532), email: Yung.Yeo@afit.edu

DEPARTMENT OF MATHEMATICS AND STATISTICS

Access Phone: 937-255-3098, DSN 785-3098

Fax: 937-656-4413, DSN 986-4413

Homepage: <http://www.afit.edu/en/enc/>

ABRAMSON, MARK A., Lt Col, Associate Professor of Mathematics, Department of Mathematics and Statistics, AFIT Appointment Date: 2002 (AFIT/ENC); BS, Brigham Young University, 1987; MS (2), Air Force Institute of Technology, 1994; MA, Rice University, 2001; PhD, Rice University, 2002. Lt Col Abramson's research interests include optimization and numerical analysis, particularly as applied to engineering design problems. His recent research has focused primarily on direct search algorithms for solving nonlinear and mixed variable programming problems. Lt Col Abramson's previous military assignments have been in test and evaluation, logistics policy analysis, and computer simulation and analysis of war plans.

BAKER, WILLIAM P., Associate Professor of Mathematics, Department of Mathematics and Statistics, AFIT Appointment Date: 1994 (AFIT/ENC); BA, University of California at Irvine, 1969; MA, University of California at Irvine, 1970; PhD, Northwestern University, 1987. Dr. Baker's research interests include asymptotic and perturbation methods, wave propagation and scattering theory, applied mathematics, functional analysis, low observables, and numerical analysis. Dr. Baker's current research is in acoustical and electromagnetic scattering, and vibrational dynamics of composite sandwich material. His recent papers are on fractional derivative models of viscoelastic materials. Dr. Baker is a Master Navigator with prior military assignments in flight test, satellite communications, cruise missile and radar analysis. Tel. 937-255-3636 x4517 (DSN 785-3636 x4517), email: William.Baker@afit.edu

BARR, DAVID R., Associate Professor Emeritus of Statistics, Department of Mathematics and Statistics, (AFIT/ENC); BA, Miami University, 1954; MA, Miami University, 1954; MS, Miami University, 1957; PhD, State University of Iowa, 1964. Dr. Barr's research interests include probability, statistics and stochastic processes, as well as the design of experiments.

BULUTOGLU, DURSUN A., Assistant Professor of Statistics, Department of Mathematics and Statistics, AFIT Appointment Date: 2004, (AFIT/ENC); BS, University of Maryland at College Park, 1996; PhD, University of California, Berkeley, 2001. Dr. Bulutoglu's research interests include design of experiments and combinatorial problems in statistics. His papers are on finding GMA (generalized minimum aberration) factorial designs by enumerating all non-isomorphic orthogonal arrays. The tools he uses for enumerating orthogonal arrays are integer programming and isomorphism rejection. Tel. 937-255-3636 x4704 (DSN 785-3636 x4704), email: Dursun.Bulutoglu@afit.edu

BUSH, BRETT A., Maj, Assistant Professor of Statistics, Department of Mathematics and Statistics, AFIT Appointment Date: 2006, (AFIT/ENC); BS, United States Air Force Academy, 1997; MBA, Louisiana Tech University, 1999; MS, Northeastern University, 2002; PhD, North Carolina State University, 2006. Maj Bush's research interests include nonlinear optimization and applied statistics. His previous military assignments have been in nuclear weapons test and evaluation; and modeling, simulation, and analysis of C4ISR systems. Tel. 937-255-3636 x7125, email: Brett.Bush@afit.edu

CAPEHART, SHAY R., Maj, Assistant Professor of Statistics, Department of Mathematics and Statistics, AFIT Appointment Date: 2008, (AFIT/ENC); BS, US Air Force Academy, 1996; MS, Air Force Institute of Technology, 2000; PhD, Arizona State University, 2008. Maj Capehart's primary research interests include design of experiments, optimization, and integer programming. He has served as an Air Force analytical scientist for 12 years including long-range strategic fiscal planning, operational test and evaluation, and early research and development in high capacity storage materials. Tel. 937-255-3636 x4516, email: Shay.Capehart@afit.edu

DEA, JOHN R., Maj, Assistant Professor of Mathematics, Department of Mathematics and Statistics, AFIT Appointment Date: 2008 (AFIT/ENC); BS, Baylor University, 1993; MS, Creighton University, 1998; PhD, Naval Postgraduate School, 2008. Maj Dea's research interests include numerical analysis of fluid flow and wave propagation, including recent papers on non-reflecting boundary conditions for modeling wave propagation in a truncated portion of a large or infinite domain. Maj Dea's previous military assignments include software development for strategic war-planning systems, flight test support and coordination, and architecture and systems engineering for long-term space superiority mission area planning. Tel. 937-255-3636 x4584, email: John.Dea@afit.edu

DILLARD, KAREN E. M., Maj, Assistant Professor of Mathematics, Department of Mathematics and Statistics, AFIT Appointment Date: 2007, (AFIT/ENC); BS, Rensselaer Polytechnic Institute, 1994; MS, University of Massachusetts - Lowell, 1997; PhD, North Carolina State University, 2007. Maj Dillard's research interests include numerical analysis and optimization. She was previously assigned as a personnel officer, instructor at USAFA, and scientific analyst involved with analysis of alternatives. Tel. 937-255-3636 x4522, email: Karen.Dillard@afit.edu

DUCKRO, DONALD E., Lt Col, Assistant Professor of Statistics, Department of Mathematics and Statistics, AFIT Appointment Date: 2004 (AFIT/ENC); BChE, University of Dayton, 1984; BS, Louisiana Tech University, 1986; MS, University of Dayton, 1990; PhD, Air Force Institute of Technology, 1999. Lt Col Duckro's research interests include decision theory, particularly as applied to planning and programming; and statistical evaluation of neural networks. His recent research has focused primarily on capacity analysis for Base Realignment and Closure. Lt Col Duckro's previous military assignments involve satellite development, aircraft acquisition, a joint cross-service group for BRAC, and faculty positions at USAFA and NPS.

FICKUS, MATTHEW C., Assistant Professor of Mathematics, Department of Mathematics and Statistics, AFIT Appointment Date: 2004, (AFIT/ENC); BS, University of Maryland, Baltimore County, 1995; MS, University of Maryland, Baltimore County, 1997; PhD, University of Maryland, College Park, 2001. Dr. Fickus' research interests include pure and applied harmonic analysis, Fourier series, wavelets and frames. Tel. 937-255-3636 x4513 (DSN 785-3636 x4513), email: Matthew.Fickus@afit.edu

KAZISKA, DAVID M., Maj, Assistant Professor of Statistics, Department of Mathematics and Statistics, AFIT Appointment Date: 2005 (AFIT/ENC); BS, Gannon University, 1987; MA, University of Pittsburgh, 1989; JD, University of Pittsburgh School of Law, 1994; PhD, Florida State University, 2005. Maj Kaziska's research interests are statistical shape analysis with application to gait recognition, and human detection in images beyond the visual spectrum. In his previous military assignments, he worked in ASC/XR at Wright-Patterson, conducting a concept call addressing future Air Force Special Operations technology needs. He was later assigned to the 422 Test and Evaluation Squadron at Nellis AFB, NV, where he worked as an analyst supporting A-10, F-15E and F-16 operational tests. Tel. 937-255-3636 x7124 (DSN 785-3636 x7124), email: David.Kaziska@afit.edu

LAIR, ALAN V., Professor of Mathematics and Head, Department of Mathematics and Statistics, AFIT Appointment Date: 1982, (AFIT/ENC); BA, North Texas State University, 1970; MS, Texas Tech University, 1972; PhD, Texas Tech University, 1976. Dr. Lair's research interests include parabolic and elliptic partial differential equations, functional analysis, applied mathematics, and nonlinear diffusion. Dr. Lair has published several papers on the properties of solutions of various nonlinear equations. Tel. 937-255-3636 x4519 (DSN 785-3636 x4519), email: Alan.Lair@afit.edu

NEHER, ROBERT E. JR., Lt Col, Assistant Professor of Statistics, Department of Mathematics and Statistics, AFIT Appointment Date: 2004 (AFIT/ENC); BS, Purdue University, 1989; MS, Air Force Institute of Technology, 1996; PhD, The Florida State University, 2004. Maj Neher's research interests include reliability and maintainability from a statistical view point, and image analysis, particularly hyperspectral imagery. Maj Neher's previous military assignments have been in missile operations, test and evaluation, and weapons analysis.

NOVAK, KYLE A., Maj, Assistant Professor of Mathematics and Deputy Department Head, Department of Mathematics and Statistics, AFIT Appointment Date: 2006. (AFIT/ENC); BS, University of Wisconsin-Madison, 1993; MA, University of Wisconsin-Madison, 1995; PhD, University of Wisconsin-Madison, 2006. Maj Novak's research interests include numerical methods for high frequency limits of quantum phenomena. Maj Novak's previous military assignments have been in research and development, signals intelligence, and operational testing. Tel. 937-255-3636 x4635, email: Kyle.Novak@afit.edu

OXLEY, MARK E., Professor of Mathematics, Department of Mathematics and Statistics, AFIT Appointment Date: 1987 (AFIT/ENC), and Researcher, Sensor Fusion Laboratory, Center for Operational Analysis (COA); BS, Cumberland College, 1978; MS, Purdue University, 1980; PhD, North Carolina State University, 1987. Dr. Oxley's research interests include partial differential equations, free and moving boundary value problems, finite time extinction problems, functional analysis, optimization, artificial neural networks, groundwater modeling, wavelet analysis, classifier fusion, sensor fusion and evaluation of fusion techniques, receiver operating characteristic (ROC) curves and manifolds. Dr. Oxley's recent research is funded by AFOSR, AFRL/RB, and NASIC to work on information fusion of ATR systems. Several of his students have written theses and dissertations on optimal remediation of pump-and-treat systems, binaural listening, measuring the capability of artificial neural networks and most recently the fusion of multiple classification systems, the theory of data fusion using category theory, and the performance of the fusion of systems. Tel. 937-255-3636 x4515 (DSN 785-3636 x4515), email: Mark.Oxley@afit.edu

QUINN, DENNIS W., Professor Emeritus of Mathematics, Department of Mathematics and Statistics, AFIT Appointment Date: 1974, (AFIT/ENC); BA, Mathematics, University of Delaware, 1969; MS, Applied Mathematics, University of Delaware, 1971; PhD, Applied Mathematics, University of Delaware, 1973. Dr. Quinn's fields of expertise include numerical methods, finite elements, finite differences, integral equation methods, numerical analysis, functional analysis, system identification, and applied mathematics. Dr. Quinn has advised several MS students in modeling toxic chemical exposure. Dr. Quinn has published papers dealing with integral and finite element solutions of acoustic problems, using the telegrapher's equation to model lightning, using the method of characteristics in cancer risk assessment, using the diffusion equation to model diffusion through the skin in pharmacokinetic modeling, and using the boundary element method for moving boundary problems. Tel. 937-255-3636 x4522 (DSN 785-3636 x4522), email: Dennis.Quinn@afit.edu

REYNOLDS, DANIEL E., Assistant Professor Emeritus of Statistics, Department of Mathematics and Statistics, AFIT Appointment Date: 1974, (AFIT/ENC); AB, University of Rochester, 1965; MS, Air Force Institute of Technology, 1971; MS, Wright State University, 1983. Professor Reynolds' research interests include management cybernetics, learning theory, and exploring ways computer graphics can support statistical and mathematical education. In 1989, Professor Reynolds received Tau Beta Phi's Outstanding Professor Award.

THORSEN, STEVEN N., Lt Col, Assistant Professor of Mathematics, Department of Mathematics and Statistics, AFIT Appointment Date: 2005, (AFIT/ENC); BA, Florida Atlantic University, 1991; MA, East Carolina University, 1997; PhD, AFIT, 2005. Lt Col Thorsen's research interests include receiver operating curves, vector space and variational calculus optimization methods, category theory, information fusion, and measure theory. Lt Col Thorsen's previous military assignments involve operations planning, test and acquisition, and faculty at USAFA.

WHITE, EDWARD D., III, Associate Professor of Statistics, Department of Mathematics and Statistics, AFIT Appointment Date: 1998 (AFIT/ENC); BS, University of Tampa, 1990; MAS, Ohio State University, 1991; PhD, Texas A&M University, 1998. Dr. White's research interests include design of experiments, categorical data analysis, biostatistics, and model building. Tel. 937-255-3636 x4540 (DSN 785-3636 x4540), email: Edward.White@afit.edu

WOOD, AIHUA W., Professor of Mathematics, Department of Mathematics and Statistics, AFIT Appointment Date: 1994 (AFIT/ENC); BS, Beijing University, 1984; MS, University of Connecticut, 1988; PhD, University of Connecticut, 1990. Dr. Wood's research interests include elliptic partial differential equations, and electromagnetic wave propagation. Tel. 937-255-3636 x4272 (DSN 785-3636 x4272), email: Aihua.Wood@afit.edu

WRIGHT, SAMUEL A., Maj, Assistant Professor of Statistics, Department of Mathematics and Statistics, AFIT Appointment Date: 2004 (AFIT/ENC); BS, United States Air Force Academy, 1989; MS, Air Force Institute of Technology, 1995; PhD, Air Force Institute of Technology, 2001. Maj Wright's research interests include statistics, gait recognition, model validation, and pattern recognition. Tel. 937-255-3636 x4549 (DSN 785-3636 x4549), email: Samuel.Wright@afit.edu

DEPARTMENT OF OPERATIONAL SCIENCES

Access Phone: 937-255-2549, DSN 785-2549

Fax: 937-656-4943 DSN 986-4943

Homepage: <http://www.afit.edu/en/ens/>

ANDERSON, BRADLEY E., Lt Col, Assistant Professor of Logistics Management, Department of Operational Sciences, AFIT Appointment Date: 2002 (AFIT/ENS); Center for Operational Analysis (COA), BS, Meteorology, University of Wisconsin - Madison, 1990; MS, Logistics Management, Air Force Institute of Technology, 1996; MB, Business, Indiana University – Bloomington, 2002; PhD, Business, Indiana University - Bloomington, 2002. Maj Anderson's research interests include repairable inventory management, mixed integer programming, network models, supply chain management, and evolutionary algorithms. Tel. 937-255-3636 x4646 (DSN 785-3636 x4646), email: Bradley.Anderson@afit.edu

BAUER, KENNETH W., Jr., Professor of Operations Research, Dept of Operational Sciences, AFIT Appointment Date: 1996 (AFIT/ENS); Center for Operational Analysis (COA), BS, Miami University (Ohio), 1976; MEA, University of Utah, 1980; MS, Air Force Institute of Technology, 1981; PhD, Purdue University, 1987. Dr. Bauer's research interests include the statistical aspects of simulation, design of experiments, neural networks, and multivariate statistics. Tel. 937-255-6565 x4367 (DSN 785-6565 x4367), email: Kenneth.Bauer@afit.edu

BREWER, BARRY L., Maj, Assistant Professor of Logistics Management, Department of Operational Sciences, Appointment Date: 2005 (AFIT/ENS); BS, United States Air Force Academy, 1991; MS, Air Force Institute of Technology, 1995; PhD, Arizona State University, 2005. Maj Brewer's research interests include supply chain management, outsourcing, acquisition logistics, procurement, new product design, logistics and supply chain integration.

CHAMBAL, STEPHEN P., Lt Col, Associate Professor of Operations Research, Department of Operational Sciences, AFIT Appointment Date: 1999 (AFIT/ENS); Director, Center for Operational Analysis (COA), BS, United States Air Force Academy, 1993; MS, Arizona State University, 1995; PhD Arizona State University, 1999. Lt Col Chambal's research interests include discrete event simulation, decision analysis, and reliability, maintainability and availability analysis. Tel. 937-255-6565 x4538 (DSN 785-6565 x4538), email: Stephen.Chambal@afit.edu

CHRISSIS, JAMES W., Associate Professor of Operations Research, Department of Operational Sciences, AFIT Appointment Date: 1987 (AFIT/ENS); BS, University of Pittsburgh, 1975; MS, Virginia Polytechnic Institute and State University, 1977; PhD, Virginia Polytechnic Institute and State University, 1980. Dr. Chrissis' research interests include engineering optimization, mathematical programming, simulation, stochastic systems, and industrial engineering. Dr. Chrissis has been a member of the faculties of Virginia Tech and the University of South Florida. He is a member of the Institute for Operations Research and Management Sciences (INFORMS), The Society for Industrial and Applied Mathematics (SIAM), the Military Operations Research Society (MORS), The American Institute for Aeronautics and Astronautics (AIAA), and Sigma Xi. Tel. 937-255-3636 x4606 (DSN 785-3636 x4606), email: James.Chrissis@afit.edu

COCHRAN, JEFFERY K., Professor of Operations Research and Head, Department of Operational Sciences, AFIT Appointment Date: 2007 (AFIT/ENS); BSE, Purdue University, 1973; MSNE, Purdue University, 1976; MSIE, Purdue University, 1982; PhD, Purdue University, 1984. Dr. Cochran's research interests include applied probability, queuing and queuing networks, and heuristic optimization of stochastic models particularly in high technology entity flow systems. Tel. 937-255-3636 x4521 (DSN 785-3636 x4521), email: Jeffery.Cochran@afit.edu

COOPER, MARTHA C., IPA, Visiting Professor of Logistics Management, Department of Operational Sciences, AFIT Appointment Date: 2006 (AFIT/ENS); BS, Math/Computer Science, Purdue University, 1968; MS Industrial Administration, Purdue University, 1968; Ph.D., Business (Marketing, Logistics), The Ohio State University, 1982. Professor Cooper's research interests include supply chain management, partnership and other inter-firm relationships, the role of customer service in corporate strategy, international logistics, and career patterns of women in logistics. She has co authored three books, Customer Service: A Management Perspective, Partnerships in Providing Customer Service: A Third Party Perspective, and Strategic Planning for Logistics. Professor Cooper has over one hundred publications, including two best paper awards. Tel. 937-255-3636 x4708 (DSN 785-3636 x4708), email: Martha.Cooper@afit.edu

CUNNINGHAM, WILLIAM A., III, Professor of Logistics Management, Department of Operational Sciences, AFIT Appointment Date: 1994 (AFIT/ENS); BS, Business Administration, Missouri Southern State College, 1976; MS, Economics, Oklahoma State University, 1979; PhD, Economics, University of Arkansas, 1986. Dr. Cunningham's research interests include transportation, strategic mobility, activity-based costing, lean, six sigma, theory of constraints, logistics management, public policy analysis, privatization, third-party logistics, international logistics, and international trade. Tel. (937) 255-6565 x4283 (DSN 785-6565 x4283), email: William.Cunningham@afit.edu

DECKRO, RICHARD F., Professor of Operations Research, Department of Operational Sciences, AFIT Appointment Date: 1994 (AFIT/ENS); BSIE, State University of New York at Buffalo, 1972; MBA, Kent State University, 1973; DBA, Kent State University, 1976. Dr. Deckro's research and consulting interests are in the areas of information operations and information assurance, applied mathematical programming and optimization, campaign modeling, stabilization and reconstruction, scheduling, network models, project and program management, engineering management, technology selection and management, multi-criteria decision making, decision analysis, measures of effectiveness and assessment, behavioral modeling including social networks, modeling fourth generation operations, counter insurgency and irregular warfare, modeling and analysis and space applications. He is the Editor of *Military Operations Research* and Area Editor for Service Systems for *Computers & Industrial Engineering*. Tel. 937-255-6565 x4325 (DSN 785-6565 x4325), <http://en.afit.edu/ens/deckro/>, email: Richard.Deckro@afit.edu

DONOVAN, PAMELA, Lt Col, Assistant Professor of Logistics Management, Department of Operational Sciences, AFIT Appointment Date: 2006 (AFIT/ENS); BS, Kent State University, 1986; MS, Air Force Institute of Technology, 1996; PhD, University of Maryland, 2006. Lt Col Donovan's research interests include inventory modeling, distribution processes, supply chain integration, and transportation. Tel. 937-255-3636 x4510 (DSN 785-3636 x4510), email: Pamela.Donovan@afit.edu

GRIFFIS, STANLEY E., Lt Col, Assistant Professor of Logistics Management, Department of Operational Sciences, AFIT Appointment Date: 2007 (AFIT/ENS); BA, History, Assumption College, 1988; MS, Logistics Management, Air Force Institute of Technology, 1996; PhD, Business Administration, The Ohio State University, 2001. Lt Col Griffis' research interests include logistics performance measurement, lean agile and leagile supply chain strategies, and social networks in supply chain management.

HALL, SHANE N., Maj, Assistant Professor of Operations Research, Department of Operational Sciences, AFIT Appointment Date: 2006 (AFIT/ENS); BS, Mathematics, Brigham Young University, 1997; MS, Operations Research, Air Force Institute of Technology, 2000; PhD, Industrial Engineering, University of Illinois at Urbana-Champaign, 2006. Maj Hall's research interests include linear and integer optimization, dynamic programming approximation algorithms and heuristics with applications to military and health care problems. Tel. 937-255-3636 x4264 (DSN 785-3636 x4624), email: Shane.Hall@afit.edu

HILL, RAYMOND R., Jr., Professor of Operations Research, Department of Operational Sciences, AFIT Appointment Date: 2008 (AFIT/ENS); BS, Mathematics, Eastern Connecticut State University, 1983; MS, Operations Research, Air Force Institute of Technology, 1988; PhD, Industrial and Systems Engineering, The Ohio State University, 1996. Dr. Hill's research interests include applied statistics, experimental design, design and analysis of heuristics, applied optimization modeling and applied simulation modeling to include use of agent-based modeling methods. Tel. 937-255-6565 x7469 (DSN 785-6565 x7469), email: Raymond.Hill@afit.edu

JOHNSON, ALAN W., Associate Professor of Logistics Management, Department of Operational Sciences, AFIT Appointment Date: 2004 (AFIT/ENS); Center for Operational Analysis (COA), BS, Mechanical Engineering, Montana State University, 1982; MS, Systems Management, Air Force Institute of Technology, 1989; PhD, Industrial and Systems Engineering, Virginia Polytechnic Institute and State University, 1996. Dr. Johnson's research interests include all aspects of military logistics, strategic airlift, space logistics, mobility, discrete-event simulation, logistics management, reliability and maintainability, and discrete optimization and heuristics. Tel. 937-255-3636 x4703 (DSN 785-3636 x4703), email: Alan.Johnson@afit.edu

KEBIR, YUCEF, Associate Professor of Operations Research, Department of Operational Sciences, AFIT Appointment Date: 2008 (AFIT/ENS); MS Operations Research, Stanford University, 1980; PhD, Operations Research, Northwestern University, 1985. Dr. Kebir's research interests include operations research, applied probability, applied stochastic processes, stochastic ordering, queuing systems, reliability theory, dynamic programming, Markov decision processes, and decision analysis. Tel. 937-255-3636 x4319, (DSN 785-3636x4319), email: Yucef.Kebir@afit.edu

KNIGHTON, SHANE A., Maj, USAF, Ph.D., Assistant Professor of Operations Research, Dept of Operational Sciences (AFIT/ENS); Center for Operational Analysis (COA), B.S. Aeronautical Engineering, US Air Force Academy, 1994; M.S. Operations Research, Air Force Institute of Technology, 1998; Ph.D. Operations Research, Arizona State University, 2005. Major Knighton teaches courses in quantitative decision making, decision analysis, and scheduling. His research interests include discrete optimization, network-flow models, heterogeneous scheduling, and design of experiments. Tel. 937-255-3636 x4575 (DSN785-3636 x4575), email: Shane.Knighton@afit.edu

MATTIODA, DANIEL D., Maj, Assistant Professor of Logistics Management, Department of Operational Sciences, AFIT Appointment Date: 2007 (AFIT/ENS); Center for Operational Analysis (COA), BS Professional Aeronautics, Embry Riddle Aeronautical University 1997; MS Logistics and Acquisition Logistics Management, Air Force Institute of Technology, 2002; PhD Business Administration; Concentration: Marketing/Supply Chain Management, The University of Oklahoma – Norman, 2007. Maj Mattioda's research interests include collaboration and flexibility in the supply chain; reverse logistics; international logistics; lean, agile, and leagile logistics; and using simulation to model supply chain processes. Tel. 937-255-3636 x7946 (DSN 785-3636 x7946), email: Daniel.Mattioda@afit.edu

MILLER, JOHN O., Associate Professor of Operations Research, Department of Operational Sciences, AFIT Appointment Date: 2002 (AFIT/ENS); Director, Center for Operational Analysis (COA), BS, United States Air Force Academy, 1980; MBA, University of Missouri at Columbia, 1983; MS, Air Force Institute of Technology, 1987; PhD, The Ohio State University, 1997. Dr. Miller's research interests include simulation, ranking and selection, combat modeling, and nonparametric statistics. Tel. 937-255-6565 x4326 (DSN 785-6565 x4326), email: John.Miller@afit.edu.

MOORE, JAMES T., Professor of Operations Research, Department of Operational Sciences, AFIT Appointment Date: 1998 (AFIT/ENS); Center for Operational Analysis (COA), BA, University of Colorado, 1974; MBA, University of Wyoming, 1978; MS, Air Force Institute of Technology, 1981; PhD, The University of Texas at Austin, 1988. Dr. Moore's research interests include optimization theory, integer programming, scheduling, heuristics, and mobility modeling. Tel. 937-255-3636 x4528 (DSN 785-3636 x4528), email: James.Moore@afit.edu

OGDEN, JEFFREY A., Assistant Professor of Logistics Management, AFIT Appointment Date: 2006 (AFIT/ENS); BS, Accounting. Weber State University, 1998; MBA with emphasis in Supply Chain Management, Arizona State University, 2000; PhD, Business Administration with emphasis in Supply Chain Management, Arizona State University, 2003. Dr. Ogden's research interests include strategic purchasing, supply base optimization, logistics management, quality management, e-marketplaces, RFID, and supply chain management. Tel. 937-255-3636 x4653 (DSN 785-3636 x4653), email: Jeffrey.Ogden@afit.edu

PATTERSON, KIRK A., Maj, Assistant Professor of Logistics Management, Department of Operational Sciences, AFIT Appointment Date: 2002 (AFIT/ENS); Center for Operational Analysis (COA), BS, Auburn University, 1985; MS, Auburn University, 1988; MS, Air Force Institute of Technology, 1997; PhD, University of Maryland, 2002. Maj Patterson's research interests include supply chain management, transportation, strategic mobility, and logistics information management systems.

PERRY, MARCUS B., Assistant Professor of Operations Research, Dept of Operational Sciences, AFIT Appointment Date: 2004 (AFIT/ENS); BS, Southern Illinois University, 1998; MS, Southern Illinois University, 2000; PhD, Florida State University, 2004. Dr. Perry's research interests include empirical modeling and analysis, experimental design, response surface methods, simulation, and quality control. He is a member of ASQ and a professional member of INFORMS and IIE.

PETTIT, TIMOTHY J., Lt Col, Assistant Professor of Logistics and Supply Chain Management, Department of Operational Sciences, AFIT. Appointment Date: 2008 (AFIT/ENS); BS, Aerospace Engineering, Iowa State University, 1991; MS, Logistics Management, Air Force Institute of Technology, 1996; PhD, Business Administration (Logistics), The Ohio State University, 2008. Lt Col Pettit's research interests are in supply chain resilience, risk management, supply chain management and process improvement. Tel. 937-255-3636 x4525 (DSN 785-3636 x4525), email: Timothy.Pettit@afit.edu

ROESENER, AUGUST G., Maj, Assistant Professor of Operations Research, Department of Operational Sciences, AFIT Appointment Date: 2006 (AFIT/ENS); BS, United States Air Force Academy, 1998; MS, The University of Florida, 2002; PhD, The University of Texas at Austin, 2006. Capt Roesener's research interests include linear and integer optimization, heuristics search algorithms, and experimental design. Tel. 937-255-3636 x4539 (DSN 785-3636 x4539), email: August.Roesener@afit.edu

SKIPPER, JOSEPH B., Maj, Assistant Professor of Logistics, Department of Operational Sciences, AFIT Appointment Date: 2008 (AFIT/ENS): BS, Troy State University, 1992; MS, Air Force Institute of Technology, 2002; PhD, Auburn University, 2008. Maj Skipper's research interests include supply chain management, supply chain disruptions, organizational flexibility and resilience, and disruption avoidance. Tel. 937-255-3636 x7948 (DSN 785-3636 x7948), email: Joseph.Skipper@afit.edu

WEIR, JEFFERY D., Assistant Professor of Operations Research, Interim Head Department of Operational Sciences, AFIT Appointment Date: 2002 (AFIT/ENS); Center for Operational Analysis (COA), Bachelors of Electrical Engineering, Georgia Institute of Technology, 1988; MAS, Embry Riddle Aeronautical University, 1992; MS, Air Force Institute of Technology, 1995; PhD, Georgia Institute of Technology, 2002. Lt Col Weir's research interests include large-scale optimization, mathematical programming and decision analysis. He is a member of the Institute for Operations Research and Management Science (INFORMS) and the Military Operations Research Society (MORS). Tel. 937-255-3636 x4538 (DSN 785-3636 x4538), email: Jeffery.Weir@afit.edu

ZALEWSKI, DANIEL J., Col, Senior Military Professor, Department of Operational Sciences, AFIT Appointment Date: 2005 (AFIT/ENS); Center for Operational Analysis (COA), BS, United States Air Force Academy, 1983; MS, George Mason University, 1989; PhD, Air Force Institute of Technology, 1995. Colonel Zalewski's research interests include military modeling and simulation, process control, artificial intelligence, and neural networks. Tel. 937-255-3636 x4621 (DSN 785-3636 x4621), email: Daniel.Zalewski@afit.edu

DEPARTMENT OF SYSTEMS AND ENGINEERING MANAGEMENT

Access Phone: 937-255-2998, DSN 785-2998

Fax: 937-656-4699, DSN 986-4699

Homepage: <http://www.afit.edu/en/env/>

BADIRU, ADEDEJI B., Professor and Head, Department of Systems & Engineering Management, AFIT Appointment Date: 2006 (AFIT/ENV); BS, Tennessee Technological University, 1979; MS, Tennessee Technological University, 1981; PhD, Industrial Engineering, University of Central Florida, 1984. Dr. Badiru's research interests include Project Modeling, Analysis, Management, and Control, Mathematical Modeling, Computer Simulation, Information Systems, and Economic Analysis. He is the author of several books and technical journals. Tel. 937-255-3636 x4799 (DSN 785-3636 x4799), email: Adedeji.Badiru@afit.edu

BARELKA, ALEX J., Lt Col, Assistant Professor of Management. BS in Imaging Science, Rochester Institute of Technology, 1992; MS in Information of Resource Management, Air Force Institute of Technology, Dayton, OH, 2001; PhD in Business Administration, concentrating in Management, Michigan State University, 2006. Lt Col Barelka's research interests include virtual collaboration, leadership, and social influence. Tel. 937-255-3636 x7404 (DSN 785-3636 x7404), email: Alexander.Barelka@afit.edu

CARL, JOSEPH W., Adjunct Assistant Professor Systems Engineering. BS, Electrical Engineering, University of Missouri, 1965; MS, Electrical Engineering, Air Force Institute of Technology, 1969; PhD, Ohio State University, 1983. Dr. Carl's research interests are in construction of an intelligent machine on a par with human intelligence, and in various aspects of systems engineering. Tel. 937-255-3355 x3351 (DSN 785-3355 x3351), email: Joseph.Carl.Ctr@afit.edu

COLOMBI, JOHN M., Assistant Professor of Systems Engineering, Department of Systems and Engineering Management, AFIT Appointment Date: 2008 (AFIT/ENV), Faculty Scholar-in-Residence, AF Center for Systems Engineering. BSEE, University of Lowell, MA, 1986; MSEE, Air Force Institute of Technology, 1992; PhD, Air Force Institute of Technology, 1996. Dr. Colombi's research interests include Systems Engineering and Architecture, interoperability measurement, complex adaptive systems theory and human-systems integration.. Tel. 937-255-3535 x3347 (DSN 785-3535 x3347), email: John.Colombi@afit.edu

BLECKMANN, CHARLES A., Professor of Environmental Management, Department of Systems and Engineering Management, AFIT Appointment Date: 1993 (AFIT/ENV); BA, Secondary Education (Biology), University of Evansville, 1967; MS, Biology, Incarnate Word College, 1971; PhD, Botany, University of Arizona, 1977. Dr. Bleckmann's research interests include water and wastewater analyses and treatment, land treatment of wastes, groundwater remediation, biodegradation of organics, fuels microbiology, and bioweapons. Tel. 937-255-3636 x4721 (DSN 785-3636 x4721), email: Charles.Bleckmann@afit.edu

ELSHAW, J. JOHN, Lt Col, Instructor of Management; BS, Accounting, University of Akron, 1991; MBA, Regis University, 1996, Doctoral Candidate, Krannert School of Management, Purdue University, 2008. Lt Col Elshaw's research interests include organizational behavior, leadership, human resource management, organizational causes of high-consequence errors, technology impact on individual and group behavior, social network analysis, cognition and emotions, organizational climate and culture, psychological influences on foreign audiences, cross-cultural leadership and communication, hierarchical linear modeling. Tel. 937-255-3636 x4574 (DSN 785-3636 x4574), email: John.Elshaw@afit.edu

FASS, R. DAVID, Lt Col, Assistant Professor of Management; BS, Economics, University of New Mexico, 1989; MBA, University of New Mexico, 1993, PhD, College of Business, Department of Management, New Mexico State University, 2007. His research interests include strategic management, organizational behavior, organizational development and change, government contracting, multilateral alliances ("constellations"), Austrian economics, prescriptive vs. descriptive research models, social network methods, structural equation modeling, transcendent goals, and enriching web-based learning. Tel. 937-255-3636 x4826 (DSN 785-3636 x4826), email: Robert.Fass@afit.edu

GOLTZ, MARK N., Professor of Engineering and Environmental Management, Department of Systems and Engineering Management, AFIT Appointment Date: 1996 (AFIT/ENV); BS, Cornell University, 1972; MS, University of California, Berkeley, 1973; PhD, Environmental Engineering and Science, Stanford University, 1986. Dr. Goltz specializes in modeling the physical, chemical, and biological processes that affect the fate and transport of organic contaminants in the subsurface. He is also interested in the implementation and commercialization of innovative groundwater remediation technologies. Tel. 937-255-3636 x4638 (DSN 785-3636 x4638), email: Mark.Goltz@afit.edu

GRMAILA, MICHAEL R., Associate Professor of Information Resource Management, Department of Systems Engineering and Management, AFIT Appointment Date: 2004 (AFIT/ENV); Center for Cyberspace Research (CCR), BS, Texas A&M University, 1993; MS, Texas A&M University, 1995; PhD, Texas A&M University, 1999. Dr. Grimaila's research interests include data mining, information assurance, information engineering, information operations, and information warfare. Tel. 937-255-3636 x4800 (DSN 785-3636 x4800), email: Michael.Grimaila@afit.edu

HASTY, BRYAN R., Maj, Instructor, Department of Systems & Engineering; Military Visiting Fellow to the U.S. Air Force Center for Systems Engineering. M.B. (2007), Business, Indiana University, Bloomington, IN; M.S. (1998), Information Resource Management, Air Force Institute of Technology, School of Systems and Logistics, Wright-Patterson AFB, OH; M.S. (1996), Information Systems Management, Louisiana State University, Shreveport, LA; B.S. cum laude (1991), Computer Science, Northern Michigan University, Marquette, MI. Tel. 937-255-3636 x44605 (DSN 785-3636 x4605), email: Bryan.Hasty@afit.edu

HEMINGER, ALAN R., Associate Professor, Department of Systems and Engineering Management, AFIT Appointment Date: 1994 (AFIT/ENV); BA, Philosophy, University of Michigan, 1966; MS, Educational Psychology, California State University at Hayward, 1978; PhD, Management Information Systems, University of Arizona, 1988. Dr. Heminger's research interests include information integration, strategic information management, computer supported group problem-solving, reengineering, and long-term access to information. Tel. 937-255-3636 x7405 (DSN 785-3636 x7405), email: Alan.Heminger@afit.edu

HOLT, DANIEL T., Lt Col, Assistant Professor of Management, Department of Systems and Engineering Management, AFIT Appointment Date: 2002 (AFIT/ENV); BS, Electrical Engineering, University of Louisville, 1989; MA, Human Resource Development, Webster University, 1993; MS, Air Force Institute of Technology, 1995; and, PhD, Management Auburn, 2002. Lt Col Holt's research interests include organizational change, organizational development, human resource management, and attitude measurement.

JACQUES, DAVID R., Assistant Professor of Aerospace Engineering, Department of Systems and Engineering Management, AFIT. Appointment Date: 1999 (AFIT/ENV); BS, Mechanical Engineering, Lehigh University, 1983; MS, Aeronautical Engineering, AFIT, 1989; PhD, Aeronautical Engineering, AFIT, 1995. Dr. Jacques research interests include development planning, architecture based evaluation, multi-objective or constrained optimal design, and cooperative behavior and control of autonomous vehicles. Tel. 937-255-3636 x3329 (DSN 785-3636 x3329), email: David.Jacques@afit.edu

KEE, PATRICK D., Lt Col, Instructor of Systems Design and Management, Department of Systems and Engineering Management, AFIT Appointment Date: 2007 (AFIT/ENV); BA, Physics, University of Nebraska at Omaha, 1989; MS, Engineering Physics, Air Force Institute of Technology, 1994; Doctoral Candidate, Physics, Air Force Institute of Technology. Lieutenant Colonel Kee's research interests include applying software development paradigms, such as object-oriented design, to rapid product development of both hardware and software. Tel. 937-255-3636 x4648 (DSN 785-3636 x4648), email: Patrick.Kee@afit.edu

MUCZYK, JAN P., Professor Emeritus of Management, Department of Systems and Engineering Management, AFIT Appointment Date: 2001 (AFIT/ENV). BS, MBA, and DBA, University of Maryland in Management and Organizational Behavior. Dr. Muczyk's research interests include leadership, streamlining bureaucracies, and strategy implementation.

PEACHEY, TODD A., Maj, Assistant Professor of Information Resource Management. BS in Finance, Penn State, 1992; MS in Information of Resource Management, Air Force Institute of Technology, Dayton, OH, 1998; PhD in Management of Information Technology and Innovation, Auburn, 2006. Major Peachey's research interests include information systems strategic alignment and knowledge management. Tel. 937-255-3636 x7391 (DSN 785-3636 x7391), email: Todd.Peachey@afit.edu

SCHECHTMAN, GREGORY M., Lt Col, Assistant Professor of Information Resource Management. BS in Finance, Florida State University, 1990; MS in Information of Resource Management, Air Force Institute of Technology, Dayton, OH, 1996; PhD in Business Administration concentrating in Management Information Systems, Washington State University, 2009. Lt Col Schechtman's research interests include virtual collaboration, human computer interaction, and information security. Tel. 937-255-3636 x4709 (DSN 785-3636 x4709), email: Gregory.Schechtman@afit.edu

SHELLEY, MICHAEL L., Professor of Environmental Science and Engineering, Department of Systems and Engineering Management, AFIT Appointment Date: 1996 (AFIT/ENV); BCE (Civil Engineering), Auburn University, 1974; MS (Environmental Engineering), Virginia Tech, 1975; PhD, Environmental Science and Engineering, University of North Carolina, 1985. Dr. Shelley focuses on system dynamics modeling in analyzing long-term management strategies. His research interests include abiotic and biochemical contaminant fate and transport, physiologically-based pharmacokinetic modeling, and ecological engineering design to optimize mission activity with environmental constraints. Tel. 937-255-3636 x7387 (DSN 785-3636 x7387), email: Michael.Shelley@afit.edu

SLAGLEY, JEREMY M., Maj, Assistant Professor of Industrial Hygiene, Department of Systems and Engineering Management, AFIT Appointment Date: 2006 (AFIT/ENV); BA, Environmental Engineering, US Military Academy, 1993; MS in Industrial Hygiene, University of Iowa, 2000; Ph.D., Occupational Safety and Health, West Virginia University, 2006. Maj Slagley's research interests include engineering controls for noise and airborne hazards, Aerosol measurement, and exposure assessment. Tel. 937-255-3636 x4511 (DSN 785-3636 x4511), email Jeremy.Slagley@afit.edu

SMITH, DAVID A., Lt Col, Assistant Professor of Environmental Science and Engineering, AFIT Appointment Date: 2006 (AFIT/ENV); B.A. (Mathematics/Secondary Education), Central Methodist College, 1986; MS (Nuclear Engineering (Health Physics)), University of Missouri - Columbia, 1990; MS (Nuclear and Radiological Engineering (Diagnostic Medical Physics)), 1997, University of Florida -Gainesville; PhD (Environmental Sciences), 2006, Ohio State University. Lt Col Smith's research interests include Chemical, Biological, Radiological, and Nuclear (CBRN) response (medical, equipment and communication integration), CBRN detection, assessment of ecological and human health effects of weapons of mass destruction. Tel. 937-255-3636 x 4711 (DSN 785-3636 x 4711), email: David.A.Smith@afit.edu

SONI, SOM R., Associate Professor of Systems Engineering, BS (Hons), Punjab University, 1967; MS, University of Roorkee (renamed as IIT Roorkee) India, 1969; PhD, University of Roorkee (renamed as IIT Roorkee) India, 1972. Teaching and research related to systems engineering design, analytical and experimental mechanics of composite materials and structures. Tel. 937-255-3355 x 3420 (DSN 785-3355 x 3420), email: Som.Soni@afit.edu

THAL, ALFRED E., Jr., Assistant Professor of Engineering Management, Department of Systems and Engineering Management, AFIT Appointment Date: 1998 (AFIT/ENV); BS, Civil Engineering, Texas Tech University, 1981; MS, Engineering Management, AFIT, 1985; PhD, Environmental Engineering, University of Oklahoma, 1999. Dr Thal's research interests include engineering and environmental management, groundwater flow and remediation technologies, facility and infrastructure management, product development, sustainability, and project management. Tel. 937-255-3636 x7401 (DSN 785-3636 x7401), email: Al.Thal@afit.edu

TURNER JASON M., Maj, Assistant Professor of Information Resource Management, AFIT Appointment Date: 2006 (AFIT/ENV); BS, Industrial Psychology, University of Wisconsin, Madison, WI, 1992; MS, Information of Resource Management, Air Force Institute of Technology, Dayton, OH, 1997; PhD, Information Science, University of Texas, Austin, TX, 2006. Maj Turner's research interests include human factors/HCI, interface design and usability, and the social and organizational uses of information and information technology and their impacts on interpersonal communication; individual and collaborative decision-making; and collocated, virtual, and distributed work processes. Tel. 937-255-3636 x7407 (DSN 785-3636 x7407), email: Jason.Turner@afit.edu

UNGER, ERIC J., Lt Col, Assistant Professor, Department of Systems and Engineering Management, AFIT Appointment Date: 2007 (AFIT/ENV); BA, Mathematics and Economics, Northwestern University, IL 1990; MS, Acquisition Management, Air Force Institute of Technology, Wright-Patterson AFB, OH, 2001; Ph.D., Policy Analysis, Pardee RAND Graduate School, CA, 2007. Lt Col Unger's research interests include econometric analysis of financial data, operations and maintenance (O&M) and operations and support (O&S) costs analysis, research and development cost estimation, and cost per flying hour analysis. Tel. 937-255-3636 x7402 (DSN 785-3636 x7402), email: Eric.Unger@afit.edu

VITALE, DEAN C., Lt Col, Assistant Professor of Management, Department of Systems and Engineering Management, AFIT Appointment Date: 2007 (AFIT/ENV); BS, Business Administration, The University of Florida, 1988; MA, Human Resource Development, Webster University, 1997; PhD, Management, Auburn University, 2008. Lt Col Vitale's research interests include organizational analysis and change, social systems in organizations, and research methods. Tel. 937-255-3636 x7395 (DSN 785-3636 x7395), email: Dean.Vitale@afit.edu

WEST, CHRISTOPHER J., Lt Col, Assistant Professor, Department of Systems and Engineering Management, AFIT Appointment Date: 2006 (AFIT/ENV); BS, Electrical Engineering, Auburn University, AL 1991; MS, Engineering and Environmental Management, Air Force Institute of Technology, Wright-Patterson AFB, OH, 1996; Ph.D., Engineering Management, Old Dominion University, VA, 2006. Lt Col West's research interests are in the areas of Crisis Project Management, Crisis Engineering Services management, Crisis Knowledge Management, Organizational Control Center Performance, and Multidisciplinary Distributed Cognition. Tel. 937-255-3636 x7400 (DSN 785-3636 x7400), email: Christopher.West@afit.edu

APPENDIX B: POST-DOCTORAL AND OTHER RESEARCH ASSOCIATES CREDENTIALS

ALLEN, CHRISTOPHER, Research Engineer in Mechanical Engineering, Department of Aeronautics and Astronautics, AFIT Appointment Date: 2008 (AFIT/ENY); BS, Biomedical Engineering, 2006; MS, Optimization of an Aircraft's Thermal Management Using A Genetic Algorithm, Wright State University, Dayton, OH, 2008. Chris Allen is a researcher working on fusing autonomous navigation with sensors and videogrammetry systems. Tel. 937-255-3636 x7495, email: Christopher.Allen@afit.edu

LI, ALEX GUANGMING, Senior Research Associate and Adjunct Faculty in the Department of Engineering Physics, AFIT Appointment Date: 1995 (AFIT/ENP); PhD in Materials Science, 1990, Chinese Academy of Sciences at Shanghai Institute of Optics and Fine Mechanics; MS in Materials Science, 1987, Chinese Academy of Sciences at Shanghai Institute of Optics and Fine Mechanics; BS in Materials Science, 1982, Changchun University of Science and Technology. Dr Li teaches the AFIT Materials Characterization course, MATL 680. His research interest is in developing AFM techniques for measuring nanometer-scale elastic modulus of surfaces. He has invented a novel AFM nano-patterning technique for producing sub-100 nm nanostructures in polymers. Additional research involves characterizing surface morphologies of glasses, ceramics, semiconductors, polymers, nano-carbon composites, and biological spores using AFM, SEM, TEM, optical interferometer, and optical microscopes; identifying and analyzing chemical compositions and structures using FTIR, Raman (micro-Raman), photoluminescence, EPR, XPS, ESCA, SEM, TEM, and XRD. Tel. 937-255-3636 x4835, e-mail: Guangming.Li@afit.edu

MOORE, ELIZABETH A., Research Associate in Semiconductor Physics, Department of Engineering Physics, AFIT Appointment Date: 2008 (AFIT/ENP); BS, Physics, University of Cincinnati, Cincinnati, OH, 2001; MS (2003) and PhD (2007), Semiconductor Physics, Department of Engineering Physics, Air Force Institute of Technology. She specializes in electrical and optical characterization of various semiconducting materials including wide band gap semiconductors. Tel. 937-255-3636 x7945 (DSN 785-3636 x7945), email: Elizabeth.Moore@afit.edu

O'NEAL, JEROME, Research Assistant in Operations Research, Department of Operational Sciences, AFIT Appointment Date: 2006 (AFIT/ENS); BS, Mathematics and Foreign Languages, U.S. Military Academy at West Point, 1993; MS, Operations Research, Georgia Institute of Technology, 2004; PhD, Industrial and Systems Engineering, Georgia Institute of Technology, 2005. Dr. O'Neal specializes in mathematical optimization, including interior-point methods and integer programming. He is also interested in business and social science applications of mathematical optimization.

PERCIVAL, SCOTT A., Research Associate in Operations Research, Department of Operational Sciences, AFIT Appointment Date: 2007 (AFIT/ENS); Center for Operational Analysis (COA), BS, Operations Research, United States Air Force Academy, 2001; MS, Operations Research, Air Force Institute of Technology, 2003; Mr. Percival specializes in applied statistics, specifically multivariate analysis applied to Hyper-Spectral Imagery.

RYU, MEE YI, Research Associate in Semiconductor Physics, Department of Engineering Physics, AFIT Appointment Date: 2006 (AFIT/ENP); BS, Physics, Yeungnam University, Taegu, Korea, 1995; MS (1997) and PhD (2001), Semiconductor Physics, Department of Information and Communications, Gwangju Institute of Science and Technology, Gwangju, Korea. Dr. Ryu is a faculty member of Department of Physics, Kangwon National University, Chunchon, Kangwondo, Korea. She specializes in electrical, optical, and magnetic characterization of various semiconducting materials including dilute magnetic wide band gap semiconductors. Tel. 937-255-3636 x7305 (DSN 785-3636 x7305), email: Mee.Ryu@afit.edu

SABELKIN, VOLODYMYR, Researcher, Department of Aeronautics and Astronautics, AFIT Appointment Date: 2003 (AFIT/ENY); MS, Kharkov Aviation Institute, Ukraine, 1976; PhD, Kharkov Aviation Institute, Ukraine, 1980; Dr. Sci., Kharkov Aviation Institute, Ukraine, 1989; Professor, Kharkov Aviation Institute, Ukraine, 1991. Dr. Sabelkin has authored over 60 papers and 100 patents. Dr. Sabelkin's research interests are on composite and smart materials, fatigue and fracture, contact mechanics, micromechanics, plasticity and modeling. Tel. 937-255-3636 x7476 (DSN 785-3636 x7476), email: Volodymyr.Sabelkin@afit.edu

APPENDIX C: ABBREVIATIONS FOR ORGANIZATIONS

There are a number of abbreviations for organizations that are used in this report. This alphabetical listing includes only selected organizations.

86 th FWS	Eighty-sixth Fighter Wing Squadron
ACC	Air Combat Command
ACES	Applied Computational Electromagnetic Society
AETC	Air Education and Training Command
AFCEE	Air Force Center for Environmental Excellence
AFCESA	Air Force Civil Engineer Support Agency
AFIT	Air Force Institute of Technology
AFLMA	Air Force Logistics Management Agency
AFMC	Air Force Materiel Command
AFOTEC	Air Force Operational Test and Evaluation Center
AFRL	Air Force Research Laboratory
AFRL/AFOSR	AFRL/Air Force Office of Scientific Research
AFRL/RD	AFRL/Directed Energy Directorate
AFRL/RH	AFRL/Human Effectiveness Directorate
AFRL/RI	AFRL/Information Directorate
AFRL/RX	AFRL/Materials and Manufacturing Directorate
AFRL/RW	AFRL/Munitions Directorate
AFRL/RZ	AFRL/Propulsion Directorate
AFRL/RY	AFRL/Sensors Directorate
AFRL/RB	AFRL/Air Vehicles Directorate
AFRL/RV	AFRL/Space Vehicles Directorate
AFCA	Air Force Communication Agency
AFSA	Air Force Security Agency
AFSEO	Air Force Seek Eagle Office (46 SK/SKE)
AFSPC	Air Force Space Command
AFTAC	Air Force Technical Applications Center
AFWA	Air Force Weather Agency
AHS	American Helicopter Society
AIA	Air Intelligence Agency
AIAA	American Institute of Aeronautics and Astronautics
AMC	Air Mobility Command
ARDA	Advanced Research and Development Activity
ASME	American Society of Mechanical Engineers
ASC	Aeronautical Systems Center
AU	Air University
DAGSI	Dayton Area Graduate Studies Institute
DARPA	Defense Advanced Research Projects Agency
DETEC	Directed Energy Test and Evaluation Capability
DISA	Defense Information Systems Agency
DoD	Department of Defense
DOE	Department of Energy
DoS	Department of State
DTRA	Defense Threat Reduction Agency
IEEE	Institute of Electrical and Electronics Engineers
INCOSE	International Council on Systems Engineering
ISSMO	International Society for Structural and Multidisciplinary Optimization
MORS	Military Operations Research Society
NASA	National Aeronautics and Space Administration
NASIC	National Air and Space Intelligence Center
NSA	National Security Agency
NSF	National Science Foundation

NSSA	National Security Space Architect
NSSO	National Security Space Office
OSD	Office of the Secretary of Defense
PACAF	Pacific Air Forces
SAE	Society of Automotive Engineers
SAF	Office of the Secretary of the Air Force
SPIE	The International Society for Optical Engineering
USSTRATCOM	United States Strategic Command
USAF	United States Air Force
USNA	United States Naval Academy
USSOCOM	United States Special Operations Command
USTRANSCOM	United States Transportation Command
WPAFB	Wright-Patterson Air Force Base

APPENDIX D: INFORMATION FOR OBTAINING A COPY OF A THESIS

Copies of theses with unlimited distribution may be obtained from the following agencies depending on the particular circumstances.

U.S. Government employees, individuals affiliated with a research and development activity within the U.S. Government, or its associated contractors, subcontractors, or grantees, under current U.S. Government contract; can order from:

DEFENSE TECHNICAL INFORMATION CENTER
8725 John J. Kingman Road, STE 0944
Ft Belvoir, VA 22060-6218
Phone: 1-800-225-3842
Website: <http://www.dtic.mil/>

Private U. S. citizens without a U. S. Government contract can order from:

NATIONAL TECHNICAL INFORMATION SERVICE
U.S. Department of Commerce
5285 Port Royal Road
Springfield, VA 22161
Phone: 1-800-553-6847
Website: <http://www.ntis.gov>

Information needed to obtain a given document:

1) author, 2) title, 3) publication date, and 4) reference to the document as an Air Force Institute of Technology thesis.

Anyone may download an electronic copy (unlimited distribution designation only) from:

Air Force Research Institute
155 N. Twining, Bldg 693
Maxwell AFB, AL 36112-6026
1-334-953-2213 or DSN 493-2213
Website: <http://www.au.af.mil/au/research/>

Choose the link for *AU Research Information Management System* under the “Research & Publications” area.

General inquiries concerning faculty and student research at the Air Force Institute of Technology may be addressed to:

Office of Research and Sponsored Programs (AFIT/ENR)
Air Force Institute of Technology
2950 Hobson Way
Wright-Patterson AFB, OH 45433-7765
Phone: 937-255-3633 (DSN 785-3633)
Website: <http://www.afit.edu>
Email: research@afit.edu

REPORT DOCUMENTATION PAGE			Form Approved OMB No. 074-0188		
The public reporting burden for this collection of information is estimated to average 1 hour per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of the collection of information, including suggestions for reducing this burden to Department of Defense, Washington Headquarters Services, Directorate for Information Operations and Reports (0704-0188), 1215 Jefferson Davis Highway, Suite 1204, Arlington, VA 22202-4302. Respondents should be aware that notwithstanding any other provision of law, no person shall be subject to a penalty for failing to comply with a collection of information if it does not display a currently valid OMB control number. PLEASE DO NOT RETURN YOUR FORM TO THE ABOVE ADDRESS.					
1. REPORT DATE (DD-MM-YYYY) 15-05-2009		2. REPORT TYPE Annual Report		3. DATES COVERED (From – To) 01 Oct 07 – 30 Sep 08	
4. TITLE AND SUBTITLE AIR FORCE INSTITUTE OF TECHNOLOGY RESEARCH REPORT 2008			5a. CONTRACT NUMBER		
			5b. GRANT NUMBER		
			5c. PROGRAM ELEMENT NUMBER		
6. AUTHOR(S) Office of Research and Sponsored Programs, Graduate School of Engineering and Management			5d. PROJECT NUMBER		
			5e. TASK NUMBER		
			5f. WORK UNIT NUMBER		
7. PERFORMING ORGANIZATION NAMES(S) AND ADDRESS(S) Air Force Institute of Technology Graduate School of Engineering and Management (AFIT/EN) 2950 Hobson Way WPAFB OH 45433-7765			8. PERFORMING ORGANIZATION REPORT NUMBER AFIT/EN-TR-09-02		
9. SPONSORING/MONITORING AGENCY NAME(S) AND ADDRESS(ES) Air Force Institute of Technology Graduate School of Engineering and Management (AFIT/EN) 2950 Hobson Way WPAFB OH 45433-7765			10. SPONSOR/MONITOR'S ACRONYM		
			11. SPONSOR/MONITOR'S REPORT NUMBER(S)		
12. DISTRIBUTION/AVAILABILITY STATEMENT APPROVED FOR PUBLIC RELEASE; DISTRIBUTION UNLIMITED					
13. SUPPLEMENTARY NOTES					
14. ABSTRACT This report summarizes the research activities of the Air Force Institute of Technology's Graduate School of Engineering and Management. It describes research interests and faculty expertise; lists student theses/dissertations; identifies research sponsors and contributions; and outlines the procedures for contacting the school. Included in the report are: faculty publications, conference presentations, consultations, and funded research projects. Research was conducted in the areas of Aeronautical and Astronautical Engineering, Electrical Engineering and Electro-Optics, Computer Engineering and Computer Science, Systems and Engineering Management, Operational Sciences, Mathematics, Statistics and Engineering Physics.					
15. SUBJECT TERMS Air Force Institute of Technology, Research Report 2008					
16. SECURITY CLASSIFICATION OF			17. LIMITATION OF ABSTRACT	18. NUMBER OF PAGES	19a. NAME OF RESPONSIBLE PERSON
REPORT	ABSTRACT	c. THIS PAGE			Dr. Michael J. Caylor
U	U	U	UU	216	19b. TELEPHONE NUMBER (Include area code) 937-255-3633, research@afit.edu

Standard Form 298 (Rev. 8-98)
Prescribed by ANSI Std. Z39-18