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Air Force Institute of Technology Research Report 2003

Office of the Associate Dean for Research and Consulting, Graduate School of Engineering and Management, AFIT

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Air Force Institute of Technology
Research Report 2003

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Graduate School of Engineering and Management

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

AIR FORCE INSTITUTE OF TECHNOLOGY

Wright-Patterson Air Force Base, Ohio

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Air Force Institute of Technology
Research Report 2003
Foreword

Research is the cornerstone of the dramatic advances in air and space defense technology that are necessary to address today's international and homeland security issues, and will be critical to the nation's ability to meet the challenges of tomorrow. Research is also recognized by the Air Force Institute of Technology (AFIT) as an essential element of quality graduate education, and is therefore reflected in the Graduate School of Engineering and Management's mission "to produce graduates and engage in research activities that enable the Air Force to maintain its scientific and technological dominance."

AFIT maintains active partnerships with our Air Force's organizations and operational communities as well as the Department of Defense (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.

//Signed by//

DAVID W. EIDSAUNE, Colonel, USAF
Commandant
Air Force Institute of Technology

//Signed by//

ROBERT A. CALICO, JR.
Dean, Graduate School of Engineering and Management

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1. INTRODUCTION

1.1 OVERVIEW

This Research Report presents the FY03 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 and other DoD 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 Cooperative Research and Development Agreements (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.

Additional information on the research programs at AFIT may also be found on the research web home page at http://en.afit.edu/enr/. The Office of Research and Consulting, Graduate School of Engineering and Management can be reached at (937) 255-3633, (DSN 785-3633) or by email: research@afit.edu. The primary point of contact is Mr. Thomas C. Bates, Research Grants Engineer, (937) 255-3636, x4707, DSN 785-3636, x4707. Dr. Heidi R. Ries, PhD, is the Associate Dean for Research and can be reached at (937) 255-3636, x4544, DSN 785-3636, x4544.

1.2 THE GRADUATE SCHOOL OF ENGINEERING AND MANAGEMENT RESEARCH COLLABORATION

As detailed in the 2003-2004 catalog at http://www.afit.edu/information/catalogs.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.

AFIT distributes annual Research Activities Brochures (http://en.afit.edu/enr/resactivities.html) in an effort to involve sponsor organizations in research and education. A brief listing of each department's areas of emphasis appear below. Please contact the faculty, relevant departmental office, or the Office of Research and Consulting for further information (see app. A & B)

The Department of Aeronautics and Astronautics invites research topic proposals and collaborative suggestions for the Aeronautical, Astronautical and Systems Engineering programs. The Department covers the following research specialties:

Aerodynamics
Computational Fluid Dynamics
Dynamics and Control
Materials and Structural Analysis
Propulsion Systems
Systems Engineering

The Department of Electrical and Computer Engineering invites research topic proposals and collaborative suggestions for the Electrical Engineering, Computer Engineering and Computer Science programs. The following research specialties are covered by the Department:

Advanced Imaging and Information Processing
Communications/Networks
Electromagnetics/Low Observables (Stealth)
Evolutionary Algorithms
Guidance, Navigation and Control
Information Systems, Security and Assurance
Micro Electromechanical Systems (MEMS)
Parallel/Distributed Processing
Software and Information Engineering, Visualization, and Exploration

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) Materials Science (jointly operated with the Department of Aeronautics and Astronautics) programs. The areas covered by these programs include:

Counterproliferation
Electronic and Photonic Materials
Modeling and Simulation
Nuclear Weapons and Effects
Lasers and Electro-Optics
Remote Sensing & Signature Analysis
Space Weather

The Department of Mathematics and Statistics invites research topic proposals and collaborative suggestions for the following research specialties:

Applied Mathematics
Nonlinear Optimization
Numerical Analysis
Partial Differential Equations
Statistical Analysis

The Department of Operational Sciences invites research topic proposals and collaborative suggestions within the areas of Operations Research and Logistics Management. The following research specialties are covered by the Department:

Agent-based Modeling
Campaign Planning and Execution
Decision and Risk Analysis
Engineering Design Optimization
Information Operations/Information Warfare
Operational Modeling and Simulation
Operational Problems and Heuristic Modeling
Stochastic Systems Analysis
Supply Chain Management
Transportation and Strategic Mobility

The Department of Systems and Engineering Management is seeking research topic proposals and collaborative suggestions for the Engineering and Environmental Management, Acquisition Management, and Information Resource/Systems Management programs. The following research specialties are covered by the Department:

Applied Environmental Sciences
Contract Management
Cost Analysis
Environmental Systems Analysis and Management
Human Resource Management
Information Resource Management
Quantitative Decision Making
Strategic Purchasing
Systems Management

1.3 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 2003 to determine the project's contribution, significance and cost avoidance. Detailed results of the questions asked are shown in Table 1.1. The data in this table are based on 66 questionnaires returned out of the 235 questionnaires mailed.

Table 1.1: Sponsor Assessment of AFIT Research

QUESTION	EN
Did this research contribute to a current Air Force/DoD project? (Yes answers)	100%
The thesis work was:	
Highly significant	40%
Significant	49%
Slightly significant	10%
Not significant	0%
Average man-years of effort saved by the sponsors.	.92
Average cost avoided per thesis/dissertation by the sponsors.	$100,879
Total cost avoided for all theses and dissertations sponsored.	$23,637,475
Rank of respondents	
Colonel (GM-15)	25%
Lt Col (GM-14)	58%
Major (GM-13)	4%
Captain (GS-12)	9%
Other	3%

RESEARCH ASSESSMENT QUESTIONNAIRE

TO:

Thank you for sponsoring the AFIT thesis or dissertation listed below. AFIT is working hard to keep its research focused on defense technologies of interest to the Air Force and to the nation.

Title:

Student Author: Designator:

Faculty Advisor:

Please help us determine the value and contribution of this research to your organization's mission by answering the questions below:

1. Did this research contribute to a current task or goal of interest to your organization? Y / N

2. Would you have completed this work if AFIT had not done it? Y / N

3. Regardless of your answers above, how would you rate this work?
   Highly significant
   Significant
   Slightly significant
   No significance

4. If AFIT had not done this work, please estimate what it would have cost your organization to perform it, either by using in-house resources or by contract. *Man-Years ____ $_____

   **Please note that typically an MS thesis requires 0.5MY of the student's time and one month of the faculty advisor's time. For a PhD dissertation the numbers are 2MY for the student and 4 months for the advisor*.

5. Would you like to make any remarks? (These will be shared with the academic department and the faculty chairperson.) (If necessary, please continue on reverse side.)

You may mail this to AFIT/ENR, 2950 Hobson Street, Wright-Patterson AFB OH 45433-7765, or fax it to (937) 656-7139 (DSN: 986-7139), or just e-mail your answers (only) to 1 to 5 to research@afit.edu If you use e-mail, please include the designator above so that we might identify the project.

Thank you.

_____ _____

Name of Evaluator Office Symbol

_____

Grade/Rank of Evaluator

2. RESEARCH STATISTICS

2.1 RESEARCH AND CONSULTING OUTPUT MEASURES

Technology sharing and transfer are critical to the timely development of new operational capabilities. 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. They 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 MS theses and PhD dissertations that are completed and submitted to the Defense Technical Information Center. For FY03, these output measures are shown in Table 2.1 and in Figure 2.1.

Table 2.1: Faculty Research and Consulting Output

Graduate School Department	Number of Faculty	Refereed Publi-cations	Other Publi-cations	Presen-tations	Funded Research Projects	Substantial Consul-tations	Master's Theses Advised	Doctoral Dissertations Advised
Math (ENC)	14	15	8	12	10	0	4	0
Elec (ENG)	34	29	86	78	33	14	45	6
Phys (ENP)	16	12	8	90	27	14	25	2
Op Sc (ENS)	21	10	9	18	14	4	47	1
Sys & Eng Man (ENV)	17	13	4	16	6	1	47	0
Aero (ENY)	16	30	46	23	37	2	23	1
Total	118	109	161	237	127	35	191	10

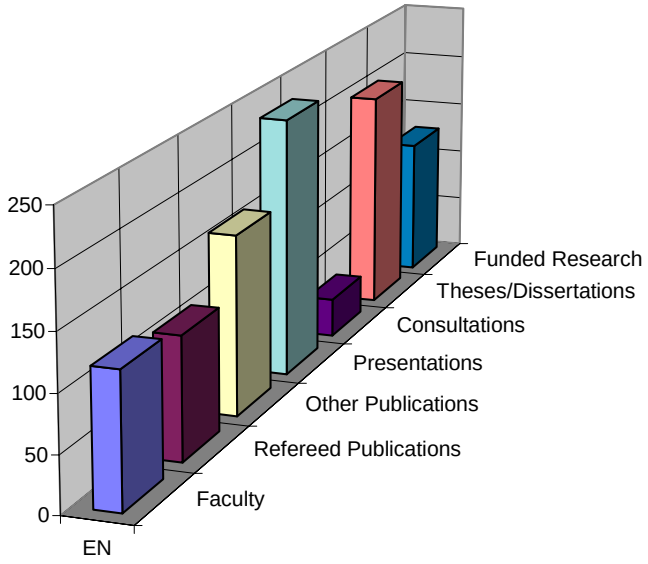


Figure 2.1: Research Output Measures

2.2 RESEARCH AND CONSULTING SPONSORSHIP

As members of an Air Force institution, the faculty 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 95% of all theses and dissertations listed in Table 2.1 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 is summarized in Table 2.2 and Figure 2.2.

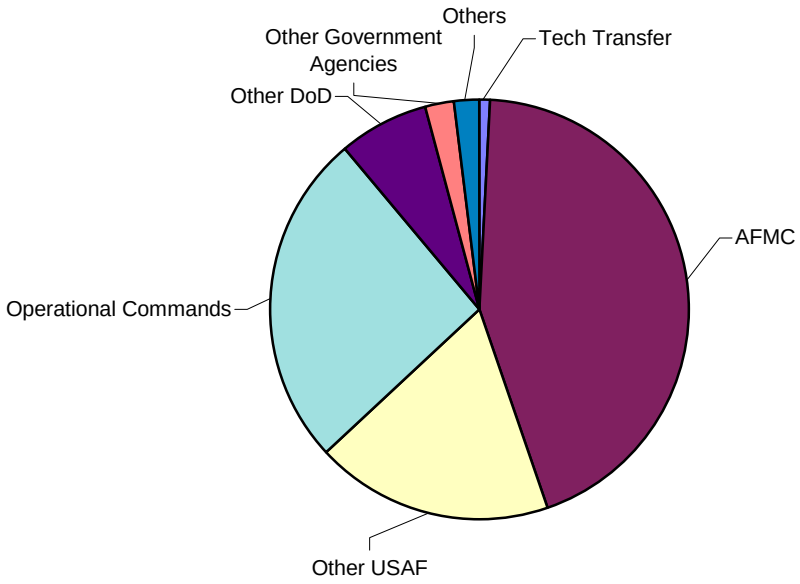


Figure 2.2: Sponsors of AFIT Theses and Dissertations

Table 2.2: Sponsorship of AFIT Research

SPONSOR ORGANIZATION	Master's Theses	PhD Dissertations	Funded Research	Substantial Consultations
AIR FORCE	25		3	1
Office of the Secretary of the Air Force	3		2	
AIR COMBAT COMMAND	4		1	
Air Force Information Warfare Center	1			
National Air and Space Intelligence Center	2		5	
UAV Battlelab	2			
AIR EDUCATION AND TRAINING COMMAND	1			
Air Force Institute of Technology	29			
AIR FORCE MATERIEL COMMAND	7		6	
Aeronautical Systems Center	6			
Air Force Flight Test Center	2			
Air Force Research Laboratory	54	6	38	13
Air Force Research Lab/Air Force Office of Scientific Research	20	3	26	
AIR FORCE SPACE COMMAND	1			
Space and Missile Systems Center	3			
AIR MOBILITY COMMAND	1			
Presidential Airlift Squadron	1			
AIR NATIONAL GUARD	1			
USAF ACADEMY				
USAF FIELD OPERATING AGENCIES				
Air Force Center for Environmental Excellence	4			
Air Force Civil Engineer Support Agency	3			
Air Force Communication Agency	1		1	
Air Force Logistics Management Agency	1			
Air Force Safety Center	1			
Air Force Security Agency	3			
Air Force Technical Applications Center	1			2
Air Force Weather Agency	4			2
ARMY			1	
DEPARTMENT OF DEFENSE	2		8	6
Defense Advanced Research Project Agency			5	1
Defense Modeling and Simulation Office	4		1	
Defense Threat Reduction Agency	9	1	2	
Office of the Secretary of Defense	4		1	5
Joint Warfare Analysis Center	1			
Strategic Environmental Research and Development Program			2	
US Transportation Command	1			
NATIONAL SECURITY AGENCY	3		5	
DEPARTMENT OF ENERGY			1	
DEPARTMENT OF HOMELAND SECURITY				
United States Coast Guard	2			
OTHER FEDERAL AGENCIES			3	4
Advanced Research And Development Activity				2
OTHER NON-FEDERAL AGENCIES				
Dayton Area Graduate Studies Institute	2		16	
Dayton International Airport	1			
Rand Corporation	1			
Specialized Technical Services	1			
Turkish Air Force	1			
TOTALS	213*	10*	127	36

*Multiple Sponsors

See Appendix C for Selected Acronym List and Organization Name Changes

2.3 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 2.3 and 2.4 and Figure 2.3 summarize outside funding for FY03.

Table 2.3: Sponsoring Organizations for Funded Research

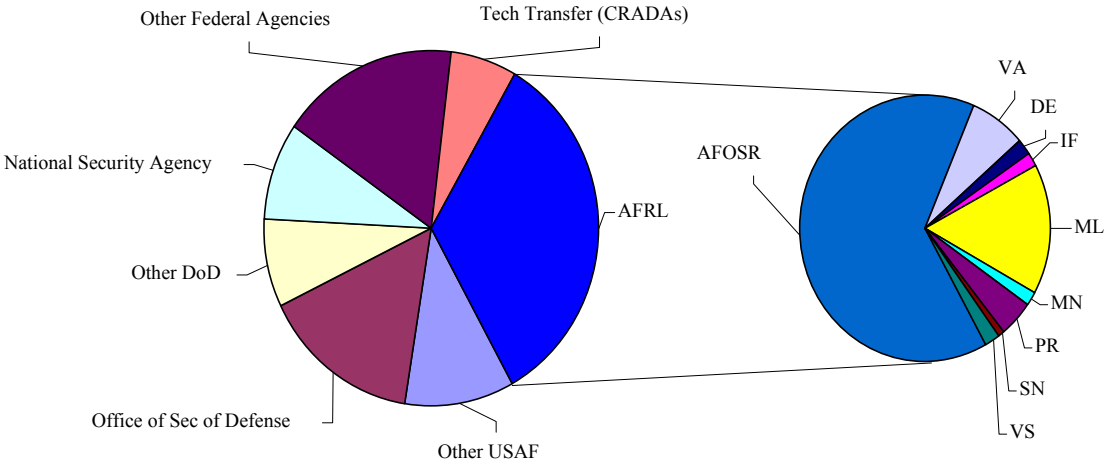
Sponsoring Organization	Funded Projects	Dollars ($)*
AFRL**	67	$2,066,463
Other USAF	20	$538,704
Office of Sec of Defense	1	$769,568
Other DoD	16	$410,809
National Security Agency	4	$454,691
Other Federal Agencies	3	$884,860
Tech Transfer (CRADAs)	16	$318,470
***TOTAL	127	$5,443,565

* Includes carry over funding from FY02 of $1,611,989.
**See Table 2.4.
***DoD regulations limit AFIT's charges to DoD organizations. Accounting for these nonchargeable items, the cost of our research program at a comparable civilian university would have been approximately $12 million.

Table 2.4 AFRL Sponorship by Directorate

AFRL Directorates**	
AFOSR	$1,105,519
VA	$122,548
DE	$32,790
IF	$26,620
ML	$273,262
MN	$25,637
PR	$80,652
SN	$13,609
VS	$31,704
Total	$2,066,463

Figure 2.3: FY03 Funded Research



2.4 FACULTY FELLOWS

Amend, Joseph H. III, Associate Professor of Civil Engineering, Department of Systems Engineering and Management, Fellow, American Society of Civil Engineers.

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

D'Azzo, John J., Professor Emeritus of Electrical Engineering, Department of Electrical and Computer Engineering, Fellow of the Institute of Electrical and Electronic Engineers.

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

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, Department of Aeronautics and Astronautics, Fellow of the American Society of Mechanical Engineers.

Maybeck, Peter S., Professor 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 the American Society of Civil Engineers.

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

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, Fellow of American Society of Mechanical Engineers.

2.5 PROFESSIONAL CERTIFICATION

Amend, Joseph H. III, Professional Engineer, State of Virginia, C7998

Anthenien, Ralph A., Professional Engineer, State of Ohio, E-67057

Brothers, Heidi S., Professional Engineer, State of Oregon and California, C44500

D'Azzo, John J., Professional Engineer, State of Ohio, E-12550

England, Ellen, National Certification, Board of Certified Safety Professionals, Certified Safety Professional, #15179

England, Ellen, National Certification, American Board of Industrial Hygiene, Certified Industrial Hygienist, #6374

Goltz, Mark N., Professional Engineer, State of Minnesota, 13978

Goltz, Mark N., DEE, Diplomat Environmental Engineer, American Academy of Environmental Engineers, Hazardous Waste Management Specialty Certification

Greiner, Michael A., Certified Cost Estimator/Analyst, Society of Cost Estimating and Analysis

Gunsch, Gregg H., Professional Engineer, State of Ohio, E-56828

Houpis, Constantine H., Professional Engineer, State of Ohio, E-19084

Kunz, Donald L., Professional Engineer, Commonwealth of Virginia, 0402-036431

LaPuma, Peter T., Professional Engineer, State of Ohio, E-66529

Palazotto, Anthony N., Professional Engineer, State of Ohio, E-39937

Perram, Glen P., Professional Engineer, State of Ohio, E-060534

Quinn, Dennis W., Professional Engineer, State of Ohio, E-056873

Reeder, Mark F., Professional Engineer, State of Ohio, E-63844

Spenny, Curtis H., Professional Engineer, State of Ohio, E-038759

Tenney, Curtis G., Certified Housing Development Finance Professional, the Development Council

3.0 CONTRIBUTIONS TO THE AIR FORCE

3.1 DOCTORAL DISSERTATIONS

Clutz, Thomas C. *A Framework for Prognostics Reasoning*. AFIT/DS/ENS/03-01. Faculty Advisor: Dr. Kenneth W. Bauer, Jr., DSN 785-6565, x4328. Sponsor: AFOSR/NM.

Greene, Kevin D. *Electron Paramagnetic Resonance Spectroscopy and Hall Effect Studies of the Effects of Low Energy Electron Irradiation on Gallium Nitride (GaN*). AFIT/DSP/ENP/03-02. Faculty Advisor: Dr. James C. Petrosky, DSN: 785-3636, x4562. Sponsor DTRA/CSNP.

Kadrovach, Brian A. *Communications Modeling System for Swarm-Based Sensors*. AFIT/DS/ENG/03-03. Faculty Advisor: Dr. Gary Lamont, DSN: 785-3636, x4718. Sponsor: AFRL/IFTA.

Magnus, Amy L. *Inquisitive Pattern Recognition*. AFIT/DS/ENG/03-09. Faculty Advisor: Dr. Mark Oxley, DSN: 785-3636, x4515. Sponsor: AFRL/IFT.

McKay, Jason B. *Power Scaling Feasibility of Chromium-doped II-VI Laser Sources and the Demonstration of a Chromium-doped Zinc Selenide Face-cooled Disk Laser*. AFIT/DS/ENP/02-5. Faculty Advisors: Drs. Kenneth Schepler (AFRL/SNJT) and Won B. Roh, DSN: 785-3636, x4509. Sponsor: AFOSR/NE.

Meyer, Gregory. *Classification of Radar Targets Using Invariant Features*. AFIT/DS/ENG/03-04. Faculty Advisor: Dr. Steven Gustafson, DSN: 785-3636, x4598. Sponsor: AFRL/SNAT.

Rounsavall, Paul C. *Controlled-Stress Large Area Pulsed Laser Deposition of Yttria Stabilized Zirconia*. AFIT/DS/ENG/03-06. Faculty Advisor: Dr. Mikel Miller, DSN: 785-2024. Sponsor: AFRL/MLMT.

Simpson, George R. *Electromagnetic Scattering from a Gap in a Magneto-Dielectric Coating on an Infinite Ground Plane*. AFIT/DS/ENG/02-03. Faculty Advisor: Maj William Wood, DSN: 785-2024 Sponsor: AFRL/SNS.

Wade, P. C. *Development of an Experimental Test Section for Forcing Unsteady Flow in a Linear Compressor Cascade Using Circular Rods*. AFIT/DS/ENY/02-4. Faculty Advisor: Dr. Paul King, DSN: 785-3636, x4628. Sponsor: AFOSR/NA.

Zydallis, Jesse B. *Explicit Building-Block Multiobjective Genetic Algorithms: Theory, Analysis, and Development*. AFIT/DS/ENG/03-01. Faculty Advisor: Dr. Gary Lamont, DSN: 785-3636, x4718. Sponsor: AFRL/IFTA.

3.2 MASTER'S THESES BY PROGRAM

[*Denotes Multiple Sponsors]

3.2.1 ACQUISITION MANAGEMENT (GAQ)

Boeh, Daniel J. *An Analysis of Engagement of Those Who Telecommute vs. Those Who Do Not.* AFIT/GAQ/ENV/03-01. Faculty Advisor: Dr. Jan P. Muczyk. DSN: 785-3636, x4648. Sponsor: ASC/HRV.

Byrd, Howard E., Jr. *Towards a Framework for Understanding Innovation Implementation in the Air Force.* AFIT/GAQ/ENS/03-01. Faculty Advisor: Lt Col Stephen P. Brady. DSN: 785-3636, x4367. Sponsor: HQ AFMC/AE.

Duff, Jonathan B. *A Service Life Analysis of U. S. Coast Guard C-130 Aircraft*. AFIT/GAQ/ENS/03-02. Faculty Advisor: Capt Stephen P. Chambal. DSN: 785-6565 x4486. Sponsor: CG HQ G-SEA.

Eaton, Jason R. *E-Procurement Success*. AFIT/GAQ/ENV/03-02. Faculty Advisor: Dr. Juan Common. DSN: 785-2998. Sponsor: AFMC/PK.

Feil, Eric D. *Factors Affecting Innovation within Aeronautical Systems Center (ASC) Organizations – An Inductive Study.* AFIT/GAQ/ENV/03-03. Faculty Advisor: Lt Col Dennis Fry. DSN: 785-2998. Sponsor: ASC/HR.

Hageman, James A. *An Empirical Analysis of the Impacts of Adopting Lean Purchasing and Supplier Management Principles on the Participation of Small Businesses within the Department of Defense Aerospace Industry*. AFIT/GAQ/ENV/03-04. Faculty Advisor: Maj Timothy S. Reed. DSN: 785-2998. Sponsor: SAF/SB.

Hoskins, Thomas E. *The Effects of Perceived Overqualification on Job Satisfaction, Organizational Commitment, and Turnover: A Study of AFIT Graduates.* AFIT/GAQ/ENG/03-01. Faculty Advisor: Dr. Mikel M. Miller. DSN: 785-2024. Sponsor: USAF/DPLE.

Kirstein, Jesse A. *A Study of the Efficacy of Unit Contingency Contracting Training.* AFIT/GAQ/ENV/03-05. Faculty Advisor: Maj Timothy S. Reed. DSN: 785-2998. Sponsor: SAF/AQC.

*Knipper, Michael E. *Determining the Value of Automation in Commercial and USAF Supplier Evaluation Systems*. AFIT/GAQ/ENV/03-06. Faculty Advisor: Timothy S. Reed. DSN 785-2998. Sponsor: AF/IL and SAF/AQCK.

Smith, Rochelle D. *Instilling an Entrepreneurial Mindset in Department of Defense (DoD) Organizations: Evidence from Entrepreneurial Organizations in the Private Sector*. AFIT/GAQ/ENV/03-07. Faculty Advisor: Maj Timothy S. Reed. DSN: 785-2998. Sponsor: OSD/FTD.

Trent, Martin R. *Assessing Organization Culture Readiness for KM Implementation: The Case of Aeronautical Systems Center Directorate of Contracting.* AFIT/GAQ/ENV/03-08. Faculty Advisor: Lt Col Summer E. Bartczak, DSN: 785-3636 x4826. Sponsor: ASC/PK.

Vigus, Steven E. *A Simulation-Based Analysis of the Impact of In-Sourcing a Major Process Element on the Coast Guard HH-60J Depot Maintenance Process.* AFIT/GAQ/ENS/03-03. Faculty Advisor: Dr. Raymond Hill. DSN: 785-2549. Sponsor: U.S. Coast Guard Aircraft Repair and Supply Center.

*Wellman, Gary L. *A Delphi Expert Assessment of Proactive Contracting in an Evolutionary Acquisition Environment.* AFIT/GAQ/ENV/03-09. Faculty Advisor: Maj Paul Thurston. DSN: 785-7777, x3276. Sponsor: AFMC/PK and AFIT/LSB.

Whittle, Jason A. *Human Resource Slack as an Antecedent to Instilling the Entrepreneurial Mindset Within Department of Defense Organizations*. AFIT/GAQ/ENV/03-10. Faculty Advisor: Maj Timothy S. Reed. DSN: 785-2998. Sponsor: OSD/FTD.

3.2.2 AEROSPACE AND INFORMATION OPERATIONS (GAI)

Davis, J. M. *Multimission Aircraft Design Study: Electromagnetic Compatibility*. AFIT/GAI/ENY/03-1. Faculty Advisor: Dr. Curtis Spenny. DSN: 785-7777, x3348. Sponsor: HQ USAF/XOIR.

Foster, Brian. *Orbit Determination of a Microsatellite Rendezvous with a Noncooperative Target*. AFIT/GAI/ENY/03-2. Faculty Advisor: Dr. Steven Tragesser. DSN: 785-6565, x4286. Sponsor: N/A.

Loftis, J. Darin. *The Air Warrior's Value of National Security Space*. AFIT/GAI/ENS/03-01. Faculty Advisor: Dr. Richard F. Deckro. DSN 785-6565, x4325. Sponsor: ASAC.

Miller, Brian N. *Auto Carrier Transporter Loading and Unloading Improvement*. AFIT/GAI/ENS/03-02. Faculty Advisor: Dr. Raymond Hill. DSN 785-6565, x4486. Sponsor: N/A.

Tschirhart, Troy. *A Study of Control Laws for Microsatellite Rendezvous with a Noncooperative Target.* AFIT/GAI/ENY/03-3. Faculty Advisor: Dr. Steven Tragesser. DSN: 785-6565, x4286. Sponsor: N/A.

3.2.3 AERONAUTICAL ENGINEERING (GAE)

Bautista, I. S. *Cold-Flow Testing of a Subscale Model Exhaust System for a Space-Based Laser.* AFIT/GAE/ENY/03-1. Faculty Advisor: Dr. Milton Franke. DSN: 785-3636, x4720. Sponsor: SMC/TL.

Crooks, H. R. *Reduction of Thermal Residual Strains in Adhesively Bonded Composite Repairs.* AFIT/GAE/ENY/03-11. Faculty Advisor: Dr. Anthony Palazotto. DSN: 785-3636, x4599. Sponsor: AFRL/MLSA.

Dabrowski, V. J. *Experimental Demonstration of an Algorithm to Detect the Presence of a Parasitic Anti- Satellite Weapon.* AFIT/GAE/ENY/03-2. Faculty Advisor: Maj Richard Cobb. DSN: 785-3636, x4559. Sponsor: N/A.

Freeman, J. A. *Computational Fluid Dynamics Investigation of Vortex Breakdown for a Delta Wing at High Angle of Attack.* AFIT/GAE/ENY/03-3. Faculty Advisor: Lt Col Montgomery Hughson. DSN: 785-3636, x4597. Sponsor: AFRL/VACA.

Hanley, J. G. *A Comparison of Nonlinear Algorithms in the Prevention of Pilot-Induced Oscillations Caused by Actuator Rate Limiting.* AFIT/GAE/ENY/03-4. Faculty Advisor: Dr. Bradley Liebst. DSN: 785-3636, x4636. Sponsor: USAF TPS.

Ivancic, F. T. *The Effect of a Hard Coating on the Damping and Fatigue Life of Titanium*. AFIT/GAE/ENY/03-12. Faculty Advisor: Dr. Anthony Palazotto. DSN: 785-3636, x4599. Sponsor: AFRL/PRTC.

Quaale, R. J. *Experimental Results for a High Swirl, Ultra Compact Combustor for Gas Turbine Engines.* AFIT/GAE/ENY/03-5. Faculty Advisor: Capt Ralph Anthenien. DSN: 785-3636, x4643. Sponsor: AFOSR/NA.

*Roberts, R. W. *Sensor-Craft Analytical Certification*. AFIT/GAE/ENY/03-6. Faculty Advisor: Lt Col Robert Canfield. DSN: 785-3636, x4723. Sponsor: AFRL/VASD and DAGSI.

Schulz, C. S. *Cooperative Control Simulation Validation Using Applied Probability Theory*. AFIT/GAE/ENY/03S-14. Faculty Advisor: Lt Col David Jacques. DSN: 785-7777, x3329. Sponsor: AFRL/VAC.

Smallwood, B. P. *Structurally Integrated Antennas on a Joined-Wing Aircraft*. AFIT/GAE/ENY/03-7. Faculty Advisor: Lt Col Robert Canfield. DSN: 785-3636, x4723. Sponsor: AFRL/VA.

Toth, R. G. *Nonlinear, Transonic Flutter Prediction for F-16 Stores Configuration Clearance*. AFIT/GAE/ENY/03-8. Faculty Advisor: Lt Col Robert Canfield. DSN: 785-3636, x4723. Sponsor: 46 SK/SKE.

*Walan, A. M. G. *Application of Maneuver-Based Control in Variable Autonomy Unmanned Combat Aerial Vehicles.* AFIT/GAE/ENY/03-9. Faculty Advisor: Dr. Curtis Spenny. DSN: 785-3355, x3348. Sponsor: DAGSI and AFRL/VA.

Welker, T. C. *Experimental and Computational Failure Analysis of Graphite/Bismaleimide Laminated Composite and Carbon Foam in Sandwich Construction.* AFIT/GAE/ENY/03M-10. Faculty Advisor: Dr. Anthony Palazotto. DSN: 785-3636, x4599. Sponsor: AFRL/VA.

3.2.4 APPLIED MATHEMATICS (GAM)

Sipe, Jeffrey A. *Transient Analysis and Applications of Markov Reward Processes*. AFIT/GAM/ENS/03-01. Faculty Advisor: Dr. Jeffrey P. Kharoufeh. DSN 785-6565, x4336. Sponsor: N/A.

3.2.5 APPLIED PHYSICS (GAP)

Chitwood, Elizabeth A. *Electrical Activation Studies of Silicon Implanted $Al_xGa_{1-x}N$ and Coimplanted GaN.* AFIT/GAP/ENP/03-01. Faculty Advisor: Dr. Yung Kee Yeo. DSN: 785-3636 x4532. Sponsor: AFOSR/NE.

Claunch, Erin N. *Luminescence Studies of Ion-Implanted Gallium Nitride and Aluminum Gallium Nitride.* AFIT/GAP/ENP/03M-02. Faculty Advisor: Dr. Yung Kee Yeo. DSN: 785-3636 x4532. Sponsor: AFOSR/NE.

Crookston, Matthew B. *Single-mode Raman Fiber Laser in a Multi-mode Fiber.* AFIT/GAP/ENP/03-3. Faculty Advisor: Dr. Won B. Roh. DSN: 785-3636, x4509. Sponsor: AFRL/DELO.

Ferguson, Edward G. *Optical Characterization of Antimony-Based Types-I and –II Multiple Quantum-Well Semiconductor Structures for Mid-Infrared Laser Application.* AFIT/GAP/ENP/03-04. Faculty Advisor: Dr. Michael A. Marciniak. DSN: 785-3636, x4529. Sponsor: AFRL/DE.

Harris, Jose T. *Spacecraft Charging at Geosynchronous Altitudes: Current Balance and Critical Temperature in a Non-Maxwellian Plasma.* AFIT/GAP/ENP/03M-05. Faculty Advisor: Maj Devin J. Della-Rose. DSN: 785-3636, x4514. Sponsor: AFWA.

Willis, Shawn M. *Phasing a Dual Optical Path System Using an Optical Fiber as a Phase Conjugate Mirror.* AFIT/GAP/ENP/03-6. Faculty Advisor: Dr. Won B. Roh. DSN: 785-3636, x4509. Sponsor: AFRL/DELO.

3.2.6 ASTRONAUTICAL ENGINEERING (GA)

French, D. B. *Hybrid Control Strategies for Rapid, Large Angle Satellite Slew Maneuvers*. AFIT/GA/ENY/03-2. Faculty Advisor: Maj Richard Cobb. DSN: 785-3636, x4559. Sponsor: N/A.

Philley, T. L. Jr. *Development, Fabrication and Ground Test of an Inflatable Structure Space-Flight Experiment.* AFIT/GA/ENY/03-3. Faculty Advisor: Maj Richard Cobb. DSN: 785-3636, x4559. Sponsor: IMINT/RNTS.

3.2.7 COMPUTER ENGINEERING (GCE)

Bowman, Geoffrey G. *Investigation of Doppler Effects on the Detection of Polyphase Coded Radar Waveforms*. AFIT/GCE/ENG/03-01. Faculty Advisor: Dr. Steven Gustafson. DSN: 785-3636, x4598. Sponsor: AFRL/SNZT.

Jackson, Jacob. *Targeting Covert Messages: A Unique Approach for Detecting Novel Steganography*. AFIT/GCE/ENG/03-02. Faculty Advisor: Dr. Gregg Gunsch. DSN: 785-2024. Sponsor: AFRL/IFEC.

Saeger, Mark D. *Performance Analysis of Protocol Independent Multicasting-Dense Mode in Low Earth Orbit Satellite Networks*. AFIT/GCE/ENG/03-03. Faculty Advisor: Dr. Richard Raines. DSN: 785-6565, x4278. Sponsor: JWAC/J53.

Stinson, Clinton W. *Internet Protocol (IP) Overlink-16 Network.* AFIT/GCE/ENG/03-04. Faculty Advisor: Maj Rusty Baldwin. DSN: 785-6565, x4445. Sponsor: AFRL/IFTA.

3.2.8 COMPUTER SYSTEMS (GCS)

Bakshas, Brian K. *Image Retrieval Using a Graphical Human Computer Interface with Feedback-Driven Querying.* AFIT/GCS/ENG/03-01. Faculty Advisor: Lt Col Karl Mathias. DSN: 785-2024. Sponsor: NAIC/IMINT.

Balaz, Brian A. *A Three-Dimensional Heads-Up Primary Navigation Reference Display for Paratroopers Performing High Altitude High Open Jumps.* AFIT/GCS/ENG/03-02. Faculty Advisor: Lt Col Timothy Jacobs. DSN: 785-6565, x4279. Sponsor: Specialized Technical Services.

Bartley, Carolyn R. *A Visual Language for Composable Simulation Scenarios*. AFIT/GCS/ENG/03-03. Faculty Advisor: Lt Col Karl Mathias. DSN: 785-2024. Sponsor: DMSO.

Carr, Clinton G., III. *Reverse Geographic Location of a Computer Node.* AFIT/GCS/ENG/03-04. Faculty Advisor: Maj Rusty Baldwin. DSN: 785-6565, x4445. Sponsor: NSA/R5.

Caswell, David J. *Active Processor Scheduling Using Evolutionary Algorithms.* AFIT/GCS/ENG/02-36. Faculty Advisor: Dr. Gary Lamont. DSN: 785-3636, x4718. Sponsor: AFRL/IFTC.

Dillard, Wade E. *Geographic Location of Wireless Computer Network Intrusions and Threats Using a Wireless Area Detection Enclosure*. AFIT/GCS/ENG/03-05. Faculty Advisor: Dr. Gregg Gunsch. DSN: 785-2024. Sponsor: AFRL/IFGC.

Esslinger, Mark A. *An Artificial Immune System Strategy for Robust Chemical Spectra Classification via Distributed Heterogeneous Sensors.* AFIT/GCS/ENG/03-06. Faculty Advisor: Dr. Gary Lamont. DSN: 785-3636, x4718. Sponsor: AFRL/IFTA.

Hunt, Eric O. *An Extensible Framework for Integration and Testing of Scheduling Algorithms with the Master Air Attack Plan Tool Kit.* AFIT/GCS/ENG/03-07. Faculty Advisor: Lt Col Karl Mathias. DSN: 785-2024. Sponsor: USAF C2B.

Kneeland, Timothy F. *Performance Evaluation and Analysis of Effective Range and Data Throughput for Unmodified Bluetooth Communication Devices*. AFIT/GCS/ENG/03-08. Faculty Advisor: Dr. Rick Raines. DSN: 785-6565, x4278. Sponsor: AFIWC/IOTT.

Kowalchuk, Andrew J. *Implementing an Information Retrieval and Visualization Framework for Heterogeneous Data Types*. AFIT/GCS/ENG/03-09. Faculty Advisor: Lt Col Timothy Jacobs. DSN: 785-2024. Sponsor: AFRL/IFSA.

Lotspeich, James T. *Distributed Control of a Swarm of Autonomous Unmanned Aerial Vehicles*. AFIT/GCS/ENG/03-10. Faculty Advisor: Dr. Gary Lamont. DSN: 785-2024, x4718. Sponsor: AFRL/IFTA.

Mossing, Nicholas C. *Performance Analysis of a Diffused Infrared Wireless Network for the Air Force Fleet of VC-25A Aircraft, Air Force One.* AFIT/GCS/ENG/03-11. Faculty Advisor: Dr. Rick Raines. DSN: 785-6565, x4278. Sponsor: PAS/DOR.

Musial, Benjamin R. *AML Assisted Visual Debugging for Distributed Systems*. AFIT/GCS/ENG/03-12. Faculty Advisor: Lt Col Timothy Jacobs. DSN: 785-2024. Sponsor: AFOSR/NM.

Noel, Randall B. *Classifying Network Attacks Using Pattern Classification Algorithms*. AFIT/GCS/ENG/03-14. Faculty Advisor: Dr. Gregg Gunsch. DSN: 785-2024. Sponsor: AFRL/IFGB.

O'Brien, Larissa A. *Using Sequential Analysis to Perform Application-Based Anomaly Detection Within an Artificial Immune System Framework.* AFIT/GCS/ENG/03-15. Faculty Advisor: Dr. Gregg Gunsch. DSN: 785-2024. Sponsor: AFOSR/NM.

Reith, Mark G. *Searching System Call Information for Clues: The Effects of Intrusions on Processes.* AFIT/GCS/ENG/03-16. Faculty Advisor: Dr. Gregg Gunsch. DSN: 785-2024. Sponsor: AFOSR/NM.

Roberts, Christopher K. *Adjusting Sensing Range to Maximize Throughput on Ad-Hoc Multi-Hop Wireless Networks.* AFIT/GCS/ENG/03-17. Faculty Advisor: Major Rusty Baldwin. DSN: 785-6565, x4445. Sponsor: NSA.

Roell, Richard J. *A Data Framework for Integrating Heterogeneous Systems Using Agents, XML and COABS.* AFIT/GCS/ENG/03-18. Faculty Advisor: Lt Col Timothy Jacobs. DSN: 785-2024. Sponsor: DMSO.

Wilson, Kenneth W. *Application of Multi-Modal Feedback Models in Imagery Collections*. AFIT/GCS/ENG/03- 19. Faculty Advisor: Lt Col Karl Mathias. DSN: 785-2024. Sponsor: AFRL/SNAA.

Young, Jacqueline B. *Deterministic Intracellular Modeling*. AFIT/GCS/ENC/03-01. Faculty Advisor: Dr. Dennis Quinn. DSN: 785-3098, x4522. Sponsor: AFOSR/ NL.

3.2.9 COST ANALYSIS (GCA)

Bielecki, John V. *Estimating Engineering and Manufacturing Development Cost Risk Using Logistic and Multiple Regression.* AFIT/GCA/ENC/03-01. Faculty Advisor: Dr. Edward D. White III., DSN: 785-3636, x4540. Sponsor: ASC/FMCE (AFMC).

Moore, Gary W. *Estimating Procurement Cost Growth Using Logistic and Multiple Regression*. AFIT/GCA/ENC/03-02. Faculty Advisor: Dr. Edward D. White III. DSN: 785-3636, x4540. Sponsor: ASC/FMCE (AFMC).

3.2.10 ELECTRICAL ENGINEERING (GE)

Akcivi, H. Aydin. *Implementation and Validation of a Real-time Wireless, Non-invasive Physiological Monitoring System in a High-G Environment.* AFIT/GE/ENG/03-01. Faculty Advisor: Dr. Mikel M. Miller. DSN: 785-2024. Sponsor: AFRL/HEPA.

Anderson, D. Scott. *Fast Compression of Imagery with High Frequency Content*. AFIT/GE/ENG/03-21. Faculty Advisor: Maj Roger L. Claypoole, Jr. DSN: 785-2024. Sponsor: AFRL/SNJT.

Blahovec, Joseph D., Jr. *Analysis of Digital Cellular Signals for Passive Coherent Location (PCL) Applications.* AFIT/GE/ENG/03-02. Faculty Advisor: Dr. Michael Temple. DSN: 785-2024, x4279. Sponsor: NAIC/FTES.

Bouska, Terry J. *Development and Simulation of a Pseudolite-Based Flight Reference System.* AFIT/GE/ENG/03-03. Faculty Advisor: Dr. John Raquet. DSN: 785-2024, x4580. Sponsor: 746th Test Squadron.

Bradley, Kenneth C. *Mechanical Computing in Microelectromechanical Systems (MEMS).* AFIT/GE/ENG/03-04. Faculty Advisor: Capt Paul Kladitis. DSN: 785-2024, x4595. Sponsor: AFRL/MNMF.

Caffey, Jared R. *The Effects of Ionizing Radiation on Microelectromechanical Systems (MEMS) Actuators: Electrostatic, Electrothermal and Residual Stress.* AFIT/GE/ENG/03-05. Faculty Advisor: Capt Paul Kladitis. DSN: 785-2024, x4595. Sponsor: AFRL/VSSE.

Canadeo, Courtney M. *Ultra Wide Band Multiple Access Performance Using TH-PPM and DS-BPSK Modulations.* AFIT/GE/ENG/03-06. Faculty Advisor: Dr. Michael Temple. DSN: 785-2024, x4279. Sponsor: AFRL/SNRW.

Casey, Brendan K. *Theoretical Analysis of Information Watermarking in Wavelet-Based Video Compression.* AFIT/GE/ENG/03-07. Faculty Advisor: Maj Roger L. Claypoole, Jr. DSN: 785-2024. Sponsor: AFRL/IFTA.

Coleman, Rachel G. *Emissivity-Based Target Detection in Hyperspectral Images*. AFIT/GE/ENG/03-08. Faculty Advisor: Maj Roger L. Claypoole, Jr. DSN: 785-2024. Sponsor: AFRL/SNJT.

Duffy, Kate. *Feature Guided Image Registration for Phased and Wavelet-Based Optic Flow.* AFIT/GE/ENG/03-09. Faculty Advisor: Maj Roger L. Claypoole, Jr. DSN: 785-2024. Sponsor: AFRL/MNGN.

Giebner, Michael G. *Tightly-Coupled Image-Aided Inertial Navigation System via a Kalman Filter*. AFIT/GE/ENG/03-10. Faculty Advisor: Dr. John F. Raquet. DSN: 785-2024, x4580. Sponsor: AFRL/MNGI.

Kurian, John. *Development of Variable Slope Piecewise-Based Brown Symbols for Application to Nonlinear Ambiguity Suppression.* AFIT/GE/ENG/03-12. Faculty Advisor: Dr. Michael Temple. DSN: 785-2024. Sponsor: AFRL/SN.

Larson, Craig D. *Adaptive Compensation of GPS Signal Jamming Through Multiple Model Adaptive Estimation Applied to Ultra-Tightly Coupled GOS/INS Architecture*. AFIT/GE/ENG/03-14. Faculty Advisor: Dr. Peter Maybeck. DSN: 785-2024, x4279. Sponsor: AFRL/MNGN.

Mounce, Gabriel D. *Building Blocks for Time-Resolved Laser Emission in Mid-Infrared Quantum-Well Lasers.* AFIT/GE/ENP/03-01. Faculty Advisor: Lt Col Michael A. Marciniak. DSN: 785-3636, x4529. Sponsor: AFRL/DE.

Pepela, Ngoya. *Effect of Multi-Mode Vibration of a Diffuse Body on Signature Estimation via Laser Vibration Sensor.* AFIT/GE/ENP/03-02. Faculty Advisor: Lt Col Michael A. Marciniak. DSN: 785-3636, x4529. Sponsor: AFRL/SN.

Porter, Alec E. *INS Aiding Using Passive Bearings-On Measurement of an Unknown Stationary Ground.* AFIT/GE/ENG/03-15. Faculty Advisor: Dr. Meir Pachter. DSN: 785-2024, x4280. Sponsor: AFRL/MNGN.

Schutte, Christina G. *Using the GPS to Improve Trajectory Position and Velocity Determination During Real-Time Ejection Seat Test and Evaluation.* AFIT/GE/ENG/03-16. Faculty Advisor: Dr. Mikel M. Miller. DSN: 785-2024. Sponsor: AFRL/HEPA.

Stewart, James W. *Analysis of Broadband High-Impedance Ground Plane Antenna Designs.* AFIT/GE/ENG/03-17. Faculty Advisor: Maj William Wood. DSN: 785-2024. Sponsor: AFRL/SNRR.

Ward, Daniel L. *Redundant Discrete Wavelet Transform Based Super-Resolution Using Sub-Pixel Image Registration.* AFIT/GE/ENG/03-18. Faculty Advisor: Maj Roger L. Claypoole, Jr. DSN: 785-2024. Sponsor: USAF C2B/Concept and Research Division.

Williams, Jason L. *Gaussian Mixture Reduction for Tracking Multiple Maneuvering Targets in Clutter*. AFIT/GE/ENG/03-19. Faculty Advisor: Dr. Peter S. Maybeck. DSN: 785-2024, x4581. Sponsor: AFRL/SNAT.

Yang, Jae K. *The Effects of GPS M-Code on Radar Detection*. AFIT/GE/ENG/03-20. Faculty Advisor: Dr. John F. Raquet. DSN: 785-2024, x4580. Sponsor: SMC/GPE.

3.2.11 ELECTRO-OPTICS (GEO)

Freyenhagen, Joel. *Fabrication of Thin-Film CIGS Solar Cells for Space-Based Assets.* AFIT/GEO/ENP/03-01. Faculty Advisor: Lt Col Michael A. Marciniak. DSN: 785-3636, x4529. Sponsor: AFRL/VS.

3.2.12 ENGINEERING AND ENVIRONMENTAL MANAGEMENT (GEE)

*Blalock, Jack A. *Groundwater Flow through a Constructed Treatment Wetland.* AFIT/GEE/ENV/03-01. Faculty Advisor: Dr. Michael L. Shelley. DSN 785-3636, x4594. Sponsors: HQ USAF/ILEV and AFRL/MLQ.

Cadena, Kerry J. *Modeling Catalytic Destruction of Subsurface Contaminants in Recirculating Wells*. AFIT/GEE/ENV/03-02. Faculty Advisor: Dr. Mark N. Goltz. DSN: 785-2998, x4638. Sponsor: AFCEE/ERT.

*Clemmer, Nathan D. *Characterization of Chlorinated Solvent Degradation in a Constructed Wetland*. AFIT/GEE/ENV/03-03. Faculty Advisor: Dr. Michael L. Shelley. DSN 785-3636, x4594. Sponsor: HQ USAF/ILEV and AFRL/MLQ.

Cole, Ronald C. *Analyze the Air Force Methods for Facility Sustainment and Restoration*. AFIT/GEE/ENV/03-04. Faculty Advisor: Lt Col Heidi S. Brothers. DSN: 785-2998. Sponsor: AFMC.

*Craig, Matthew S. *Decision Analysis Model for Refreshment of Geobase Imagery: Basis for Investment Strategy.* AFIT/GEE/ENV/03-05. Faculty Advisor: Lt Col Heidi S. Brothers. DSN: 785-2998. Sponsor: HQ USAF/ILE-I and AFCESA/CEOF.

Dempsey, Andre R. *A Proposed Military Construction Facility Investment Model*. AFIT/GEE/ENV/03-06. Faculty Advisor: Lt Col Alfred E. Thal, Jr. DSN: 785-2998. Sponsor: HQ USAF/ILEC.

Eskridge, Robert P. *Using Future Value Analysis to Select an Optimal Portfolio of Force Protection Initiatives.* AFIT/GEE/ENS/03-01. Faculty Advisor: Capt Stephen P. Chambal. DSN: 785-6565, x4486. Sponsor: USAF FPB.

Fitzgerald, Crissie D. *An Economic Evaluation of Binary Cycle Geothermal Electricity Production.* AFIT/GEE/ENV/03-07. Faculty Advisor: Dr. Peter LaPuma. DSN: 785-2998. Sponsor: AFCESA.

Fonnesbeck, Nathan W. *A System Dynamics Approach for Information Technology Implementation and Sustainment.* AFIT/GEE/ENV/03-08. Faculty Advisor: Dr. Michael L. Shelley. DSN 785-3636, x4594. Sponsor: HQ USAF/ILE.

Gore, Michael S. *Strategies Leaders Should Use to Respond to Hostile Questions Regarding Organizational Changes: An Empirical Investigation.* AFIT/GEE/ENV/03-09. Faculty Advisor: Maj Daniel T. Holt. DSN: 785-2998, x4800. Sponsor: N/A.

Graef, Harold W. *An Analysis of Microbial Contamination in Military Aviation Fuel Systems.* AFIT/GEE/ENV/03-10. Faculty Advisor: Dr. Charles A. Bleckmann. DSN: 785-2998, x4721. Sponsor: AFRL/PRTG.

Hanrahan, John A. *Modeling of Government Interactions with a Terrorist Organization to Understand the Dynamic Behavior Produced.* AFIT/GEE/ENV/03-11. Faculty Advisor: Lt Col Alfred E. Thal, Jr. DSN: 785-2998. Sponsor: N/A.

Hargy, David F. *Sustainable Development Guide for Facility and Infrastructure Projects*. AFIT/GEE/ENV/03-12. Faculty Advisor: Dr. Charles A. Bleckmann. DSN: 785-2998, x4721. Sponsor: AFCEE/EQT.

Knarr, Mark R. *Optimizing an In Situ Bioremediation Technology to Manage Perchlorate-Contaminated Groundwater.* AFIT/GEE/ENV/03-14. Faculty Advisor: Dr. Mark N. Goltz. DSN: 785-2998, x4638. Sponsor: AFCEE/ERT.

*Kovacic, Joshua D. *Analysis of Anion Distribution in the Developing Strata of a Constructed Wetland Used for Chlorinated Ethene Remediation.* AFIT/GEE/ENV/03-15. Faculty Advisor: Dr. Michael L. Shelley. DSN 785-3636, x4594. Sponsors: HQ USAF/ILEV and AFRL/MLQ.

Liberman, Edward J. *A Life Cycle Assessment and Economic Analysis of Wind Turbines Using Monte Carlo Simulation.* AFIT/GEE/ENV/03-16. Faculty Advisor: Dr. Peter LaPuma. DSN: 785-2998. Sponsor: HQ AFCESA/CESM.

Lin, Jeffrey H. *A Study of Voluntary Turnover of Air Force Officers in Critically-Manned Career Fields.* AFIT/GEE/ENV/03-17. Faculty Advisor: Maj Daniel T. Holt. DSN: 785-2998, x4800. Sponsor: RAND.

Lynch, Nicholas A. *Evaluation of the Competitive Sourcing Process.* AFIT/GEE/ENV/03-18. Faculty Advisor: Lt Col Heidi Brothers. DSN: 785-2998. Sponsor: N/A.

Meade, Quincy. *Long Term Implementation of 100 Percent Checked Baggage System: A Value Focused Thinking Approach.* AFIT/GEE/ENS/03-02. Faculty Advisor: Dr. Richard Deckro. DSN: 785-6565, x4285. Sponsor: Dayton International Airport.

Mondo, Francis J. Jr. *Analysis of Air Force Civil Engineering Strategic Planning*. AFIT/GEE/ENV/03-19. Faculty Advisor: Lt Col Heidi S. Brothers. DSN: 785-2998. Sponsor: HQ USAF.

Paylor, Steve J. *Remote Sensing Systems Optimization for Geobase Enhancement*. AFIT/GEE/ENV/03-20. Faculty Advisor: Lt Col Heidi S. Brothers. DSN: 785-2998. Sponsor: HQ USAF/ILE.

Phillips, Dennis L. *Palladium-Catalyzed Destruction of Nitro Aromatic Compounds in Groundwater*. AFIT/GEE/ENV/03-21. Faculty Advisor: Dr. Mark N. Goltz. DSN: 785-2998, x4638. Sponsor: AFCEE.

Yates, Jason E. *A System Dynamics Investigation of Genetic Drift and Translocation in the Red-Cockaded Woodpecker Metapopulation.* AFIT/GEE/ENV/03-22. Faculty Advisor: Dr. Michael L. Shelley, DSN 785-3636, x4594. Sponsor: HQ ACC/ILEV.

3.2.13 INFORMATION RESOURCE MANAGEMENT (GIR)

Caruso, Valerie L. *Investigation of Outsourced Information Technology (IT) and the Increasing Trend in Insider Threat Risks.* AFIT/GIR/ENG/03-01. Faculty Advisor: Dr. Gregg H. Gunsch. DSN: 785-2024. Sponsor: PERSEREC.

Case, David A. *Antecedents and Outcomes of End User Computing Competence*. AFIT/GIR/ENV/03-01. Faculty Advisor: Dr. Alan Heminger. DSN: 785-2998, x4797. Sponsor: AFMC/ASC/HR.

Dethlefs, David R. *Information Sharing, Interoperability, and Collaboration in Law Enforcement: An Investigation of Criminal Justice Information Systems Use Between Federal and State/Local Law Enforcement Organizations*. AFIT/GIR/ENV/03-02. Faculty Advisor: Lt Col Summer E. Bartczak. DSN: 785-3636 x4826. Sponsor: N/A.

Dziubinski, Monica. *A Deception Detection in a Computer-Mediated Environment: Gender, Trust, and Training Issues*. AFIT/GIR/ENV/03-03. Faculty Advisor: Lt Col David Biros. DSN: 785-2998. Sponsor: AFOSR/PIF.

Garman, Michael R. *The Generalizability of Private Sector Research on Software Project Management in Two USAF Organizations: An Exploratory Study.* AFIT/GIR/ENV/03-04. Faculty Advisor: Maj Mark Ward. DSN: 785-2998. Sponsor: AFMC/SSG.

Grayson, Marc A. *Visualization of Career-Related Computer-Mediated Communication for Increased Knowledge Management.* AFIT/GIR/ENV/03-05. Faculty Advisor: Maj Mark Ward. DSN: 785-2998. Sponsor: AFCA/WFLM.

Imperial, Matthew J. *The Effect of Interactivity and Instructional Exposure on Learning Effectiveness and Knowledge Retention: A Comparative Study of Two US Air Force Computer-based Training (CBT) Courses for Network User Licensing*. AFIT/GIR/ENV/03-07. Faculty Advisor: Maj Mark Ward. DSN: 785-2998. Sponsor: OSD-DIAP.

Johnson, Michele E. *An Analysis of Role Conflict and Role Ambiguity Among Air Force Information Management Professionals.* AFIT/GIR/ENV/03-08. Faculty Advisor: Maj Mark Ward. DSN: 785-2998. Sponsor: HQ USAF/ILCXD.

Knode, Monti L. *Perceptions vs Reality: A Longitudinal Experiment in Influenced Judgment Performance.* AFIT/GIR/ENV/03-09. Faculty Advisor: Lt Col David Biros. DSN: 785-2998. Sponsor: AFOSR/PIF.

Lankowski, Mark L. *Training Effects on Judgment Accuracy in a Computer-Mediated Environment.* AFIT/GIR/ENV/03-10. Faculty Advisor: Lt Col David Biros. DSN: 785-2998. Sponsor: AFOSR/PIF.

May, Jason A. *An Investigation of Air Force Communities of Practice: A Descriptive Study of Evolution Through Assessment of People, Process, and Technology Capabilities.* AFIT/GIR/ENV/03-11. Faculty Advisor: Lt Col Summer E. Bartczak. DSN: 785-3636 x4826. Sponsor: AFMC/DRW.

Melancon, Keith A. *Analysis of a Metropolitan Area Network for Optimization in a Network Simulation*. AFIT/GIR/ENG/03-02. Faculty Advisor: Dr. Richard A. Raines. DSN: 785-2024, x4278. Sponsor: AFCA.

Mitchell, Scott M. *Analyzing Differences Between Public and Private Sector Information Resource Management: Strategic Chief Information Officer Challenges and Critical Technologies.* AFIT/GIR/ENV/03-12. Faculty Advisor: Maj Mark Ward. DSN: 785-2998. Sponsor: N/A.

Phillips, Jeffrey A. *Incorporating Organizational Culture into a Decision Framework for Identifying and Selecting Knowledge Management Projects*. AFIT/GIR/ENV/03-13. Faculty Advisor: Dr. Alan Heminger. DSN: 785-2998, x4797. Sponsor: AF-CIO/S.

Povlich, Robert W. Jr. *The Effects of Technology Turnover on Workplace Productivity Perceptions.* AFIT/GIR/ENV/03-14. Faculty Advisor: Maj Mark Ward. DSN: 785-2998. Sponsor: HQ AF/ILXC.

Ray, Alfred D. *Analysis of the Theoretical Relationships between Work Exhaustion, Job Satisfaction, and Turnover Intention of Air Force Information Systems Managers.* AFIT/GIR/ENV/03-15. Faculty Advisor: Dr. Alan Heminger. DSN: 785-2998, x4797. Sponsor: HQ/USAF/XIP.

Rockwell, Roy V. *Deception Detection: Study of Information Manipulation through Electronic Identity Theft – Email Forgery in the U.S. Military.* AFIT/GIR/ENV/03-16. Faculty Advisor: Lt Col David Biros. DSN: 785-2998. Sponsor: AFOSR/PIF.

Smith, Dan W. *A Theoretical Framework for Turnover Intention of Air Force Enlisted Information Systems Personnel.* AFIT/GIR/ENV/03-17. Faculty Advisor: Maj Mark Ward. DSN: 785-2998. Sponsor: AF/ILCXD.

Wagnon, John T. *Application Identification Using Wireless Network Traffic Characteristics.* AFIT/GIR/ENG/03-03. Faculty Advisor: Maj Rusty O. Baldwin. DSN: 785-2024, x4445. Sponsor: NSA.

Wardak, Randy S. *Human Ability to Detect Deceptive Messages in Text Information.* AFIT/GIR/ENV/03-18. Faculty Advisor: Lt Col David Biros. DSN: 785-2998. Sponsor: AFOSR/PIF.

3.2.14 LOGISTICS MANAGEMENT (GLM)

Bayer, Michael A. *Aerospace Ground Equipment Management's Impact on Home Station Sortie Production.* AFIT/GLM/ENS/03-01. Faculty Advisor: Lt Col Stephan P. Brady. DSN 785-6565, x4367. Sponsor: AFRL/HESR.

Cho, Matthew G. *The Air Force Operational Risk Management Program and Aviation Safety*. AFIT/GLM/ENS/03-02. Faculty Advisor: Lt Col Stephen M. Swartz. DSN 785-6565, x4285. Sponsor: AFSC.

Horsey, Michael L. *Multiple Case Comparison of the In-transit Visibility Business Process.* AFIT/GLM/ENS/03-03. Faculty Advisor: Maj Stanley E. Griffis. DSN 785-6565, x4339. Sponsor: HQ USAF/ILGD.

Kossow, Michael P. *Modal Selection Analysis of Depot Level Reparable Asset Retrograde Shipments within the Continental United States.* AFIT/GLM/ENS/03-04. Faculty Advisor: Dr. William A. Cunningham, III. DSN 785-6565, x4283. Sponsor: N/A.

Larson, Eric D. *An Analysis of Information Referenced Testing as an Air Force Assessment Tool.* AFIT/GLM/ENS/03-05. Faculty Advisor: Lt Col Stephen M. Swartz. DSN 785-6565, x4285. Sponsor: USAFA.

Lee, Seongkyun. *Onward Movement Transportation Mode Selection Study*. AFIT/GLM/ENS/03-06. Faculty Advisor: Maj Stanley E. Griffis. DSN 785-6565, x4339. Sponsor: N/A.

Lofton, John C., III. *A Comparative Study of the Warrior Support Tool and the Agile Munitions Support Tool.* AFIT/GLM/ENS/03-07. Faculty Advisor: Lt Col Stephen M. Swartz. DSN 785-6565, x4285. Sponsor: AFRL/HESR.

Mueller, Coreen R. *Joining the Department of Defense Enterprise Resource Planning Team: The Air Force's Role in the Enterprise*. AFIT/GLM/ENS/03-08. Faculty Advisor: Lt Col Stephan P. Brady. DSN 785-6565, x4367. Sponsor: N/A.

Ogorek, Gregory T. *Utility of the Logistics Officer Career Path Pyramid in Promotion Prediction.* AFIT/GLM/ENS/03-09. Faculty Advisor: Dr. William A. Cunningham, III. DSN 785-6565, x4283. Sponsor: N/A.

*Owen, Kenneth J. *Analysis of Passenger Processing Capabilities at a Non-AMC Passenger Terminal.* AFIT/GLM/ENS/03-10. Faculty Advisor: Dr. William A. Cunningham, III. DSN: 785-6565, x4283. Sponsors: AFLMA and USAF/ILGT.

Pettingill, Kirk B. *An Analysis of the Efficacy of the Logistics Composite Model in Estimating Maintenance Manpower Productive Capacity*. AFIT/GLM/ENS/03-11. Faculty Advisor: Lt Col Stephen M. Swartz. DSN 785-6565, x4285. Sponsor: N/A.

Watson, Frank W., Jr. *The Air Mobility Planner's Calculator: Improvements, Verification, and Validation.* AFIT/GLM/ENS/03-12. Faculty Advisor: Dr. James T. Moore. DSN 785-3636, x44528. Sponsor: AMC/XPY.

Wier, Stephen D. *A Correlation Study of Second Destination Transportation Funding and Vehicle Movement.* AFIT/GLM/ENS/03-13. Faculty: Dr. William A. Cunningham, III. DSN 785-6565, x4283. Sponsor: N/A.

3.2.15 MATERIALS SCIENCE (GMS)

Ness, Stanley J. *Stress Analysis of Slicon Carbide Microelectromechanical Systems Using Raman Spectroscopy*. Faculty Advisor. AFIT/GMS/ENP/03-01. Dr. Michael A. Marciniak. DSN: 785-3636, x4529. Sponsor: AFRL/Materials and Manufacturing Directorate.

3.2.16 METEOROLOGY (GM)

Allen, Mark S. *Evaluation of the Mountain Wave Forecast Model's Stratospheric Turbulence Simulations.* AFIT/GM/ENP/03-01. Faculty Advisor: Lt Col Michael K. Walters. DSN 785-3636, x4681. Sponsor: AFWA/DNXT.

Benz, Richard F. *Data Mining Atmospheric/Oceanic Parameters in the Design of a Long-Range Nephelometric Forecast Tool.* AFIT/GM/ENP/03M-02. Faculty Advisor: Lt Col Ronald P. Lowther. DSN 785-3636, x4645. Sponsor: 28th OWS, Shaw AFB, SC.

Gasbarro, Marc R. *Forecasting Excessive Rainfall and Low-Cloud Bases East of the Northern Andes and Mesoscale Convective Complex Movement in Central South America.* AFIT/GM/ENP/03-03. Faculty Advisor: Lt Col Ronald P. Lowther, DSN 785-3636, x4645. Sponsor: 25th OWS, Davis-Monthan AFB, AZ.

Gonzalez, Richard D. *An Interactive Visualization Environment for Optical Turbulence Affecting Airborne Laser Operations.* AFIT/GM/ENG/03-01. Faculty Advisor: Lt Col Michael K. Walters. DSN 785-3636, x4681. Sponsor: ASC/TM.

Narcisse, Leon C. *Comparison of the Refractive Index Structure Constant Derived from Numerical Weather Prediction (NWP) Models and Thermosonde Data.* AFIT/GM/ENP/03M-04. Faculty Advisor: Lt Col Michael K. Walters. DSN 785-3636, x4681. Sponsor: SMC/TMSW.

3.2.17 NUCLEAR ENGINEERING (GNE)

Beck, Eric V. *Theoretical Comparison of the Excited Electronic States of the Uranyl (U022+) and Uranate (U04-2) Ions Using Relativistic Computational Methods.* AFIT/GNE/ENP/03-01. Faculty Advisor: Dr. Larry W. Burgraff. DSN: 785-3636, x4507. Sponsor: AFTAC/TMNE.

Grammer, Richard S. *Sensitivity of WinGS-Computed Ground-Shock to Variations of Geology, Material, Method, and Nuclear-Burst Scenario Parameters.* AFIT/GNE/ENP/03-03. Faculty Advisor: Dr. Kirk Mathews. DSN: 785-2012, x4508. Sponsor: DTRA.

Hasz, Ronald C. *Computational Assessment of the Initial Distribution of the Performance of a Plasma Radiation Source.* AFIT/GNE/ENP/03-04. Faculty Advisor: Lt Col Vincent Jodoin. DSN: 785-2012. Sponsor: DTRA.

Morrow, David P. *Calculation of the Activity of Isotopes in Fallout from a Nuclear Detonation.* AFIT/GNE/ENP/03-06. Faculty Advisor: Lt Col Vincent Jodoin. DSN: 785-2012. Sponsor: DTRA/CSNP.

Nelson, Michael B. *Detection of Special Nuclear Material with High Purity Germanium (HPGe) and Mercuric Iodide (HgI2) Gamma Detectors.* AFIT/GNE/ENP/03-07. Faculty Advisor: Dr. Larry W. Burgraff. DSN: 785-3636, x4507. Sponsor: DTRA/TDAS.

Newton, Matthew J. *Vulnerability Analysis of an RBMK-1500 Reactor.* AFIT/GNE/ENP/03-08. Faculty Advisor: LTC James C. Petrosky. DSN: 785-3636, x4562. Sponsor: DTRA.

Roberts, Jr., John W. *Quantum Mechanical Calculations of Monoxides of Silicon Carbide Molecules* AFIT/GNE/ENP/03-09. Faculty Advisor: Dr. Larry W. Burgraff. DSN: 785-3636, x4507. Sponsor: AFOSR.

Vaughn, Stephanie D. *Investigation of a passive, Temporal, Neutron Monitoring System that Functions Within the Confines of Start I.* AFIT/GNE/ENP/03-10. Faculty Advisor: LTC James C. Petrosky. DSN: 785-3636, x4562. Sponsor: DTRA/TDAS.

Willmon, Samuel J. *Total Dose Effects of Ionizing and Non-Ionizing Radiation on Piezoresistive Pressure Transducer Chips.* AFIT/GNE/ENP/03-11. Faculty Advisor: LTC James C. Petrosky. DSN: 785-3636, x4562. Sponsor: DTRA/CSNP.

Wooten, David J. *Linking Heat Transfer to Plutoniom Production at a Gas-Cooled Reactor.* AFIT/GNE/ENP/03-12. Faculty Advisor: Dr. Ronald F. Tuttle. DSN: 785-3636, x4536. Sponsor: DTRA/CSNP.

3.2.18 OPERATIONS RESEARCH (GOR)

Aslan, Davut. *A Decision Support System for Effective Scheduling in an F-16 Pilot Training Squadron.* AFIT/GOR/ENS/03-01. Faculty Advisor: Maj Victor D. Wiley. DSN 785-3636, x4601. Sponsor: 143rd Oncel Squadron, 4th Main Jet Base, Akinci, ANKARA.

Azar, Maurice C. *Assessing the Treatment of Airborne Tactical High Energy Lasers in Combat Simulations.* AFIT/GOR/ENS/03-02. Faculty Advisor: Dr. John O. Miller. DSN 785-6565, x4326. Sponsor: High Energy Laser Joint Technology Office.

Beabout, Bradley A. *Statistical Process Control: An Application in Aircraft Maintenance Management.* AFIT/GOR/ENS/03-03. Faculty Advisor: Maj Paul W. McAree. DSN 785-6565, x4486. Sponsor: Maryland Air National Guard.

Boke, Cem. *Combining and Analyzing the Tanker and Aircrew Scheduling Heuristics*. AFIT/GOR/ENS/03-04. Faculty Co-Advisors: Dr. James T. Moore, DSN 785-3636, x4528, Maj Victor D. Wiley, DSN 785-3636, x4601. Sponsor: AFOSR/NM.

Carl, Ronald G. *Search Theory and U-boats in the Bay of Biscay*. AFIT/GOR/ENS/03-05. Faculty Advisor: Dr. Raymond R. Hill, DSN 785-6565, x4486. Sponsor: DMSO.

Ezik, Oguz. *Calculation of the Actual Cost of Engine Maintenance*. AFIT/GOR/ENS/03-06. Faculty Advisor: Lt Col Stephen M. Swartz. DSN 785-6565, x4285. Sponsor: ACC/LGMP.

Faas, Paul D. *Simulation of Autonomic Logistics System (ALS) Sortie Generation*. AFIT/GOR/ENS/03-07. Faculty Advisor: Dr. J. O. Miller. DSN 785-6565, x4326. Sponsor: AFOSR/NM.

Gozebe, Huseyin. *Optimum Component Design in N-Stage Series Systems to Maximize the Reliability Under Budget Constraint*. AFIT/GOR/ENS/03-08. Faculty Advisor: Capt Stephen P. Chambal. DSN: 785-6565, x4486. Sponsor: N/A.

Hendrixson, Jennifer K. *Analysis of Scheduling Policies for a M/G/1 Queue with Rework.* AFIT/GOR/ENS/03-09. Faculty Advisor: Dr. Jeffrey P. Kharoufeh. DSN 785-6565, x4336. Sponsor: N/A.

*Hill, Justin M. *Evaluating the Performance of Multiple Classifier Systems: A Matrix Algebra Representation of Boolean Fusion Rules.* AFIT/GOR/ENC/03-03. Faculty Advisor: Dr. Mark E. Oxley. DSN: 785-3636, x4515. Sponsors: AFRL/SNAT, AFOSR/NM and ACC.

Hoffman, Donald L. *Using Neural Networks for Estimating Cruise Missile Reliability.* AFIT/GOR/ENS/03-10. Faculty Advisor: Dr. Kenneth W. Bauer. DSN 785-6565, x4328. Sponsor: ACC/DONO.

Jackson, Sarah E. *Planning Coverage of Points of Interest via Multiple Imaging Surveillance Assets: A Multi-Modal Approach.* AFIT/GOR/ENS/03-11. Faculty Advisor: Dr. Richard F. Deckro, DSN 785-6565, x4325. Sponsor: HQ AFSAC/XPY.

Keener, Ross A. *Use of Multivariate Techniques to Validate and Improve the Current USAF Pilot Candidate Selection Model.* AFIT/GOR/ENS/03-13. Faculty Advisor: Dr. Kenneth W. Bauer. DSN: 785-6565, x4328. Sponsor: AETC/SAS.

Kennedy, Kevin T. *An Analysis of Multiple Layered Networks.* AFIT/GOR/ENS/03-14. Faculty Co-Advisors: Dr. Richard F. Deckro. DSN 785-6565, x4325. Maj Victor D. Wiley. DSN 785-3636, x 4601. Sponsor: N/A.

LaPietra, Krista Z. *Analysis of Organizational Architectures for the Air Force Tuition Assistance Program*. AFIT/GOR/ENS/03-15. Faculty Advisor: Maj Paul McAree. DSN 785-6565, x4486. Sponsor: AF/DPLE.

Lewis, Elizabeth T. *Physical Fitness and the Expeditionary Air Force*. AFIT/GOR/ENS/03-12. Faculty Advisor: Capt Stephen P. Chambal, DSN 785-6565, x4486. Sponsor: N/A.

McGee, Christopher. *A Value Focused Thinking Approach to Software Interface in a Complex Analytical Domain.* AFIT/GOR/ENS/03-16. Faculty Advisor: Capt Stephen P. Chambal. DSN 785-6565, x4486. Sponsor: AFRL.

Percival, Scott. *Air Force Reserve Force Structure Policy Evaluation Model*. AFIT/GOR/ENS/03-17. Faculty Advisor: Maj Paul W. McAree. DSN 785-6565, x4486. Sponsor: AGR Management.

Price, Joseph C. *Game Theory and U-boats in the Bay of Biscay*. AFIT/GOR/ENS/03-18. Faculty Advisor: Dr. Raymond Hill. DSN 785-6565, x4486. Sponsor: DMSO.

Pruitt, Kristopher A. *Modeling Homeland Security: A Value Focused Thinking Approach*. AFIT/GOR/ENS/03-19. Faculty Advisor: Dr. Richard F. Deckro. DSN 785-6565, x4325. Sponsor: N/A.

Ritschel, Tamiko L. *A Simulation Comparative Analysis of Alternatives for Tuition Assistance Organizational Structures.* AFIT/GOR/ENS/03-10. Faculty Advisor: Maj Paul W. McAree. DSN 785-6565, x4486. Sponsor: N/A.

Sherman, Nathan P. *A Stochastic Model for Joint Reception, Staging, Onward Movement, and Integration (JRSOI).* AFIT/GOR/ENS/03-21. Faculty Advisor: Dr. Jeffrey P. Kharoufeh. DSN 785-6565, x4336. Sponsor: USTRANSCOM.

Storm, Susan A. *An Investigation of the Effects of Correlation in Sensor Fusion*. AFIT/GOR/ENS/03-22. Faculty Advisor: Dr. Kenneth W. Bauer. DSN 785-6565, x4328. Sponsor: AFOSR/NM.

Sumter, Bradley R. *Optimal Replacement Policies for Satellite Constellations*. AFIT/GOR/ENS/03-23. Faculty Advisor: Dr. Jeffrey P. Kharoufeh. DSN 785-6565, x4336. Sponsor: AFSPC/XPY.

Thawley, David M. *Linear Programming and Genetic Algorithm Based Optimization for the Weighting Scheme of a Value Focused Thinking Hierarchy.* AFIT/GOR/ENS/03-24. Faculty Advisor: Capt Stephen P. Chambal. DSN: 785-6565, x4486. Sponsor: N/A.

Yager, Nicholaus A. *Models for Sortie Generation with Autonomic Logistics Capabilities*. AFIT/GOR/ENS/03-25. Faculty Advisor: Dr. Jeffrey P. Kharoufeh. DSN 785-6565, x4336. Sponsor: N/A.

3.2.19 SPACE OPERATIONS (GSO)

Ari, G. *Cargo Aircraft Bombing System.* AFIT/GSO/ENY/03-01. Faculty Advisor: Dr. Milton Franke. DSN 785-3636, x4720. Sponsor: N/A.

Gozaydin, O. *Analysis of Cooperative Behavior for Autonomous Wide Area Search Munition.* AFIT/GSO/ENY/03-2. Faculty Advisor: Dr. David Jacques. DSN 785-7777, x3329. Sponsor: AFRL/VA.

3.2.20 SYSTEMS ENGINEERING (GSE)

Cho, Jae I. *Shortest Path Problems in a Stochastic and Dynamic Environment.* AFIT/GSE/ENS/03-01. Faculty Advisor: Dr. Jeffrey P. Kharoufeh. DSN 785-6565, x4336. Sponsor: N/A.

Coskuner, N. *Multimission Aircraft Design Study – Operational Scenarios.* AFIT/GSE/ENY/03-1. Faculty Advisor: Dr. Curtis Spenny. DSN: 785-3355, x3348. Sponsor: HQ USAF/XOI.

Kahraman, A. *Multimission Aircraft Design Study, Payload*. AFIT/GSE/ENY/03-2. Faculty Advisor: Dr. Curtis Spenny. DSN: 785-3355, x3348. Sponsor: HQ USAF/XOI.

3.3 SPONSORS OF MASTER'S THESES AND DOCTORAL DISSERTATIONS

[*Denotes Multiple Sponsors]

3.3.1 AIR FORCE

*Blalock, Jack A. *Groundwater Flow through a Constructed Treatment Wetland.* AFIT/GEE/ENV/03-01. Faculty Advisor: Dr. Michael L. Shelley. DSN 785-3636, x4594. Sponsors: HQ USAF/ILEV and AFRL/MLQ.

*Clemmer, Nathan D. *Characterization of Chlorinated Solvent Degradation in a Constructed Wetland*. AFIT/GEE/ENV/03-03. Faculty Advisor: Dr. Michael L. Shelley. DSN 785-3636, x4594. Sponsors: HQ USAF/ILEV and AFRL/MLQ.

Coskuner, N. *Multimission Aircraft Design Study – Operational Scenarios.* AFIT/GSE/ENY/03-1. Faculty Advisor: Dr. Curtis Spenny. DSN: 785-3355, x3348. Sponsor: HQ USAF/XOI.

*Craig, Matthew S. *Decision Analysis Model for Refreshment of Geobase Imagery: Basis for Investment Strategy.* AFIT/GEE/ENV/03-05. Faculty Advisor: Lt Col Heidi S. Brothers. DSN: 785-2998. Sponsor: HQ USAF/ILE-I and AFCESA/CEOF.

Davis, J. M. *Multimission Aircraft Design Study: Electromagnetic Compatibility*. AFIT/GAI/ENY/03-1. Faculty Advisor: Dr. Curtis Spenny. DSN: 785-7777, x3348. Sponsor: HQ USAF/XOIR.

Dempsey, Andre R. *A Proposed Military Construction Facility Investment Model*. AFIT/GEE/ENV/03-06. Faculty Advisor: Lt Col Alfred E. Thal, Jr. DSN 785-2998. Sponsor: HQ USAF/ILEC.

Fonnesbeck, Nathan W. *A System Dynamics Approach for Information Technology Implementation and Sustainment.* AFIT/GEE/ENV/03-08. Faculty Advisor: Dr. Michael L. Shelley. DSN 785-3636, x4594. Sponsor: HQ USAF/ILE.

Horsey, Michael L. *Multiple Case Comparison of the In-transit Visibility Business Process.* AFIT/GLM/ENS/03-03. Faculty Advisor: Maj Stanley E. Griffis. DSN 785-6565, x4339. Sponsor: HQ USAF/ILGD.

Hoskins, Thomas E. *The Effects of Perceived Overqualification on Job Satisfaction, Organizational Commitment, and Turnover: A Study of AFIT Graduates.* AFIT/GAQ/ENG/03-01. Faculty Advisor: Dr. Mikel M. Miller. DSN 785-2024. Sponsor: HQ USAF/DPLE.

Johnson, Michele E. *An Analysis of Role Conflict and Role Ambiguity Among Air Force Information Management Professionals.* AFIT/GIR/ENV/03-08. Faculty Advisor: Maj Mark Ward. DSN 785-2998. Sponsor: HQ USAF/ILCXD.

Kahraman, A. *Multimission Aircraft Design Study, Payload*. AFIT/GSE/ENY/03-2. Faculty Advisor: Dr. Curtis Spenny. DSN 785-3355, x3348. Sponsor: HQ USAF/XOI.

*Knipper, Michael E. *Determining the Value of Automation in Commercial and USAF Supplier Evaluation Systems*. AFIT/GAQ/ENV/03-06. Faculty Advisor: Timothy S. Reed. DSN 785-2998. Sponsors: HQ USAF/IL and SAF/AQCK.

*Kovacic, Joshua D. *Analysis of Anion Distribution in the Developing Strata of a Constructed Wetland Used for Chlorinated Ethene Remediation.* AFIT/GEE/ENV/03-15. Faculty Advisor: Dr. Michael L. Shelley. DSN 785-3636, x4594. Sponsor: HQ USAF/ILEVand AFRL/MLQ.

LaPietra, Krista Z. *Analysis of Organizational Architectures for the Air Force Tuition Assistance Program*. AFIT/GOR/ENS/03-15. Faculty Advisor: Maj Paul McAree. DSN 785-6565, x4486. Sponsor: HQ USAF/DPLE.

Mondo, Francis J. Jr. *Analysis of Air Force Civil Engineering Strategic Planning*. AFIT/GEE/ENV/03-19. Faculty Advisor: Lt Col Heidi S. Brothers. DSN 785-2998. Sponsor: HQ USAF.

*Owen, Kenneth J. *Analysis of Passenger Processing Capabilities at a Non-AMC Passenger Terminal.* AFIT/GLM/ENS/03-10. Faculty Advisor: Dr. William A. Cunningham, III. DSN 785-6565, x4283. Sponsors: AFLMA and HQ USAF/ILGT.

Paylor, Steve J. *Remote Sensing Systems Optimization for Geobase Enhancement*. AFIT/GEE/ENV/03-20. Faculty Advisor: Lt Col Heidi S. Brothers. DSN 785-2998. Sponsor: HQ USAF/ILE-I.

Percival, Scott. *Air Force Reserve Force Structure Policy Evaluation Model*. AFIT/GOR/ENS/03-17. Faculty Advisor: Maj Paul W. McAree. DSN 785-6565, x4486. Sponsor: HQ USAF/REAMO.

Phillips, Jeffrey A. *Incorporating Organizational Culture into a Decision Framework for Identifying and Selecting Knowledge Management Projects*. AFIT/GIR/ENV/03-13. Faculty Advisor: Dr. Alan Heminger. DSN 785-2998, x4797. Sponsor: AF-CIO/S.

Povlich, Robert W. Jr. *The Effects of Technology Turnover on Workplace Productivity Perceptions.* AFIT/GIR/ENV/03-14. Faculty Advisor: Maj Mark Ward. DSN 785-2998. Sponsor: HQ USAF/ILXC.

Ray, Alfred D. *Analysis of the Theoretical Relationships between Work Exhaustion, Job Satisfaction, and Turnover Intention of Air Force Information Systems Managers.* AFIT/GIR/ENV/03-15. Faculty Advisor: Dr. Alan Heminger. DSN 785-2998, x4797. Sponsor: HQ USAF/XIP.

Smith, Dan W. *A Theoretical Framework for Turnover Intention of Air Force Enlisted Information Systems Personnel.* AFIT/GIR/ENV/03-17. Faculty Advisor: Maj Mark Ward. DSN 785-2998. Sponsor: HQ USAF/ILCXD.

Toth, R. G. *Nonlinear, Transonic Flutter Prediction for F-16 Stores Configuration Clearance*. AFIT/GAE/ENY/03-8. Faculty Advisor: Lt Col Robert Canfield. DSN 785-3636, x4723. Sponsor: 46 SK/SKE.

OFFICE OF THE SECRETARY OF THE AIR FORCE

Hageman, James A. *An Empirical Analysis of the Impacts of Adopting Lean Purchasing and Supplier Management Principles on the Participation of Small Businesses within the Department of Defense Aerospace Industry*. AFIT/GAQ/ENV/03-04. Faculty Advisor: Maj Timothy S. Reed. DSN 785-2998. Sponsor: SAF/SB.

Kirstein, Jesse A. *A Study of the Efficacy of Unit Contingency Contracting Training.* AFIT/GAQ/ENV/03-05. Faculty Advisor: Maj Timothy S. Reed. DSN 785-2998. Sponsor: SAF/AQC.

*Knipper, Michael E. *Determining the Value of Automation in Commercial and USAF Supplier Evaluation Systems*. AFIT/GAQ/ENV/03-06. Faculty Advisor: Timothy S. Reed. DSN 785-2998. Sponsors: HQ USAF/IL and SAF/AQCK.

3.3.2 AIR COMBAT COMMAND

Ezik, Oguz. *Calculation of the Actual Cost of Engine Maintenance*. AFIT/GOR/ENS/03-06. Faculty Advisor: Lt Col Stephen M. Swartz. DSN 785-6565, x4285. Sponsor: ACC/LGMP.

*Hill, Justin M. *Evaluating the Performance of Multiple Classifier Systems: A Matrix Algebra Representation of Boolean Fusion Rules.* AFIT/GOR/ENC/03-03. Faculty Advisor: Dr. Mark E. Oxley. DSN 785-3636, x4515. Sponsors: AFRL/SNAT, AFOSR/NM and ACC.

Hoffman, Donald L. *Using Neural Networks for Estimating Cruise Missile Reliability.* AFIT/GOR/ENS/03-10. Faculty Advisor: Dr. Kenneth W. Bauer. DSN 785-6565, x4328. Sponsor: ACC/DONO.

Yates, Jason E. *A System Dynamics Investigation of Genetic Drift and Translocation in the Red- Cockaded Woodpecker Metapopulation.* AFIT/GEE/ENV/03-22. Faculty Advisor: Dr. Michael L. Shelley, DSN 785-3636, x4594. Sponsor: HQ ACC/ILEV.

AIR FORCE INFORMATION WARFARE CENTER

Kneeland, Timothy F. *Performance Evaluation and Analysis of Effective Range and Data Throughput for Unmodified Bluetooth Communication Devices*. AFIT/GCS/ENG/03-08. Faculty Advisor: Dr. Rick Raines. DSN 785-6565, x4278. Sponsor: AFIWC/IOTT.

NATIONAL AIR AND SPACE INTELLIGENCE AGENCY

Bakshas, Brian K. *Image Retrieval Using a Graphical Human Computer Interface with Feedback-Driven Querying.* AFIT/GCS/ENG/03-01. Faculty Advisor: Lt Col Karl Mathias. DSN 785-2024. Sponsor: NAIC/IMINT.

Blahovec, Joseph D., Jr. *Analysis of Digital Cellular Signals for Passive Coherent Location (PCL) Applications.* AFIT/GE/ENG/03-02. Faculty Advisor: Dr. Michael Temple. DSN 785-2024, x4279. Sponsor: NAIC/FTES.

UAV BATTLELAB

Hunt, Eric O. *An Extensible Framework for Integration and Testing of Scheduling Algorithms with the Master Air Attack Plan Tool Kit.* AFIT/GCS/ENG/03-07. Faculty Advisor: Lt Col Karl Mathias. DSN 785-2024. Sponsor: USAF C2B.

Ward, Daniel L. *Redundant Discrete Wavelet Transform Based Super-Resolution Using Sub-Pixel Image Registration.* AFIT/GE/ENG/03-18. Faculty Advisor: Maj Roger L. Claypoole, Jr. DSN 785-2024. Sponsor: C2B/CCT.

3.3.3 AIR EDUCATION AND TRAINING COMMAND

Keener, Ross A. *Use of Multivariate Techniques to Validate and Improve the Current USAF Pilot Candidate Selection Model.* AFIT/GOR/ENS/03-13. Faculty Advisor: Dr. Kenneth W. Bauer. DSN 785-6565, x4328. Sponsor: AETC/SAS.

AIR FORCE INSTITUTE OF TECHNOLOGY**

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

Akcivi, H. Aydin. *Implementation and Validation of a Real-time Wireless, Non-invasive Physiological Monitoring System in a High-G Environment.* AFIT/GE/ENG/03-01. Faculty Advisor: Dr. Mikel M. Miller. DSN 785-2024. Sponsor: N/A.

Ari, G. *Cargo Aircraft Bombing System.* AFIT/GSO/ENY/03-01. Faculty Advisor: Dr. Milton Franke. DSN 785-3636, x4720. Sponsor: N/A.

Cho, Jae I. *Shortest Path Problems in a Stochastic and Dynamic Environment.* AFIT/GSE/ENS/03-01. Faculty Advisor: Dr. Jeffrey P. Kharoufeh. DSN 785-6565, x4336. Sponsor: N/A.

Dabrowski, V. J. *Experimental Demonstration of an Algorithm to Detect the Presence of a Parasitic Anti-Satellite Weapon.* AFIT/GAE/ENY/03-2. Faculty Advisor: Maj Richard Cobb. DSN 785-3636, x4559. Sponsor: N/A.

Dethlefs, David R. *Information Sharing, Interoperability, and Collaboration in Law Enforcement: An Investigation of Criminal Justice Information Systems Use Between Federal and State/Local Law Enforcement Organizations*. AFIT/GIR/ENV/03-03. Faculty Advisor: Lt Col Summer E. Bartczak. DSN 785-3636 x4826. Sponsor: N/A

Foster, Brian. *Orbit Determination of a Microsatellite Rendezvous with a Noncooperative Target*. AFIT/GAI/ENY/03-2. Faculty Advisor: Dr. Steven Tragesser. DSN 785-6565, x4286. Sponsor: N/A.

French, D. B. *Hybrid Control Strategies for Rapid, Large Angle Satellite Slew Maneuvers*. AFIT/GA/ENY/03-2. Faculty Advisor: Maj Richard Cobb. DSN 785-3636, x4559. Sponsor: N/A.

Gore, Michael S. *Strategies Leaders Should Use to Respond to Hostile Questions Regarding Organizational Changes: An Empirical Investigation.* AFIT/GEE/ENV/03-09. Faculty Advisor: Maj Daniel T. Holt. DSN 785-2998, x4800. Sponsor: N/A.

Gozebe, Huseyin. *Optimum Component Design in N-Stage Series Systems to Maximize the Reliability UnderBudget Constraint*. AFIT/GOR/ENS/03-08. Faculty Advisor: Capt Stephen P. Chambal. DSN 785-6565, x4486. Sponsor: N/A.

Hanrahan, John A. *Modeling of Government Interactions with a Terrorist Organization to Understand the Dynamic Behavior Produced.* AFIT/GEE/ENV/03-11. Faculty Advisor: Lt Col Alfred E. Thal, Jr. DSN 785-2998. Sponsor: N/A.

Hendrixson, Jennifer K. *Analysis of Scheduling Policies for a M/G/1 Queue with Rework.* AFIT/GOR/ENS/03-09. Faculty Advisor: Dr. Jeffrey P. Kharoufeh. DSN 785-6565, x4336. Sponsor: N/A.

Kennedy, Kevin T. *An Analysis of Multiple Layered Networks.* AFIT/GOR/ENS/03-14. Faculty Co-Advisors: Dr. Richard F. Deckro. DSN 785-6565, x4325. Maj Victor D. Wiley. DSN 785-3636, x 4601. Sponsor: N/A.

Kossow, Michael P. *Modal Selection Analysis of Depot Level Reparable Asset Retrograde Shipments within the Continental United States.* AFIT/GLM/ENS/03-04. Faculty Advisor: Dr. William A. Cunningham, III. DSN 785-6565, x4283. Sponsor: N/A.

Lee, Seongkyun. *Onward Movement Transportation Mode Selection Study*. AFIT/GLM/ENS/03-06. Faculty Advisor: Maj Stanley E. Griffis. DSN 785-6565, x4339. Sponsor: N/A.

Lewis, Elizabeth T. *Physical Fitness and the Expeditionary Air Force*. AFIT/GOR/ENS/03-12. Faculty Advisor: Capt Stephen P. Chambal, DSN 785-6565, x4486. Sponsor: N/A.

Lynch, Nicholas A. *Evaluation of the Competitive Sourcing Process.* AFIT/GEE/ENV/03-18. Faculty Advisor: Lt Col Heidi Brothers. DSN 785-2998. Sponsor: N/A.

Miller, Brian N. *Auto Carrier Transporter Loading and Unloading Improvement*. AFIT/GAI/ENS/03-02. Faculty Advisor: Dr. Raymond Hill. DSN 785-6565, x4486. Sponsor: N/A.

Mitchell, Scott M. *Analyzing Differences Between Public and Private Sector Information Resource Management: Strategic Chief Information Officer Challenges and Critical Technologies*. AFIT/GIR/ENV/03-12. Faculty Advisor: Maj Mark Ward. DSN 785-2998. Sponsor: N/A.

Mueller, Coreen R. *Joining the Department of Defense Enterprise Resource Planning Team: The Air Force's Role in the Enterprise*. AFIT/GLM/ENS/03-08. Faculty Advisor: Lt Col Stephan P. Brady. DSN 785-6565, x4367. Sponsor: N/A.

Ogorek, Gregory T. *Utility of the Logistics Officer Career Path Pyramid in Promotion Prediction.* AFIT/GLM/ENS/03-09. Faculty Advisor: Dr. William A. Cunningham, III. DSN 785-6565, x4283. Sponsor: N/A.

Pettingill, Kirk B. *An Analysis of the Efficacy of the Logistics Composite Model in Estimating Maintenance Manpower Productive Capacity*. AFIT/GLM/ENS/03-11. Faculty Advisor: Lt Col Stephen M. Swartz. DSN 785-6565, x4285. Sponsor: N/A.

Pruitt, Kristopher A. *Modeling Homeland Security: A Value Focused Thinking Approach*. AFIT/GOR/ENS/03-19. Faculty Advisor: Dr. Richard F. Deckro. DSN 785-6565, x4325. Sponsor: N/A.

Ritschel, Tamiko L. *A Simulation Comparative Analysis of Alternatives for Tuition Assistance Organizational Structures.* AFIT/GOR/ENS/03-10. Faculty Advisor: Maj Paul W. McAree. DSN 785-6565, x4486. Sponsor: N/A.

Sipe, Jeffrey A. *Transient Analysis and Applications of Markov Reward Processes*. AFIT/GAM/ENS/03-01. Faculty Advisor: Dr. Jeffrey P. Kharoufeh. DSN 785-6565, x4336. Sponsor: N/A.

Thawley, David M. *Linear Programming and Genetic Algorithm Based Optimization for the Weighting Scheme of a Value Focused Thinking Hierarchy.* Faculty Advisor: Capt Stephen P. Chambal. DSN 785-6565, x4486. Sponsor: N/A.

Tschirhart, Troy. *A Study of Control Laws for Microsatellite Rendezvous with a Noncooperative Target.* AFIT/GAI/ENY/03-3. Faculty Advisor: Dr. Steven Tragesser. DSN 785-6565, x4286. Sponsor: N/A.

*Wellman, Gary L. *A Delphi Expert Assessment of Proactive Contracting in an Evolutionary Acquisition Environment.* AFIT/GAQ/ENV/03-09. Faculty Advisor: Maj Paul Thurston. DSN 785-7777, x3276. Sponsors: AFMC/PK and AFIT/LSB.

Wier, Stephen D. *A Correlation Study of Second Destination Transportation Funding and Vehicle Movement.* AFIT/GLM/ENS/03-13. Faculty: Dr. William A. Cunningham, III. DSN 785-6565, x4283. Sponsor: N/A.

Yager, Nicholaus A. *Models for Sortie Generation with Autonomic Logistics Capabilities*. AFIT/GOR/ENS/03-25. Faculty Advisor: Dr. Jeffrey P. Kharoufeh. DSN 785-6565, x4336. Sponsor: N/A.

3.3.4 AIR FORCE MATERIEL COMMAND

Byrd, Howard E., Jr. *Towards a Framework for Understanding Innovation Implementation in the Air Force.* AFIT/GAQ/ENS/03-01. Faculty Advisor: Lt Col Stephen P. Brady. DSN 785-3636, x4367. Sponsor: HQ AFMC/AE.

Case, David A. *Antecedents and Outcomes of End User Computing Competence*. AFIT/GIR/ENV/03-01. Faculty Advisor: Dr. Alan Heminger. DSN 785-2998, x4797. Sponsor: AFMC/ASC/HR.

Cole, Ronald C. *Analyze the Air Force Methods for Facility Sustainment and Restoration*. AFIT/GEE/ENV/03-04. Faculty Advisor: Lt Col Heidi S. Brothers. DSN 785-2998. Sponsor: AFMC.

Eaton, Jason R. *E-Procurement Success*. AFIT/GAQ/ENV/03-02. Faculty Advisor: Dr. Juan Common. DSN 785-2998. Sponsor: AFMC/PK.

Garman, Michael R. *The Generalizability of Private Sector Research on Software Project Management in TwoUSAF Organizations: An Exploratory Study.* AFIT/GIR/ENV/03-04. Faculty Advisor: Maj Mark Ward. DSN 785-2998. Sponsor: AFMC/SSG.

May, Jason A. *An Investigation of Air Force Communities of Practice: A Descriptive Study of Evolution Through Assessment of People, Process, and Technology Capabilities.* AFIT/GIR/ENV/03-11. Faculty Advisor: Lt Col Summer E. Bartczak. DSN 785-3636, x4826. Sponsor: AFMC/DRW.

*Wellman, Gary L. *A Delphi Expert Assessment of Proactive Contracting in an Evolutionary Acquisition Environment.* AFIT/GAQ/ENV/03-09. Faculty Advisor: Maj Paul Thurston. DSN 785-7777, x3276. Sponsor: AFMC/PK and AFIT/LSB.

AERONAUTICAL SYSTEMS CENTER

Bielecki, John V. *Estimating Engineering and Manufacturing Development Cost Risk Using Logistic and Multiple Regression.* AFIT/GCA /ENC/03-01. Faculty Advisor: Dr. Edward D. White III., DSN 785-3636, x4540. Sponsor: ASC/FMCE.

Boeh, Daniel J. *An Analysis of Engagement of Those Who Telecommute vs. Those Who Do Not.* AFIT/GAQ/ENV/03-01. Faculty Advisor: Dr. Jan P. Muczyk. DSN 785-3636, x4648. Sponsor: ASC/HRV.

Feil, Eric D. *Factors Affecting Innovation within Aeronautical Systems Center (ASC) Organizations – An Inductive Study.* AFIT/GAQ/ENV/03-03. Faculty Advisor: Lt Col Dennis Fry. DSN 785-2998. Sponsor: ASC/HR.

Gonzalez, Richard D. *An Interactive Visualization Environment for Optical Turbulence Affecting Airborne Laser Operations.* AFIT/GM/ENG/03-01. Faculty Advisor: Lt Col Michael K. Walters. DSN 785-3636, x4681. Sponsor: ASC/TM.

Moore, Gary W. *Estimating Procurement Cost Growth Using Logistic and Multiple Regression*. AFIT/GCA/ENC/03-02. Faculty Advisor: Dr. Edward D. White III. DSN 785-3636, x4540. Sponsor: ASC/FMCE.

Trent, Martin R. *Assessing Organization Culture Readiness for KM Implementation: The Case of Aeronautical Systems Center Directorate of Contracting.* AFIT/GAQ/ENV/03-08. Faculty Advisor: Lt Col Summer E. Bartczak, DSN 785-3636 x4826. Sponsor: ASC/PK.

AIR FORCE FLIGHT TEST CENTER

Bouska, Terry J. *Development and Simulation of a Pseudolite-Based Flight Reference System.* AFIT/GE/ENG/03-03. Faculty Advisor: Dr. John Raquet. DSN 785-2024, x4580. Sponsor: 746th Test Squadron.

Hanley, J. G. *A Comparison of Nonlinear Algorithms in the Prevention of Pilot-Induced Oscillations Caused by Actuator Rate Limiting.* AFIT/GAE/ENY/03-4. Faculty Advisor: Dr. Bradley Liebst. DSN 785-3636, x4636. Sponsor: HQ USAF TPS.

AIR FORCE RESEARCH LABORATORY

McGee, Christopher. *A Value Focused Thinking Approach to Software Interface in a Complex Analytical Domain.* AFIT/GOR/ENS/03-16. Faculty Advisor: Capt Stephen P. Chambal. DSN 785-6565, x4486. Sponsor: AFRL.

*Walan, A. M. G. *Application of Maneuver-Based Control in Variable Autonomy Unmanned Combat Aerial Vehicles.* AFIT/GAE/ENY/03-9. Faculty Advisor: Dr. Curtis Spenny. DSN 785-3355, x3348. Sponsor: DAGSI and AFRL.

AFRL: AIR FORCE OFFICE OF SCIENTIFIC RESEARCH

Boke, Cem. *Combining and Analyzing the Tanker and Aircrew Scheduling Heuristics*. AFIT/GOR/ENS/03-04. Faculty Co-Advisor: Dr. James T. Moore, DSN 785-3636, x4528. Maj Victor D. Wiley. DSN 785-3636, x4601 Sponsor: AFOSR/NM.

Chitwood, Elizabeth A. *Electrical Activation Studies of Silicon Implanted $Al_xGa_{1-x}N$ and Coimplanted GaN.* AFIT/GAP/ENP/03-01. Faculty Advisor: Dr. Yung Kee Yeo. DSN 785-3636 x4532. Sponsor: AFOSR/NE.

Claunch, Erin N. *Luminescence Studies of Ion-Implanted Gallium Nitride and Aluminum Gallium Nitride.* AFIT/GAP/ENP/03M-02. Faculty Advisor: Dr. Yung Kee Yeo. DSN 785-3636 x4532. Sponsor: AFOSR/NE.

Clutz, Thomas C. *A Framework for Prognostics Reasoning*. AFIT/DS/ENS/03-01. Faculty Advisor: Dr. Kenneth W. Bauer, Jr., DSN 785-6565, x4328. Sponsor: AFOSR/NM.

Dziubinski, Monica. *A Deception Detection in a Computer-Mediated Environment: Gender, Trust, and Training Issues*. AFIT/GIR/ENV/03-03. Faculty Advisor: Lt Col David Biros. DSN 785-2998. Sponsor: AFOSR/PIF.

Faas, Paul D. *Simulation of Autonomic Logistics System (ALS) Sortie Generation*. AFIT/GOR/ENS/03-07. Faculty Advisor: Dr. J. O. Miller. DSN 785-6565, x4326. Sponsor: AFOSR/NM.

*Hill, Justin M. *Evaluating the Performance of Multiple Classifier Systems: A Matrix Algebra Representation of Boolean Fusion Rules.* AFIT/GOR/ENC/03-03. Faculty Advisor: Dr. Mark E. Oxley. DSN 785-3636, x4515. Sponsor: AFRL/SNAT, AFOSR/NM and ACC.

Knode, Monti L. *Perceptions vs Reality: A Longitudinal Experiment in Influenced Judgment Performance.* AFIT/GIR/ENV/03-09. Faculty Advisor: Lt Col David Biros. DSN 785-2998. Sponsor: AFOSR/PIF.

Lankowski, Mark L. *Training Effects on Judgment Accuracy in a Computer-Mediated Environment.* AFIT/GIR/ENV/03-10. Faculty Advisor: Lt Col David Biros. DSN 785-2998. Sponsor: AFOSR/PIF.

McKay, Jason B. *Power Scaling Feasibility of Chromium-doped II-VI Laser Sources and the Demonstration of a Chromium-doped Zinc Selenide Face-cooled Disk Laser*. AFIT/DS/ENP/02-5. Faculty Advisors: Dr. Kenneth Schepler (AFRL/SNJT) and Dr. Won B. Roh, DSN 785-3636, x4509. Sponsor: AFOSR/NE.

Musial, Benjamin R. *AML Assisted Visual Debugging for Distributed Systems*. AFIT/GCS/ENG/03-12. Faculty Advisor: Lt Col Timothy Jacobs. DSN 785-2024. Sponsor: AFOSR/NM.

O'Brien, Larissa A. *Using Sequential Analysis to Perform Application-Based Anomaly Detection Within an Artificial Immune System Framework.* AFIT/GCS/ENG/03-15. Faculty Advisor: Dr. Gregg Gunsch. DSN 785-2024. Sponsor: AFOSR/NM.

Quaale, R. J. Experimental *Results for a High Swirl, Ultra Compact Combustor for Gas Turbine Engines.* AFIT/GAE/ENY/03-5. Faculty Advisor: Capt Ralph Anthenien. DSN 785-3636, x4643. Sponsor: AFOSR/NA.

Reith, Mark G. *Searching System Call Information for Clues: The Effects of Intrusions on Processes.* AFIT/GCS/ENG/03-16. Faculty Advisor: Dr. Gregg Gunsch. DSN 785-2024. Sponsor: AFOSR/NM.

Roberts, Jr., John W. *Quantum Mechanical Calculations of Monoxides of Silicon Carbide Molecules* AFIT/GNE/ENP/03-09. Faculty Advisor: Dr. Larry W. Burgraff. DSN: 785-3636, x4507. Sponsor: AFOSR.

Rockwell, Roy V. *Deception Detection: Study of Information Manipulation through Electronic Identity Theft – Email Forgery in the U.S. Military.* AFIT/GIR/ENV/03-16. Faculty Advisor: Lt Col David Biros. DSN 785-2998. Sponsor: AFOSR/PIF.

Storm, Susan A. *An Investigation of the Effects of Correlation in Sensor Fusion*. AFIT/GOR/ENS/03-22. Faculty Advisor: Dr. Kenneth W. Bauer. DSN 785-6565, x4328. Sponsor: AFOSR/NM.

Wade, P. C. *Development of an Experimental Test Section for Forcing Unsteady Flow in a Linear Compressor Cascade Using Circular Rods*. AFIT/DS/ENY/02-4. Faculty Advisor: Dr. Paul King, DSN 785-3636, x4628. Sponsor: AFOSR/NA.

Wardak, Randy S. *Human Ability to Detect Deceptive Messages in Text Information.* AFIT/GIR/ENV/03-18. Faculty Advisor: Lt Col David Biros. DSN 785-2998. Sponsor: AFOSR/PIF.

Young, Jacqueline B. *Deterministic Intracellular Modeling*. AFIT/GCS/ENC/03-01. Faculty Advisor: Dr. Dennis Quinn. DSN 785-3098, x4522. Sponsor: AFOSR/NL.

AFRL: AIR VEHICLES DIRECTORATE

Freeman, J. A. *Computational Fluid Dynamics Investigation of Vortex Breakdown for a Delta Wing at High Angle of Attack.* AFIT/GAE/ENY/03-3. Faculty Advisor: Lt Col Montgomery Hughson. DSN 785-3636, x4597. Sponsor: AFRL/VACA.

Gozaydin, O. *Analysis of Cooperative Behavior for Autonomous Wide Area Search Munition.* AFIT/GSO/ENY/03-2. Faculty Advisor: Lt Col David Jacques. DSN 785-7777, x3329. Sponsor: AFRL/VA.

*Roberts, R. W. *Sensor-Craft Analytical Certification*. AFIT/GAE/ENY/03-6. Faculty Advisor: Lt Col Robert Canfield. DSN 785-3636, x4723. Sponsor: AFRL/VASD and DAGSI.

Schulz, C. S. *Cooperative Control Simulation Validation Using Applied Probability Theory*. AFIT/GAE/ENY/03-14. Faculty Advisor: Lt Col David Jacques. DSN 785-7777, x3329. Sponsor: AFRL/VAC.

Smallwood, B. P. *Structurally Integrated Antennas on a Joined-Wing Aircraft*. AFIT/GAE/ENY/03-7. Faculty Advisor: Lt Col Robert Canfield. DSN 785-3636, x4723. Sponsor: AFRL/VA.

Welker, T. C. *Experimental and Computational Failure Analysis of Graphite/Bismaleimide Laminated Composite and Carbon Foam in Sandwich Construction.* AFIT/GAE/ENY/03M-10. Faculty Advisor: Dr. Anthony Palazotto. DSN 785-3636, x4599. Sponsor: AFRL/VA.

AFRL: DIRECTED ENERGY DIRECTORATE

Crookston, Matthew B. *Single-mode Raman Fiber Laser in a Multi-mode Fiber.* AFIT/GAP/ENP/03-3. Faculty Advisor: Dr. Won B. Roh. DSN 785-3636, x4509. Sponsor: AFRL/DELO.

Ferguson, Edward G. *Optical Characterization of Antimony-Based Types-I and –II Multiple Quantum-Well Semiconductor Structures for Mid-Infrared Laser Application.* AFIT/GAP/ENP/03-04. Faculty Advisor: Dr. Michael A. Marciniak. DSN 785-3636, x4529. Sponsor: AFRL/DE.

Mounce, Gabriel D. *Building Blocks for Time-Resolved Laser Emission in Mid-Infrared Quantum-Well Lasers.* AFIT/GE/ENP/03-01. Faculty Advisor: Dr. Michael A. Marciniak. DSN 785-3636, x4529. Sponsor: AFRL/DE.

Willis, Shawn M. *Phasing a Dual Optical Path System Using an Optical Fiber as a Phase Conjugate Mirror.* AFIT/GAP/ENP/03-6. Faculty Advisor: Dr. Won B. Roh. DSN 785-3636, x4509. Sponsor: AFRL/DELO.

AFRL: HUMAN EFFECTIVENESS DIRECTORATE

Bayer, Michael A. *Aerospace Ground Equipment Management's Impact on Home Station Sortie Production.* AFIT/GLM/ENS/03-01. Faculty Advisor: Lt Col Stephan P. Brady. DSN 785-6565, x4367. Sponsor: AFRL/HESR.

Lofton, John C., III. *A Comparative Study of the Warrior Support Tool and the Agile Munitions Support Tool.* AFIT/GLM/ENS/03-07. Faculty Advisor: Lt Col Stephen M. Swartz. DSN 785-6565, x4285. Sponsor: AFRL/HESR.

Schutte, Christina G. *Using the GPS to Improve Trajectory Position and Velocity Determination During Real-Time Ejection Seat Test and Evaluation.* AFIT/GE/ENG/03-16. Faculty Advisor. Dr. Mikel M. Miller. DSN 785-2024. Sponsor: AFRL/HEPA.

AFRL: INFORMATION DIRECTORATE

Casey, Brendan K. *Theoretical Analysis of Information Watermarking in Wavelet-Based Video Compression.* AFIT/GE/ENG/03-07. Faculty Advisor: Maj Roger L. Claypoole, Jr. DSN 785-2024. Sponsor: AFRL/IFTA.

Caswell, David J. *Active Processor Scheduling Using Evolutionary Algorithms.* AFIT/GCS/ENG/02-36. Faculty Advisor: Dr. Gary Lamont. DSN 785-3636, x4718. Sponsor: AFRL/IFTC.

Dillard, Wade E. *Geographic Location of Wireless Computer Network Intrusions and Threats Using a Wireless Area Detection Enclosure*. AFIT/GCS/ENG/03-05. Faculty Advisor: Dr. Gregg Gunsch. DSN 785-2024. Sponsor: AFRL/IFGC.

Esslinger, Mark A. *An Artificial Immune System Strategy for Robust Chemical Spectra Classification via Distributed Heterogeneous Sensors.* AFIT/GCS/ENG/03-06. Faculty Advisor: Dr. Gary Lamont. DSN 785-3636, x4718. Sponsor: AFRL/IFTA.

Jackson, Jacob. *Targeting Covert Messages: A Unique Approach for Detecting Novel Steganography*. AFIT/GCE/ENG/03-02. Faculty Advisor: Dr. Gregg Gunsch. DSN 785-2024. Sponsor: AFRL/IFEC.

Kadrovach, Brian A. *Communications Modeling System for Swarm-Based Sensors*. AFIT/DS/ENG/03-03. Faculty Advisor: Dr. Gary Lamont, DSN 785-3636, x4718. Sponsor: AFRL/IFTA.

Kowalchuk, Andrew J. *Implementing an Information Retrieval and Visualization Framework for Heterogeneous Data Types*. AFIT/GCS/ENG/03-09. Faculty Advisor: Lt Col Timothy Jacobs. DSN 785-2024. Sponsor: AFRL/IFSA.

Lotspeich, James T. *Distributed Control of a Swarm of Autonomous Unmanned Aerial Vehicles*. AFIT/GCS/ENG/03-10. Faculty Advisor: Dr. Gary Lamont. DSN 785-2024, x4718. Sponsor: AFRL/IFTA.

Magnus, Amy L. Inquisitive Pattern Recognition. AFIT/DS/ENG/03-09. Faculty Advisor: Dr. Mark Oxley, DSN 785-3636, x4515. Sponsor: AFRL/IFT.

Noel, Randall B. *Classifying Network Attacks Using Pattern Classification Algorithms*. AFIT/GCS/ENG/03-14. Faculty Advisor: Dr. Gregg Gunsch. DSN 785-2024. Sponsor: AFRL/IFGB.

Stinson, Clinton W. *Internet Protocol (IP) Overlink-16 Network.* AFIT/GCE/ENG/03-04. Faculty Advisor: Maj Rusty Baldwin. DSN 785-6565, x4445. Sponsor: AFRL/IFTA.

Zydallis, Jesse B. *Explicit Building-Block Multiobjective Genetic Algorithms: Theory, Analysis, and Development*. AFIT/DS/ENG/03-01. Faculty Advisor: Dr. Gary Lamont, DSN 785-3636, x4718. Sponsor: AFRL/IFTA.

AFRL: MATERIALS AND MANUFACTURING DIRECTORATE

*Blalock, Jack A. *Groundwater Flow through a Constructed Treatment Wetland.* AFIT/GEE/ENV/03-01. Faculty Advisor: Dr. Michael L. Shelley. DSN 785-3636, x4594. Sponsor: HQ USAF/ILEV and AFRL/MLQ.

*Clemmer, Nathan D. *Characterization of Chlorinated Solvent Degradation in a Constructed Wetland*. AFIT/GEE/ENV/03-03. Faculty Advisor: Dr. Michael L. Shelley. DSN 785-3636, x4594. Sponsor: HQ USAF/ILEV and AFRL/MLQ.

Crooks, H. R. *Reduction of Thermal Residual Strains in Adhesively Bonded Composite Repairs.* AFIT/GAE/ENY/03-11. Faculty Advisor: Dr. Anthony Palazotto. DSN 785-3636, x4599. Sponsor: AFRL/MLSA.

*Kovacic, Joshua D. *Analysis of Anion Distribution in the Developing Strata of a Constructed Wetland Used for Chlorinated Ethene Remediation.* AFIT/GEE/ENV/03-15. Faculty Advisor: Dr. Michael L. Shelley. DSN 785-3636, x4594. Sponsor: HQ USAF/ILEV and AFRL/MLQ.

Ness, Stanley J. *Stress Analysis of Silicon Carbide Microelectromechanical Systems Using Raman Spectroscopy*. AFIT/GMS/ENP/03-01. Faculty Advisor. Dr. Michael A. Marciniak. DSN 785-3636, x4529. Sponsor: AFRL/ML.

Rounsavall, Paul C. *Controlled-Stress Large Area Pulsed Laser Deposition of Yttria Stabilized Zirconia*. AFIT/DS/ENG/03-06. Faculty Advisor: Dr. Mikel Miller. DSN 785-2024. Sponsor: AFRL/MLMT.

AFRL: MUNITIONS DIRECTORATE

Bradley, Kenneth C. *Mechanical Computing in Microelectromechanical Systems (MEMS).* AFIT/GE/ENG/03-04. Faculty Advisor: Capt Paul Kladitis. DSN 785-2024, x4595. Sponsor: AFRL/MNMF.

Duffy, Kate. *Feature Guided Image Registration for Phased and Wavelet-Based Optic Flow.* AFIT/GE/ENG/03-09. Faculty Advisor: Maj Roger L. Claypoole, Jr. DSN 785-2024. Sponsor: AFRL/MNGN.

Giebner, Michael G. *Tightly-Coupled Image-Aided Inertial Navigation System via a Kalman Filter*. AFIT/GE/ENG/03-10. Faculty Advisor: Dr. John F. Raquet. DSN 785-2024, x4580. Sponsor: AFRL/MNGI.

Larson, Craig D. *Adaptive Compensation of GPS Signal Jamming Through Multiple Model Adaptive Estimation Applied to Ultra-Tightly Coupled GOS/INS Architecture*. AFIT/GE/ENG/03-14. Faculty Advisor: Dr. Peter Maybeck. DSN 785-2024, x4279. Sponsor: AFRL/MNGN.

Porter, Alec E. *INS Aiding Using Passive Bearings-On Measurement of an Unknown Stationary Ground.* AFIT/GE/ENG/03-15. Faculty Advisor: Dr. Meir Pachter. DSN 785-2024, x4280. Sponsor: AFRL/MNGN.

AFRL: PROPULSION DIRECTORATE

Graef, Harold W. *An Analysis of Microbial Contamination in Military Aviation Fuel Systems.* AFIT/GEE/ENV/03-10. Faculty Advisor: Dr. Charles A. Bleckmann. DSN 785-2998, x4721. Sponsor: AFRL/PRTG.

Ivancic, F. T. *The Effect of a Hard Coating on the Damping and Fatigue Life of Titanium*. AFIT/GAE/ENY/03-12. Faculty Advisor: Dr. Anthony Palazotto. DSN 785-3636, x4599. Sponsor: AFRL/PRTC.

AFRL: SENSORS DIRECTORATE

Anderson, D. Scott. *Fast Compression of Imagery with High Frequency Content*. AFIT/GE/ENG/03-21. Faculty Advisor: Maj Roger L. Claypoole, Jr. DSN 785-2024. Sponsor: AFRL/SNJT.

Bowman, Geoffrey G. *Investigation of Doppler Effects on the Detection of Polyphase Coded Radar Waveforms.* AFIT/GCE/ENG/03-01. Faculty Advisor: Dr. Steven Gustafson. DSN 785-3636, x4598. Sponsor: AFRL/SNZT.

Canadeo, Courtney M. *Ultra Wide Band Multiple Access Performance Using TH-PPM and DS-BPSK Modulations.* AFIT/GE/ENG/03-06. Faculty Advisor: Dr. Michael Temple. DSN 785-2024, x4279. Sponsor: AFRL/SNRW.

Coleman, Rachel G. *Emissivity-Based Target Detection in Hyperspectral Images*. AFIT/GE/ENG/03-08. Faculty Advisor: Maj Roger L. Claypoole, Jr. DSN 785-2024. Sponsor: AFRL/SNJT.

*Hill, Justin M. *Evaluating the Performance of Multiple Classifier Systems: A Matrix Algebra Representation of Boolean Fusion Rules.* AFIT/GOR/ENC/03-03. Faculty Advisor: Dr. Mark E. Oxley. DSN 785-3636, x4515. Sponsor: AFRL/SNAT, AFOSR/NM and ACC.

Kurian, John. *Development of Variable Slope Piecewise-Based Brown Symbols for Application to Nonlinear Ambiguity Suppression.* AFIT/GE/ENG/03-12. Faculty Advisor: Dr. Michael Temple. DSN 785-2024. Sponsor: AFRL/SN.

Meyer, Gregory. *Classification of Radar Targets Using Invariant Features*. AFIT/DS/ENG/03-04. Faculty Advisor: Dr. Steven Gustafson, DSN 785-3636, x4598. Sponsor: AFRL/SNAT.

Pepela, Ngoya. *Effect of Multi-Mode Vibration of a Diffuse Body on Signature Estimation via Laser Vibration Sensor.* AFIT/GE/ENP/03-02. Faculty Advisor: Lt Col Michael A. Marciniak. DSN 785-3636, x4529. Sponsor: AFRL/SN.

Simpson, George R. *Electromagnetic Scattering from a Gap in a Magneto-Dielectric Coating on an Infinite Ground Plane*. AFIT/DS/ENG/02-03. Faculty Advisor: Maj William Wood. DSN 785-2024. Sponsor: AFRL/SNS.

Stewart, James W. *Analysis of Broadband High-Impedance Ground Plane Antenna Designs.* AFIT/GE/ENG/03-17. Faculty Advisor: Maj William Wood. DSN 785-2024. Sponsor: AFRL/SNRR.

Williams, Jason L. *Gaussian Mixture Reduction for Tracking Multiple Maneuvering Targets in Clutter*. AFIT/GE/ENG/03-19. Faculty Advisor: Dr. Peter S. Maybeck. DSN 785-2024, x4581. Sponsor: AFRL/SNAT.

Wilson, Kenneth W. *Application of Multi-Modal Feedback Models in Imagery Collections*. AFIT/GCS/ENG/03-19. Faculty Advisor: Lt Col Karl Mathias. DSN 785-2024. Sponsor: AFRL/SNAA.

AFRL: SPACE VEHICLES DIRECTORATE

Caffey, Jared R. *The Effects of Ionizing Radiation on Microelectromechanical Systems (MEMS) Actuators: Electrostatic, Electrothermal and Residual Stress.* AFIT/GE/ENG/03-05. Faculty Advisor: Capt Paul Kladitis. DSN 785-2024, x4595. Sponsor: AFRL/VSSE.

Freyenhagen, Joel. *Fabrication of Thin-Film CIGS Solar Cells for Space-Based Assets.* AFIT/GEO/ENP/03-01. Faculty Advisor: Lt Col Michael A. Marciniak. DSN 785-3636, x4529. Sponsor: AFRL/VS.

3.3.5 AIR FORCE SPACE COMMAND

Sumter, Bradley R. *Optimal Replacement Policies for Satellite Constellations*. AFIT/GOR/ENS/03-23. Faculty Advisor: Dr. Jeffrey P. Kharoufeh. DSN 785-6565, x4336. Sponsor: AFSPC/XPY. Space and Missile Systems Center.

Bautista, I. S. *Cold-Flow Testing of a Subscale Model Exhaust System for a Space-Based Laser.* AFIT/GAE/ENY/03-1. Faculty Advisor: Dr. Milton Franke. DSN 785-3636, x4720. Sponsor: SMC/TL.

Narcisse, Leon C. *Comparison of the Refractive Index Structure Constant Derived from Numerical Weather Prediction (NWP) Models and Thermosonde Data.* AFIT/GM/ENP/03M-04. Faculty Advisor: Lt Col Michael K. Walters. DSN 785-3636, x4681. Sponsor: SMC/TMSW.

Yang, Jae K. *The Effects of GPS M-Code on Radar Detection*. AFIT/GE/ENG/03-20. Faculty Advisor: Dr. John F. Raquet. DSN 785-2024, x4580. Sponsor: SMC/GPE.

3.3.6 AIR MOBILITY COMMAND

Watson, Frank W., Jr. *The Air Mobility Planner's Calculator: Improvements, Verification, and Validation.* AFIT/GLM/ENS/03-12. Faculty Advisor: Dr. James T. Moore. DSN 785-3636, x4528. Sponsor: AMC/XPY.

PRESIDENTIAL AIRLIFT SQUADRON

Mossing, Nicholas C. *Performance Analysis of a Diffused Infrared Wireless Network for the Air Force Fleet of VC-25A Aircraft, Air Force One.* AFIT/GCS/ENG/03-11. Faculty Advisor: Dr. Rick Raines. DSN 785-6565, x4278. Sponsor: PAS/DOR.

3.3.7 AIR NATIONAL GUARD

Beabout, Bradley A. *Statistical Process Control: An Application in Aircraft Maintenance Management.* AFIT/GOR/ENS/03-03. Faculty Advisor: Maj Paul W. McAree. DSN 785-6565, x4486. Sponsor: Maryland Air National Guard.

3.3.8 US AIR FORCE ACADEMY

Larson, Eric D. *An Analysis of Information Referenced Testing as an Air Force Assessment Tool.* AFIT/GLM/ENS/03-05. Faculty Advisor: Lt Col Stephen M. Swartz. DSN 785-6565, x4285. Sponsor: USAFA.

3.3.9 USAF FIELD OPERATING AGENCIES

AIR FORCE CENTER FOR ENVIRONMENTAL EXCELLENCE

Cadena, Kerry J. *Modeling Catalytic Destruction of Subsurface Contaminants in Recirculating Wells*. AFIT/GEE/ENV/03-02. Faculty Advisor: Dr. Mark N. Goltz. DSN 785-2998, x4638. Sponsor: AFCEE/ERT.

Hargy, David F. *Sustainable Development Guide for Facility and Infrastructure Projects*. AFIT/GEE/ENV/03-12. Faculty Advisor: Dr. Charles A. Bleckmann. DSN 785-2998, x4721. Sponsor: AFCEE/EQT.

Knarr, Mark R. *Optimizing an In Situ Bioremediation Technology to Manage Perchlorate-Contaminated Groundwater.* AFIT/GEE/ENV/03-14. Faculty Advisor: Dr. Mark N. Goltz. DSN 785-2998, x4638. Sponsor: AFCEE/ERT.

Phillips, Dennis L. *Palladium-Catalyzed Destruction of Nitro Aromatic Compounds in Groundwater*. AFIT/GEE/ENV/03-21. Faculty Advisor: Dr. Mark N. Goltz. DSN 785-2998, x4638. Sponsor: AFCEE.

AIR FORCE CIVIL ENGINEER SUPPORT AGENCY

*Craig, Matthew S. *Decision Analysis Model for Refreshment of Geobase Imagery: Basis for Investment Strategy.* AFIT/GEE/ENV/03-05. Faculty Advisor: Lt Col Heidi S. Brothers. DSN 785-2998. Sponsor: HQ USAF/ILE-I and AFCESA/CEOF.

Fitzgerald, Crissie D. *An Economic Evaluation of Binary Cycle Geothermal Electricity Production.* AFIT/GEE/ENV/03-07. Faculty Advisor: Dr. Peter LaPuma. DSN 785-2998. Sponsor: AFCESA.

Liberman, Edward J. *A Life Cycle Assessment and Economic Analysis of Wind Turbines Using Monte Carlo Simulation.* AFIT/GEE/ENV/03-16. Faculty Advisor: Dr. Peter LaPuma, DSN 785-2998. Sponsor: AFCESA/CESM.

AIR FORCE COMMUNICATION AGENCY

Grayson, Marc A. *Visualization of Career-Related Computer-Mediated Communication for Increased Knowledge Management.* AFIT/GIR/ENV/03-05. Faculty Advisor: Maj Mark Ward. DSN 785-2998. Sponsor: AFCA/WFLM.

Melancon, Keith A. *Analysis of a Metropolitan Area Network for Optimization in a Network Simulation*. AFIT/GIR/ENG/03-02. Faculty Advisor: Dr. Richard A. Raines. DSN 785-2024, x4278. Sponsor: AFCA.

AIR FORCE LOGISTICS MANAGEMENT AGENCY

*Owen, Kenneth J. *Analysis of Passenger Processing Capabilities at a Non-AMC Passenger Terminal.* AFIT/GLM/ENS/03-10. Faculty Advisor: Dr. William A. Cunningham, III. DSN 785-6565, x4283. Sponsor: AFLMA and USAF/ILGT.

AIR FORCE SAFETY CENTER

Cho, Matthew G. *The Air Force Operational Risk Management Program and Aviation Safety*. AFIT/GLM/ENS/03-02. Faculty Advisor: Lt Col Stephen M. Swartz. DSN 785-6565, x4285. Sponsor: AFSC.

AIR FORCE SECURITY AGENCY

Eskridge, Robert P. *Using Future Value Analysis to Select an Optimal Portfolio of Force Protection Initiatives.* AFIT/GEE/ENS/03-01. Faculty Advisor: Capt Stephen P. Chambal. DSN 785-6565, x4486. Sponsor: USAF FPB.

Jackson, Sarah E. *Planning Coverage of Points of Interest via Multiple Imaging Surveillance Assets: A Multi-Modal Approach.* AFIT/GOR/ENS/03-11. Faculty Advisor: Dr. Richard F. Deckro, DSN 785-6565, x4325. Sponsor: HQ AFSAC/XPY.

Loftis, J. Darin. *The Air Warrior's Value of National Security Space*. AFIT/GAI/ENS/03-01. Faculty Advisor: Dr. Richard F. Deckro. DSN 785-6565, x4325. Sponsor: AFSAC.

AIR FORCE TECHNICAL APPLICATION CENTER

Beck, Eric V. *Theoretical Comparison of the Excited Electronic States of the Uranyl (U022+) and Uranate (U04-2) Ions Using Relativistic Computational Methods.* AFIT/GNE/ENP/03-01. Faculty Advisor: Dr. Larry W. Burgraff. DSN: 785-3636, x4507. Sponsor: AFTAC/TMNE.

AIR FORCE WEATHER AGENCY

Allen, Mark S. *Evaluation of the Mountain Wave Forecast Model's Stratospheric Turbulence Simulations.* AFIT/GM/ENP/03-01. Faculty Advisor: Lt Col Michael K. Walters. DSN 785-3636, x4681. Sponsor: AFWA/DNXT.

Benz, Richard F. *Data Mining Atmospheric/Oceanic Parameters in the Design of a Long-Range Nephelometric Forecast Tool.* AFIT/GM/ENP/03M-02. Faculty Advisor: Lt Col Ronald P. Lowther. DSN 785-3636, x4645. Sponsor: 28th OWS, Shaw AFB, SC.

Gasbarro, Marc R. *Forecasting Excessive Rainfall and Low-Cloud Bases East of the Northern Andes and Mesoscale Convective Complex Movement in Central South America.* AFIT/GM/ENP/03-03. Faculty Advisor: Lt Col Ronald P. Lowther, DSN 785-3636, x4645. Sponsor: 25th OWS, Davis-Monthan AFB, AZ.

Harris, Jose T. *Spacecraft Charging at Geosynchronous Altitudes: Current Balance and Critical Temperature in a Non-Maxwellian Plasma.* AFIT/GAP/ENP/03M-05. Faculty Advisor: Maj Devin J. Della-Rose. DSN 785-3636, x4514. Sponsor: AFWA.

3.3.10 DEPARTMENT OF DEFENSE

Azar, Maurice C. *Assessing the Treatment of Airborne Tactical High Energy Lasers in Combat Simulations.* AFIT/GOR/ENS/03-02. Faculty Advisor: Dr. John O. Miller. DSN 785-6565, x4326. Sponsor: High Energy Laser Joint Technology Office.

Philley, T. L. Jr. *Development, Fabrication and Ground Test of an Inflatable Structure Space-Flight Experiment.* AFIT/GA/ENY/03-3. Faculty Advisor: Maj Richard Cobb. DSN 785-3636, x4559. Sponsor: IMINT/RNTS.

DEFENSE MODELING AND SIMULATION OFFICE

Bartley, Carolyn R. *A Visual Language for Composable Simulation Scenarios*. AFIT/GCS/ENG/03-03. Faculty Advisor: Lt Col Karl Mathias. DSN 785-2024. Sponsor: DMSO.

Carl, Ronald G. *Search Theory and U-boats in the Bay of Biscay*. AFIT/GOR/ENS/03-05. Faculty Advisor: Dr. Raymond R. Hill, DSN 785-6565, x4486. Sponsor: DMSO.

Price, Joseph C. *Game Theory and U-boats in the Bay of Biscay*. AFIT/GOR/ENS/03-18. Faculty Advisor: Dr. Raymond Hill. DSN 785-6565, x4486. Sponsor: DMSO.

Roell, Richard J. *A Data Framework for Integrating Heterogeneous Systems Using Agents, XML and COABS.* AFIT/GCS/ENG/03-18. Faculty Advisor: Lt Col Timothy Jacobs. DSN 785-2024. Sponsor: DMSO.

DEFENSE THREAT REDUCTION AGENCY

Grammer, Richard S., Major, USA. *Sensitivity of WinGS-Computed Ground-Shock to Variations of Geology, Material, Method, and Nuclear-Burst Scenario Parameters.* AFIT/GNE/ENP/03-03. Faculty Advisor: Dr. Kirk Mathews. DSN 785-2012, x4508. Sponsor: DTRA.

Greene, Kevin D. *Electron Paramagnetic Resonance Spectroscopy and Hall Effect Studies of the Effects of Low Energy Electron Irradiation on Gallium Nitride (GaN*). AFIT/DSP/ENP/03-02. Faculty Advisor: Dr. James C. Petrosky, DSN 785-3636, x4562. Sponsor DTRA/CSNP.

Hasz, Ronald C. *Computational Assessment of the Initial Distribution of the Performance of a Plasma Radiation Source.* AFIT/GNE/ENP/03-04. Faculty Advisor: Lt Col Vincent Jodoin. DSN: 785-2012.. Sponsor: DTRA.

Morrow, David P. *Calculation of the Activity of Isotopes in Fallout from a Nuclear Detonation.* AFIT/GNE/ENP/03-06. Faculty Advisor: Lt Col Vincent Jodoin. DSN: 785-2012. Sponsor: DTRA/CSNP.

Nelson, Michael B. *Detection of Special Nuclear Material with High Purity Germanium (HPGe) and Mercuric Iodide (HgI2) Gamma Detectors.* AFIT/GNE/ENP/03-07. Faculty Advisor: Dr. Larry W. Burgraff. DSN: 785-3636, x4507. Sponsor: DTRA/TDAS.

Newton, Matthew J. *Vulnerability Analysis of an RBMK-1500 Reactor.* AFIT/GNE/ENP/03-08. Faculty Advisor: LTC James C. Petrosky. DSN: 785-3636, x4562. Sponsor: DTRA.

Vaughn, Stephanie D. *Investigation of a passive, Temporal, Neutron Monitoring System that Functions Within the Confines of Start I.* AFIT/GNE/ENP/03-10. Faculty Advisor: LTC James C. Petrosky. DSN: 785-3636, x4562. Sponsor: DTRA/TDAS.

Willmon, Samuel J. *Total Dose Effects of Ionizing and Non-Ionizing Radiation on Piezoresistive Pressure Transducer Chips.* AFIT/GNE/ENP/03-11. Faculty Advisor: LTC James C. Petrosky. DSN: 785-3636, x4562. Sponsor: DTRA/CSNP.

Wooten, David J. *Linking Heat Transfer to Plutoniom Production at a Gas-Cooled Reactor.* AFIT/GNE/ENP/03-12. Faculty Advisor: Dr. Ronald F. Tuttle. DSN: 785-3636, x4536. Sponsor: DTRA/CSNP.

OFFICE OF THE SECRETARY OF DEFENSE

Caruso, Valerie L. *Investigation of Outsourced Information Technology (IT) and the Increasing Trend in Insider Threat Risks.* AFIT/GIR/ENG/03-01. Faculty Advisor: Dr. Gregg H. Gunsch. DSN 785-2024. Sponsor: OSD/PERSEREC.

Imperial, Matthew J. *The Effect of Interactivity and Instructional Exposure on Learning Effectiveness and Knowledge Retention: A Comparative Study of Two US Air Force Computer-based Training (CBT) Courses for Network User Licensing.* AFIT/GIR/ENV/03-07. Faculty Advisor: Maj Mark Ward. DSN 785-2998. Sponsor: OSD-DIAP.

Smith, Rochelle D. *Instilling an Entrepreneurial Mindset in Department of Defense (DoD) Organizations: Evidence from Entrepreneurial Organizations in the Private Sector*. AFIT/GAQ/ENV/03-07. Faculty Advisor: Maj Timothy S. Reed. DSN 785-2998. Sponsor: OSD/FTD.

Whittle, Jason A. *Human Resource Slack as an Antecedent to Instilling the Entrepreneurial Mindset Within Department of Defense Organizations*. AFIT/GAQ/ENV/03-10. Faculty Advisor: Maj Timothy S. Reed. DSN 785-2998. Sponsor: OSD/FTD.

JOINT WARFARE ANALYSIS CENTER

Saeger, Mark D. *Performance Analysis of Protocol Independent Multicasting-Dense Mode in Low Earth Orbit Satellite Networks*. AFIT/GCE/ENG/03-03. Faculty Advisor: Dr. Richard Raines. DSN 785-6565, x4278. Sponsor: JWAC/J53.

US TRANSPORTATION COMMAND

Sherman, Nathan P. *A Stochastic Model for Joint Reception, Staging, Onward Movement, and Integration (JRSOI).* AFIT/GOR/ENS/03-21. Faculty Advisor: Dr. Jeffrey P. Kharoufeh. DSN 785-6565, x4336. Sponsor: USTRANSCOM.

3.3.11 NATIONAL SECURITY AGENCY

Carr, Clinton G., III. *Reverse Geographic Location of a Computer Node.* AFIT/GCS/ENG/03-04. Faculty Advisor: Maj Rusty Baldwin. DSN 785-6565, x4445. Sponsor: NSA/R5.

Roberts, Christopher K. *Adjusting Sensing Range to Maximize Throughput on Ad-Hoc Multi-Hop Wireless Networks.* AFIT/GCS/ENG/03-17. Faculty Advisor: Major Rusty Baldwin. DSN 785-6565, x4445. Sponsor: NSA.

Wagnon, John T. *Application Identification Using Wireless Network Traffic Characteristics*. AFIT/GIR/ENG/03- 03. Faculty Advisor: Maj Rusty O. Baldwin. DSN 785-2024, x4445. Sponsor: NSA.

3.3.12 DEPARTMENT OF HOMELAND SECURITY

UNITED STATES COAST GUARD

Duff, Jonathan B. *A Service Life Analysis of U. S. Coast Guard C-130 Aircraft*. AFIT/GAQ/ENS/03-02. Faculty Advisor: Capt Stephen P. Chambal. DSN 785-6565, x4486. Sponsor: CG HQ G-SEA.

Vigus, Steven E. *A Simulation-Based Analysis of the Impact of In-Sourcing a Major Process Element on the Coast Guard HH-60J Depot Maintenance Process.* AFIT/GAQ/ENS/03-03. Faculty Advisor: Dr. Raymond Hill. DSN 785-2549. Sponsor: U.S. Coast Guard Aircraft Repair and Supply Center.

3.3.13 NON-FEDERAL ORGANIZATIONS

DAYTON AREA GRADUATE STUDIES INSTITUTE

*Roberts, R. W. *Sensor-Craft Analytical Certification*. AFIT/GAE/ENY/03-6. Faculty Advisor: Lt Col Robert Canfield. DSN 785-3636, x4723. Sponsor: AFRL/VASD and DAGSI.

*Walan, A. M. G., *Application of Maneuver-Based Control in Variable Autonomy Unmanned Combat Aerial Vehicles.* AFIT/GAE/ENY/03-9. Faculty Advisor: Dr. Curtis Spenny. DSN 785-3355, x3348. Sponsor: DAGSI and AFRL.

DAYTON INTERNATIONAL AIRPORT

Meade, Quincy. *Long Term Implementation of 100 Percent Checked Baggage System: A Value Focused Thinking Approach.* AFIT/GEE/ENS/03-02. Faculty Advisor: Dr. Richard Deckro. DSN 785-6565, x4285. Sponsor: Dayton International Airport.

RAND CORPORATION

Lin, Jeffrey H. *A Study of Voluntary Turnover of Air Force Officers in Critically-Manned Career Fields.* AFIT/GEE/ENV/03-17. Faculty Advisor: Maj Daniel T. Holt. DSN 785-2998, x4800. Sponsor: RAND.

SPECIALIZED TECHNICAL SERVICES

Balaz, Brian A. *A Three-Dimensional Heads-Up Primary Navigation Reference Display for Paratroopers Performing High Altitude High Open Jumps.* AFIT/GCS/ENG/03-02. Faculty Advisor: Lt Col Timothy Jacobs. DSN 785-6565, x4279. Sponsor: Specialized Technical Services.

TURKISH AIR FORCE

Aslan, Davut. *A Decision Support System for Effective Scheduling in an F-16 Pilot Training Squadron.* AFIT/GOR/ENS/03-01. Faculty Advisor: Maj Victor D. Wiley. DSN 785-3636, x4601. Sponsor: 143rd Oncel Squadron, 4th Main Jet Base, Akinci, ANKARA.

3.4 FUNDED RESEARCH PROJECTS

ANTHENIEN, Capt RALPH A., (ENY)

"Measurements and Modeling of a Highly Accelerated Combusting Flow." Sponsor: AFOSR. Funding: $27,038.

"Experimental Investigation of a Pressure Sensing Ion Probe for HC Flames." Sponsor: AFRL. Funding: $5,000.

BAILEY, WILLIAM F., (ENP)

"AFIT/AFRL Collaboration on High Power Microwave Systems." Sponsor: AFRL/DEHE. Funding: $17,790.

"Generation and Characterization of Stable Weakly Ionized Air Plasma in Hypersonic Flows." Sponsor: DAGSI. Funding: $1,763.

BALDWIN, Maj RUSTY O., (ENG)

"Classification and Analysis of Wireless and Local Area Network Communication Techniques." Sponsor: NSA. Funding: $51,883.

"Technical Support, Air Force Communications Systems Modeling." Sponsor: AFCA/ITAI. Funding: $58,000.

BAUER, KENNETH W., (ENS)

"Mathematical Models for Aircraft Diagnostics/Prognostics." Sponsor: AFOSR. Funding: $9,353.

"Memorandum of Agreement between Headquarters, Air Combat Command and Department of Operational Sciences, Air Force Institute of Technology (AFIT) Cruise Missile Reliability Study." Sponsor: ACC. Funding: $9,000.

"Sensor Fusion." Sponsor: AFOSR. Funding: $63,263.

"Sensor Fusion." Sponsor: ESC/FMJ. Funding: $11,582.

BENTON, Maj R. NICOLE, (ENC)

"Modeling Energy Costs of Activities of Daily Living and Leisure for Persons with Physical Impairment." Sponsor: Veterans Administration. Funding: $6,797.

BIROS, Lt Col DAVID P., (ENV)

"Detecting Deception in the Military Infosphere: Improving and Integrating Human Detection Capabilities with Automated Tools." Sponsor: AFOSR. Funding: $21,829.

BLECKMANN, CHARLES A., (ENV)

"Microbial Contamination of Fuels." Sponsor: AFRL/PRTG. Funding: $5,240.

BRADY, Lt Col STEPHAN P., (ENS)

"AFMC Depot Executive Education." Sponsor: AFMC/LG. Funding: $44,000.

BURGGRAF, LARRY W., (ENP)

"Spectroscopy and Kinetics of UO_2 Fuel Oxidation, Hydrolysis and Radiolysis: Application to Radioactive Waste Management." Sponsor: DOE. Funding: $182,053.

"MEMS Cantilever Arrays for Chemical and Biochemical Detection." Sponsor: Army. Funding: $50,000.

"Critical Interfacial Issues for Emerging Electronic, Photonic and Magnetic Polymer Based Materials." Sponsor: DAGSI. Funding: $1,522.

CANFIELD, Lt Col ROBERT A., (ENY)

"System Design Innovation Using Multi-Disciplinary Optimization and Simulation." Sponsor: AFOSR. Funding: $18,892.

"Analytical Certification and Multi-Disciplinary Integration." Sponsor: DAGSI. Funding: $13,493.

CHILTON, LAWRENCE K., (ENC)

"High Performacne Computing (HPC) Modernization Program Terms of Reference (TOR)." Sponsor: DOD-Wash HQ. Funding: $38,000.

COBB, Maj RICHARD G., (ENY)

"Test and Validation of a Rigidized Inflatable Space Structures Experiment." Sponsor: SAF/FMBMB. Funding: $35,000.

"Support for JPL ISAT Risk Assessment." Sponsor: DARPA. Funding: $24,782.

DECKRO, RICHARD F., (ENS)

"OR in Support of NSA." Sponsor: NSA. Funding: $20,000.

"Technology Development Effort." Sponsor: NSA. Funding: $30,000.

"Measurement Tool for Homeland Security." Sponsor: AF/XOR. Funding: $10,000.

FRANKE, MILTON E., (ENY)

"Propulsion Concepts for Use of Air Isomer Energy Sources including Rocket Engines." Sponsor: AFRL. Funding: $2,500.

"Turbine Aerothermal Research." Sponsor: DAGSI. Funding: $29,072.

GODA, Maj MATTHEW E., (ENG)

"AFOSR BAA 2001-8, High-Energy Laser (HEL) Multi-Disciplinary Research Initiative (MRI)." Sponsor: AFOSR. Funding: $64,129.

GOLTZ, MARK N., (ENV)

"Impacts of DNAPL Source Zone Treatment: Experimental and Modeling Assessment of the Benefits of Partial Source Removal." Sponsor: SERDP. Funding: $22,800.

"Visualization of Collaborative Software Systems." Sponsor: SERDP. Funding: $74,000.

GUNSCH, GREGG H., (ENG)

"Insider Threat Trends with Respect to Outsourcing Information Technology." Sponsor: DLA. Funding: $5,000.

"Blind Steganography Detection Using a Computational Immune System Approach." Sponsor: AFRL. Funding: $15,000.

"Synthesizing Trust Assessments of Artifact and Human Perceptions of Strategically Manipulated Information." Sponsor: AFOSR. Funding: $20,152.

GUSTAFSON, STEVEN C., (ENG)

"Command and Control of Remotely Operated Vehicles." Sponsor: DAGSI. Funding: $1,849.

HALE, Maj TODD B., (ENG)

"Technical Support, AFRL/SNRT." Sponsor: AFRL/IFKC. Funding: $26,620.

HAVRILLA, MICHAEL J., (ENG)

"Electromagnetic Material Characterization Using Waveguide Apertures." Sponsor: AFMC. Funding: $25,000.

HENGEHOLD, ROBERT L., (ENP)

"AF Nuclear Weapons and Counterproliferation Agency Support." Sponsor: OO-ALC/LGMPR. Funding: $20,208.

"Mid-Infrared Hot Electron Luminescence to Determine Quantum Well Dispersion Relations in Semiconductor Laser Structures for Infrared Countermeasures." Sponsor: AFOSR. Funding: $79,362.

"Laser-Optics and Beam Propagation Short Courses." Sponsor: AFRL. Funding: $20,000.

"Mid-Infrared Quantum Well Optoelectronic Devices." Sponsor: DAGSI. Funding: $114,999.

HUGHSON, Lt Col MONTGOMERY C., (ENY)

"High-Speed Nozzle Shaping Using Pulse Injection Flow Control." Sponsor: AFRL/VASD. Funding: $4,948.

"Analysis of Choking Effects for Lattice Fin Configurations." Sponsor: AFRL/MNAV. Funding: $6,062.

JACOBS, Lt Col TIMOTHY M., (ENG)

"Visualization of Collaborative Software Systems." Sponsor: AFOSR. Funding: $39,936.

JACQUES, DAVID R., (ENY)

"Unmanned Aerospace Vehicle." Sponsor: AFRL/NACA. Funding: $3,487.

"Cooperative Behavior and Control for Autonomous Munitions." Sponsor: AFRL/MN. Funding: $4,573.

"Unmanned Aerospace Vehicle." Sponsor: AFRL. Funding: $10,000.

"Strategies for Human-Automaton Resource Entity Deployment." Sponsor: DARPA. Funding: $3,869.

KING, PAUL I., (ENY)

"Pulse Detonation Wave Propagation Through a Tube Array." Sponsor: AFRL/PRTS. Funding: $5,000.

"Research Problems in Turbine Aerodynamics and Heat Transfer." Sponsor: AFRL/PRF. Funding: $10,412.

LAMONT, GARY B., (ENG)

"AFRL/IF (Dr. Robert Ewing)." Sponsor: AFRL/IF. Funding: $12,580.

"Content-Based 3D Information Compression for Real-Time Image and Signal Detection." Sponsor: DAGSI. Funding: $13,324.

LIEBST, BRADLEY S., (ENY)

"High Cycle Fatigue:" AFRL/PRTC. Funding: $40,000.

"High Cycle Fatigue." Sponsor: AFRL/MLF. Funding: $40,000.

LOTT, Lt Col JAMES A., (ENG)

"Tunable 1.55 μm Quantum Dot Vertical Cavity Surface Emitting Lasers." Sponsor: AFOSR. Funding: $16,041.

"Micro-Electro-Mechanical (MEM) Tunable Optoelectronic Devices for Military Systems." Sponsor: Sandia. Funding: $6,159.

"Microelectromechanical Tunable High Output Power Quantum Dot Laser Diodes." Sponsor: AFOSR. Funding: $28,469.

MALL, SHANKAR, (ENY)

"Fretting Fatigue Crack Initiation Mechanism." Sponsor: AFOSR. Funding: $40,240.

"Fretting Fatigue Studies." Sponsor: AFRL/ML. Funding: $126,561.

"Fretting Fatigue of Titanium Alloys." Sponsor: AFRL/MLF. Funding: $105,000.

"Micro and Nano Scale Systems." Sponsor: DAGSI. Funding: $29,794.

"Nondestructive Evaluation Methods to Quantify Fretting Damage in Materials." Sponsor: DAGSI. Funding: $8,355.

MAPLE, Lt Col RAYMOND C., (ENY)

"Visualization of Collaborative Software Systems." Sponsor: AFRL. Funding: $4,000.

MARCINIAK, MICHAEL A., (ENP)

"Amorphous and Thin-Film $CuIn_{1-x}Se_2$ (CIGS) Solar Cell Research." Sponsor: AFRL/VSSV. Funding: $6,239.

MATHEWS, KIRK A., (ENP)

"Meetings and Field Trips for Nuclear Students and Faculty to Develop AFTAC-Related Research Topics." Sponsor: AFTAC. Funding: $20,000.

MATHIAS, Lt Col KARL S., (ENG)

"Image Exploitation Using Hybrid Information Retrieval Systems." Sponsor: AFOSR. Funding: $40,271.

"Composable Simulation Technologies Research." Sponsor: DMSO. Funding: $57,646.

MAYBECK, PETER S., (ENG)

"Detection and Compression of Interference and Jamming in an Ultra-Tight Integration of Global Positioning System (GPS) Receivers and Inertial Measurement Unit (IMU)." Sponsor: AFOSR. Funding: $31,575.

MCAREE, Maj PAUL, (ENS)

"Analysis of Efficiencies for Centralization of Air Force Tuition Assistance." Sponsor: USAF/DPXPF. Funding: $39,332.

MCMULLAN, Maj RICHARD J., (ENY)

"Scramjet Flow Field Control Using Magnetogasdynamics." Sponsor: AFOSR. Funding: $24,210.

MILLER, JOHN O., (ENS)

"Air Force Standard Analysis Toolkit (AFSAT) Support." Sponsor: HQ USAF/XIPR. Funding: $65,000.

"Agent Modeling for Defense Modeling and Simulation Office." Sponsor: AFRL. Funding: $35,000.

"Research Support for NSSA." Sponsor: NSA. Funding: $25,000.

"Adaptive Interfaces." Sponsor: DAGSI. Funding: $4,919.

MOORE, JAMES T., (ENS)

"Application of Metaheuristics to Air Force Problems." Sponsor: AFOSR. Funding: $65,557.

OXLEY, MARK E., (ENC)

"The Mathematics of Sensor/Classifier Fusion." Sponsor: AFRL. Funding: $20,000.

"Mathematical Theory of the Integration of Sensing, Processing, and Exploitation". Sponsor: DARPA. Funding: $30,993.

"Model-Based Object Recognition Using Multiple Sensor Modalities and Invariant." Sponsor: DAGSI. Funding: $4,267.

PACHTER, MEIR, (ENG)

"Unmanned Aerospace Vehicle." Sponsor: AFRL/NACA. Funding: $32,488.

"Cooperative Control and Estimation." Sponsor: AFOSR. Funding: $32,026.

"Multiple Target Tracking." Sponsor: AFRL. Funding: $20,000.

"Strategies for Human-Automaton Resource Entity Deployment." Sponsor: DARPA. Funding: $7,158.

PALAZATTO, ANTHONY N., (ENY)

"Research in Problems associated with High Cycle Fatigue." Sponsor: AFRL/ML. Funding: $41,070.

"Model Aided Damage Detection in Composite Structures." Sponsor: AFRL/VAF. Funding: $77,599.

"Continuation - Developing a Lightweight Imbedded Piezoelectric Control Optical Surface." Sponsor: AFRL/DEPF. Funding: $15,000.

"Evaluations of Coatings to a Dummy Blade." Sponsor: AFRL/PRTC. Funding: $25,000.

PERRAM, GLEN P., (ENP)

"Closed Cycle Chemical Laser: ElectriCOIL." Sponsor: AFOSR. Funding: $91,802.

"High Energy Laser Weapons: Modeling and Simulation." Sponsor: JTO. Funding: $769,586.

"Remote Sensing of Enhanced High Explosive Materials. Sponsor: TSWG. Funding: $100,000.

"Process Control for Pulsed Laser Deposition of HTS Coated Conductors: Correlation of Plume Optical Signatures with Deposited Material Parameters (Phase I: FY03)." Sponsor: AFRL. Funding: $29,700.

PETROSKY, LTC JAMES C., (ENP)

"Studies and Educational Activities in Applied Nuclear Sciences." Sponsor: DTRA. Funding: $156,857.

"Detection of Uranium and Plutonium for Proliferation and Arms Control." Sponsor: DTRA. Funding: $35,000.

QUINN, DENNIS W., (ENC)

"Bioinformatic Support Of Toxicogenomics." Sponsor: AFOSR. Funding: $12,038.

"Reverse Engineering of Gene Networks." Sponsor: AFOSR. Funding: $26,726.

"Bioinformatic Support For Toxicogenomics." Sponsor: DAGSI. Funding: $4,267.

RAINES, RICHARD A., (ENG)

"Technical, Teaching, and Resource Support for the Software Protection Initiative and Center for INFOSEC Education and Research." Sponsor: ASD/HP. Funding: $108,200.

"Tuition and Resource Support for the AFIT Center for INFOSEC Education and Research." Sponsor: NSA. Funding: $327,808.

RAQUET, JOHN F., (ENG)

"Consulting and Laboratory Support of the Miniature Integrated Navigation Technology (MINT) Program." Sponsor: AFRL. Funding: $30,000.

"Advanced Navigation Concepts." Sponsor: AFRL. Funding: $15,000.

"Advanced GPS Technology and Use of Pseudolites for Flight Reference System Development." Sponsor: 746th TS. Funding: $30,000.

"Non-GPS Navigation Using Optical Measurements and Signals of Opportunity." Sponsor: DARPA Funding: $585.00.

REED, Maj TIMOTHY S., (ENV)

"Entrepreneurial Business Practices in Air Force Healthcare." Sponsor: AFMC/SG. Funding: $15,000.

"Instilling the Entrepreneurial Mindset in DoD Organizations". Sponsor: DOD-Wash HQ. Funding: $900.00.

REEDER, MARK F., (ENY)

"Measurement of Force and Moment Coefficients for a Fixed Wing Micro Air Vehicle." Sponsor: AFRL/MNA. Funding: $15,000.

ROH, WON B., (ENP)

"Nonlinear Optical Effects in Fibers and Their Application to High Energy Lasers." Sponsor: AFRL. Funding: $75,000.

"High-Power, Efficient, Diode-Pumped Fiber Lasers for Air Force Applications." Sponsor: AFOSR. Funding: $4,685.

SPENNY, CURTIS H., (ENY)

"Pilot Spatial Orientation." Sponsor: DAGSI. Funding: $34,663.

"Robotic Systems for On-Orbit Servicing." Sponsor: DAGSI. Funding: $8,427.

TEMPLE, MICHAEL A., (ENG)

"Interferometric Radar Clutter Suppression." Sponsor: DAGSI. Funding: $34,663.

TERZUOLI, ANDREW J., (ENG)

"RF Sensor Enhancement." Sponsor: AFRL/SNF. Funding: $13,609.00.

"Performance Assessment for Foliage-Penetrating Radar Target Detection." Sponsor: DAGSI. Funding: $6,935.

TRAGESSER, STEVEN G., (ENY)

"Orbital Design of Satellite Formation Flying." Sponsor: AFRL/VSSW. Funding: $25,465.00.

"Microsatellite Rendezvous with Noncooperative Targets." Sponsor: NAIC. Funding: $17,771.46.

"Orbit Determination of Tethered Satellites." Sponsor: HQ AFSPC. Funding: $5,000.

"Satelite Attitude Fundamentals." Sponsor: NAIC. Funding: $49,438.

TUTTLE, RONALD F., (ENP)

"Radiance and Atmospheric Transmission Advanced Modeling." Sponsor: SAF/FMBMB. Funding: $16,601.

"Collection and Characterization of Infrared Emissions." Sponsor: NAIC. Funding: $20,000.

"Brilliant Flash." Sponsor: NAIC/DE. Funding: $20,000.

"Advance Geospatial Intelligence Education." Sponsor: NIMA. Funding: $300,000.

"Fast Framing Visible Video for Remote Sensing of Transient Battlefield Events." Sponsor: NAIC. Funding: $92,000.

WEEKS, DAVID E., (ENP)

"Non-adiabatic Dynamics of the Collision B(2P1/2) + H2 (n,j) <-> B (2P3/2) + H2 (n',j')." Sponsor: AFOSR. Funding: $16,620.

WIESEL, WILLIAM E., (ENY)

"On-Orbit Mission Planning for the Space Operations Vehicle Simulator." Sponsor: AFRL/VAS. Funding: $20,000.

WOOD, AIHUA W., (ENC)

"The Stability of Three-Dimensional Electromagnetic Computations Using Time-Domain Hybrid Methods." Sponsor: AFOSR. Funding: $83,330.

"Scattering and Propagation of Electromagnetic Waves." Sponsor: AFOSR. Funding: $27,558.

WOOD, Maj WILLIAM D., (ENG)

"Visualization of Collaborative Software Systems." Sponsor: 46th TG/XP/NRT. Funding: $5,000.

"Electromagnetic Modeling of Thin Dielectric Layered Structures." Sponsor: AFMC/FMJ. Funding: $21,782.

YEO, YUNG KEE, (ENP)

"Intrinsic and Extrinsic Energy Level Studies in GaN." Sponsor: AFOSR. Funding: $120,000.

"SiC an SiO_2/SiC Characterization for Device Applications." Sponsor: AFOSR. Funding: $77,915.

3.5 REFEREED JOURNAL PUBLICATIONS

[*Denotes duplicate entry, multiple faculty authors.]

BAILEY, WILLIAM F., (ENP)

Josyula, E. and W. F. Bailey, "Vibrational Population Depletion in Thermal Dissociation for Nonequilibrium Energy Distribution," 23rd International Rarefied Gas Dynamics Conference. *AIP Conference Proceedings*, Vol. 663, pp 272-278, (2003).

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Baldwin, R. O., N. J. Davis, IV, S. F. Midkiff, and J. E. Kobza, "Queueing Network Analysis: Concepts, Terminology, and Methods," *The Journal of Systems and Software*, Vol. 66, No. 2, pp. 99-117, May 2003.

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*Young, I. A., K. W. Bauer, S. P. Chambal, and D. M. Pugh, "Fusing Statistical and Neural Classification for Screening Undergraduate Pilot Training Candidates," *Military Operations Research*, Vol. 8, No. 2, (2003).

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KING, PAUL I., (ENY)

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McMullan, R. J. and McRae, D. S., "*Small Disturbance Boundary Condition Simulating Interaction Between Upstream Disturbances and Axial Compressor,"* AIAA 2003-4422, 39th AIAA/ASME/SAE/ASEE Joint Propulsion Conference and Exhibit, Huntsville, AL, July 20-23, 2003.

MILLER, JOHN O., (ENS)

Bertulis, T. S. and J. O Miller, *"Using Simulation to Understand Interim Brigade Combat Team Munitions Logistics,"* Proceedings of the 2002 Winter Simulation Conference, ed. E. Yucesan, C. H. Chen, J. L. Snowdon, and J. M. Charnes, Winter 2002.

MILLER, Lt Col MIKEL M., (ENG)

*Hoffman, G., M. M. Miller, M. Kabrisky, P. S. Maybeck, and J. F. Raquet, *"A Novel Electrocardiogram Segmentation Algorithm Using a Multiple Model Adaptive Estimator,"* Proceedings of the IEEE Conference on Decision and Control, pp. 2524-2529, Las Vegas NV, December 2002.

*Schutte, C., M. M. Miller, J. F. Raquet, and R. Tredway, *"Augmenting Parachute Testing and Evaluation Using GPS-Based Position and Velocity,"* Proceedings of 2003 Annual Meeting of the Institute of Navigation, Albuquerque NM, June 2003.

MOORE, JAMES T., (ENS)

*Dougherty, S., R. R. Hill, and J. T. Moore, *"Modeling Signal Latency Effects Using Arena,"* Proceedings of the 2002 Winter Simulation Conference, E. Yucesan, C. H. Chen, J. L. Snowdon and J. M. Charnes, proceedings editors, December 2002.

MUCZYK, JAN P., (ENV)

Muczyk, J. P., *"Lessons Learned by an Expatriate Living in the Middle East,"* Readings Book of the 2003 International Conference of the Academy of Business Administration, Dublin, Ireland, July 23 – 28, 2003.

OXLEY, MARK E., (ENC)

*Hale, T. B., M. A. Temple, M. C. Wicks, J. F. Raquet and M. E. Oxley, *"Localized Three- Dimensional Adaptive Spatial-Temporal Processing for Airborne Radar,"* Proceedings of the IEE International Radar Conference (Radar 2002), 191-195, Edinburgh, UK, October 2002.

*Hill, J. M., M. E. Oxley and K. W. Bauer, Jr., *"Evaluating the Fusion of Multiple Classifiers via ROC Curves,"* Proceedings of SPIE (Signal Processing, Sensor Fusion, and Target Recognition XII), 5096, paper no. 43, Orlando, FL, April 2003.

*Hill, J. M., M. E. Oxley and K. W. Bauer, *"Receiver Operating Characteristic Curves and Fusion of Multiple Classifiers,"* The 6th International Conference on Information Fusion, 815-822, Cairns, Queensland, Australia, July 2003.

Magnus, A. L. and M. E. Oxley, *"Arrogance in Classification,"* Proceedings of the IEEE Aerospace Conference, paper no. 1405 (on compact disk), Big Sky, MT, March 2003.

Magnus, A. L. and M. E. Oxley, *"Artificial Symbols and the Essence of Intelligent Computing,"* Proceedings of SPIE (Intelligent Computing: Theory and Applications), 5103, 121-132, Orlando, FL, April 2003.

Oxley, M. E. and A. L. Magnus, *"Measuring the Generalization Capabilities of Arbitrary Classifiers,"* Proceedings of SPIE (Intelligent Computing: Theory and Applications), 5103, 133-142, Orlando, FL, April 2003.

*Rogers, S. K., M. Kabrisky, K. W. Bauer and M. E. Oxley, *"Computing Machinery and Intelligence Amplification,"* Book chapter in *Computational Intelligence*: The Experts Speak, Edited by D. B. Fogel and C. J. Robinson, Wiley, June 2003.

Thorsen, S. N. and M. E. Oxley, *"Describing Data Fusion Using Category Theory,"* The 6th International Conference on Information Fusion, 1202-1206, Cairns, Queensland, Australia, July 2003.

PACHTER, MEIR, (ENG)

Chandler, P. R. and M. Pachter, *"Distributed Control of Multiple UAVs with Strongly Coupled Tasks,"* Proceedings of the 2003 AIAA Guidance, Navigation and Control Conference, AIAA paper No 2003-5799, Austin TX, August 11-14, 2003.

Jacques, D. and M. Pachter, *"A Theoretical Foundation for Cooperative Search, Classification and Target Attack,"* Proceedings of the Workshop for Cooperative Control and Optimization, Gainesville FL, Dec. 4-6, 2002.

Jacques, D. and M. Pachter, *"Investigation of Cooperative Behavior in Autonomous Wide Area Search Munitions,"* Proceedings of the 2002 AIAA Missile Sciences Conference, Monterey CA, November 5-7, 2002.

Miller, D. and M. Pachter, *"Aircraft Trim Control,"* Proceedings of the 2003 AIAA Guidance, Navigation and Control Conference, AIAA paper No 2003-5407, Austin TX, 11-14 August 11-14, 2003.

Pachter, M. and A. Porter, *"INS Aiding by Tracking an Unknown Ground Object – Theory,"* Proceedings of the American Control Conference, Denver CO, June 4-6, 2003.

Pachter, M. and J. Hebert, *"Optimal Trajectories for Cooperative Classification,"* book chapter, pp. 253-281, Kluwer Academic, (2003).

Pachter, M., *"Vision Based Navigation – Theory,"* Proceedings of the 14th International Conference on Control Systems and Computer Science, Bucharest, Romania, July 2-5, 2003.

Porter, A. and M. Pachter, *"Bearings-Only Measurements for INS Aiding: Theory for the Three-Dimensional Case,"* Proceedings of the 2003 AIAA Guidance, Navigation and Control Conference, AIAA paper No 2003-5354, Austin TX, August 11-14, 2003.

Schulz, C., D. Jacques, and M. Pachter, *"Cooperative Control Simulation Validation using Applied Probability Theory,"* Proceedings of the 2003 AIAA Guidance, Navigation and Control Conference, AIAA paper No 2003-5587, Austin TX, August 11-14, 2003.

Schumacher, C., P. R. Chandler, and M. Pachter, *"Coupling in UAV Cooperative Control,"* book chapter, pp. 323-348, Kluwer Academic, (2003).

Schumacher, C., P. R. Chandler, L. S. Pachter, and M. Pachter, *"UAV Task Assignment with Timing Constraints,"* Proceedings of the 2003 AIAA Guidance, Navigation and Control Conference, AIAA paper No 2003-5664, Austin TX, August 11-14, 2003.

Subramanian, S. K., J. B. Cruz, P. R. Chandler, and M. Pachter, *"Predicting Pop-UP Threats from an Adaptive Markov Model,"* Proceedings of the Workshop for Cooperative Control and Optimization, Gainesville FL, December 4-6, 2002.

PALAZOTTO, ANTHONY N., (ENY)

Ivancic, F. and A. Palazotto, "*The Effects of a Hard Coating on the Damping and Fatigue Life of Titanium,"* AIAA 2003-1689, 44th AIAA Structural Dynamics and Materials Conference, Norfolk, VA, April 7-10, 2003.

*Lofthouse, A., M. Hughson, and A. Palazotto, "*Hypersonic Test Sled External Flow Field Investigation Using Computational Fluid Dynamics,"* AIAA 2003-0981, 41st AIAA Aerospace Sciences Meeting and Exhibit, Reno, NV, January 6-9, 2003.

Patel, R. and A. Palazotto, *"Combined Experimental and Analytical Study of HCF in Turbine Blades Using Simplified Geometry,"* AIAA 2003-1755, 44th AIAA Structural Dynamics and Materials Conference, Norfolk, VA, April 7-10, 2003.

Patel, R. and A. Palazotto, *"FEM Based Model to Study HCF in Simplified Turbine Blades,"* Society for Advancement of Materials and Process Engineering (SAMPE), Long Beach, CA, May 11-15, 2003.

Perel, V. and A. Palazotto, *"Consideration of Thru-th-Thickness Strains for a Sandwich Panel,"* 17th Technical Conference, American Society of Composites, Purdue University, IN, October 21-23, 2002.

PERRAM, GLEN P., (ENP)

Dills, A., K. Gross, and G. P. Perram, *"Detonation Discrimination Techniques Using a FTIR System and a NIR CCD,"* Proceedings of SPIE Volume, 5075, 208-216, September 2003.

Gross, K., A. Dills, and G. P. Perram, *"Phenomenology of Exploding Ordinance Using Spectrally and Temporally Resolved Infrared Emissions,"* Proceedings of SPIE Volume, 5075, 217-227, September 2003.

Phillips, G. T. and G. P. Perram, *"Spatially-Resolved Temperatures in Laser Mixing Nozzles Using Laser Saturation Spectroscopy,"* Proceedings of the 34th AIAA Plasmadynamics and Lasers Conference, AIAA-2003-3755, Orlando, FL, June 23-25, 2003.

RAINES, RICHARD A., (ENG)

*Canadeo, C.M., M.A. Temple, R.O. Baldwin, and R.A. Raines, *"Code Selection for Enhancing UWB Multiple Access Communication Performance Using TH-PPM and DS-BPSK Modulations,"* Proceedings of the IEEE Wireless Communications and Network Conference (WCNC 2003), Vol. 1, pp. 678-682, New Orleans, LA, March 2003.

*Kneeland, T.F., R.A. Raines, M.A. Temple, and R.O. Baldwin, *"Effective Ranges and Data Throughout for Unmodified Bluetooth Communication Devices,*" Proceedings of the 2003 11th IEEE International Conference on Networking," pp. 665-671, Sydney, Australia, September 2003.

*Lee, M.J., M.A. Temple, R.L. Claypoole, Jr., and R.A. Raines, *"Wavelet Domain Communication System: Bit Error Sensitivity Characterization for Geographically Separated Transceivers,"* IEEE Military Communications Conference (MILCOM 2002), Vol. 2, pp. 1378-1382, Anaheim CA, October 2002.

*Schwamb, T.M., R.O. Baldwin, R.A. Raines, and M.A. Temple, *"Performance Analysis of a Dynamic Bandwidth Allocation Algorithm in a Circuit-Switched Communications Network,"* Proceedings of IEEE MILCOM 2002, Vol. 1, pp. 35-39, Anaheim, CA, October 2002.

RAQUET, JOHN K., (ENG)

*Bouska, T.J., J.F. Raquet, and P.S. Maybeck, *"The Use of Optimal Smoothing and Nonlinear Filtering in Pseudolite-Based Flight Reference System,"* Proceedings of the 59th Annual Meeting of the I.O.N., Albuquerque NM, June 2003.

*Hale, T.B., M.A. Temple, M.C. Wicks, J.F. Raquet, and M.E. Oxley, *"Localized Three-Dimensional Adaptive Spatial-Temporal Processing for Airborne Radar,"* Proceedings of the 2002 IEE International Radar Conference, pp. 191-195, Institution of Electrical Engineers, Robin Mellors-Bourne, Savoy Place London WC2R OBL, United Kingdom, (Best paper), October 2002.

*Hoffman, G., M.M. Miller, M. Kabrisky, P.S. Maybeck, and J.F. Raquet, "*A Novel Electrocardiogram Segmentation Algorithm Using a Multiple Model Adaptive Estimator,"* Proceedings of the IEEE Conference on Decision and Control, pp. 2524-2529, Las Vegas NV, December 2002.

*Larson, C., P.S. Maybeck, and J.F. Raquet, *"A Jamming-Adaptive, Ultra-Tightly Coupled GPS/INS Receiver,"* Proceedings of the Classified Session of the 2003 Annual Meeting of the Institute of Navigation, Albuquerque NM, June 2003.

*Ormsby, C.D., J.F. Raquet, and P.S. Maybeck, *"A Generalized Multiple Model Adaptive Estimator for Parameter and State Estimation,"* Proceedings of the 59th Annual Meeting of the I.O.N., Albuquerque NM, June 2003.

Raquet, J.F. and M. Giebner, *"Navigation Using Optical Measurements of Objects at Unknown Locations,"* Proceedings of 2003 Annual Meeting of the Institute of Navigation, Albuquerque NM, June 2003.

*Schutte, C., M.M. Miller, J.F. Raquet, and R. Tredway, *"Augmenting Parachute Testing and Evaluation Using GPS-Based Position and Velocity,"* Proceedings of 2003 Annual Meeting of the Institute of Navigation, Albuquerque NM, June 2003.

REEDER, MARK F., (ENY)

Fasano, J. and M.F. Reeder, *"Viscous and Geometric Effects on Fluid Motion,"* Paper 177b, 2002 Annual AIChE Meeting, November, 2002.

Heniche, M., M.F. Reeder, and P. Tanguy, *"Numerical Comparison of a Laminar Flow Mixing Through SMX and KMX Mixers,"* Paper 177d, 2002 Annual AIChE Meeting, November, 2002.

Reeder, M.F., J. Fasano, and E. Janz, *"A New Approach to Hermetically Sealed Tanks,"* Paper 4.1, Mixing XIX, Lake Placid, NY, June, 2003.

*Reeder, M.F. and C. Subramanian, *"Mean and Instantaneous Flow Properties for an Object Exiting a Cavity,"* AIAA 2003-3723, 33rd AIAA Fluid Dynamics Conference & Exhibit, Orlando, FL, June 23-26, 2003.

Subramanian, C., P.I. King, M.F. Reeder, S. Ou, and R. Rivir,"Effects of Strong Irregular Roughness on Turbulent Boundary Layer,"* Fete Antonio International Conference on Fluid Mechanics, University of Newcastle, Australia, July 18-19, 2003.

ROH, WON B., (ENP)

McKay, J.B., W.B. Roh, and K.L. Schepler, *"Thermal Lensing in Cr^{2+}:ZnSe Face-Cooled Disks,"* Optical Society of America, 2003, TOPS 2003.

Russell, T. H. and W.B. Roh, *"Laser Beam Cleanup Using Stimulated Raman Scattering in Fiber,"* SPIE Proceedings Vol. 4829, 377-8, 2002 (the 19th Congress of the International Commission of Optics, Florence, Italy, August 25-30, 2002).

Willis, S.M. and W.B. Roh, *"Phasing a Dual Optical Path System Using an Optical Fiber as a Phase Conjugate Mirror,"* Technical Digest of the 2003 SSDLTR, Albuquerque, NM, 20-22 May 2003.

RUGGLES-WRENN, MARINA B., (ENY)

Ruggles-Wrenn, M.B., W.J. Koves, D.H. Martens, C. Becht, eds., *Design and Analysis Methods and Fitness for Service Evaluations for Pressure Vessels and Piping,* PVP-Vol. 459, ASME, (2003).

SEETHARAMAN, GUNA S., (ENG)

Choudhury, K., G. Seetharaman, and G. Massiha, *"Accurate Modeling of Inductance for Nano-chips,"* IEEE-NANO '2003 IEEE International Conference on Nanotechnology, San Francisco CA, August 12-14, 2003.

Utigikar, A., G. Seetharaman, and M. Bayoumi, "Affine Schemes in Mesh Based Video Motion Compensation," IEEE Workshop on Signal Processing Systems, Seoul, Korea. 27-29 August 2003.

TEMPLE, MICHAEL A., (ENG)

*Canadeo, C.M., M.A. Temple, R.O. Baldwin, and R.A. Raines, *"Code Selection for Enhancing UWB Multiple Access Communication Performance Using TH-PPM and DS-BPSK Modulations,"* Proceedings of the IEEE Wireless Communications and Network Conference (WCNC 2003), Vol. 1, pp. 678-682, New Orleans LA, March 2003.

*Hale, T.B., M.A. Temple, M.C. Wicks, J.F. Raquet, and M.E. Oxley, *"Localized Three-Dimensional Adaptive Spatial-Temporal Processing for Airborne Radar,"* Proceedings of the 2002 IEE International Radar Conference, pp. 191-195, Institution of Electrical Engineers, Robin Mellors-Bourne, Savoy Place London WC2R OBL, United Kingdom, October 2002, (Best paper).

*Hale, T.B., M.A. Temple, and M.C. Wicks, *"Target Detection in Heterogeneous Airborne Radar Interference Using 3D STAP,* Proceedings of IEEE 2003 Radar Conference, pp. 252-257, Institution of Electrical and Electronics Engineers, IEEE Aerospace and Electronic Systems Society, Huntsville AL, May 2003.

*Kneeland, T.F., R.A. Raines, M.A. Temple, and R.O. Baldwin, *"Effective Ranges and Data Throughout forUnmodified Bluetooth Communication Devices,"* Proceedings of the 2003 11th IEEE International Conference on Networking, pp. 665-671, Sydney, Australia, September 2003.

*Lee, M.J., M.A. Temple, R.L. Claypoole, Jr., and R.A. Raines, *"Wavelet Domain Communication System: Bit Error Sensitivity Characterization for Geographically Separated Transceivers,"* IEEE Military Communications Conference (MILCOM 2002), Vol. 2, pp. 1378-1382, Anaheim CA, October 2002.

*Peterson, B.S., R.O. Baldwin, and M.A. Temple, *"Non-Cooperative Synchronization for a Bluetooth Piconet: Algorithm and Results,"* Proceedings of IEEE MILCOM 2003, Boston, MA, October 2003.

*Schwamb, T.M., R.O. Baldwin, R.A. Raines, and M.A. Temple, *"Performance Analysis of a Dynamic Bandwidth Allocation Algorithm in a Circuit-Switched Communications Network,"* Proceedings of IEEE MILCOM 2002, Vol. 1, pp. 35-39, Anaheim CA, October 2002.

TERZUOLI, ANDREW J., JR., (ENG)

*Smallwood, B.P., A.J. Terzuoli, Jr., and R.A. Canfield, *"Conformal Antennas on a Joined-Wing Aircraft,"* Proceedings of the 2003 IEEE/AP-S/URSI International Symposium, n. 736, Columbus OH, June 23-27, 2003.

*Smallwood, B.P., A.J. Terzuoli, Jr., and R.A. Canfield, *"Structurally Integrated Antennas for Remote Sensing,"* Proceedings of the 2003 IEEE International Geoscience and Remote Sensing Symposium, No. 03-1383, Toulouse, France, July 21-15, 2003.

*Smallwood, B.P., R.A. Canfield, and A.J. Terzuoli, Jr., *"Structurally Integrated Antennas on a Joined-Wing Aircraft,"* Proceedings of the 44th AIAA/ASME/ASCE/AHS Structures, Structural Dynamics, and Materials Conference, no. AIAA-2003-1459, Norfolk VA, April 7-10, 2003.

Terzuoli, A.J., Jr., *"Graduate Research and Education in Electrical and Computer Engineering,"* Proceedings of the 2003 Summer SSGRR Symposium, L'Aquila, Italy, July 28-31, 2003.

Terzuoli, A.J., Jr., P. Gilgallon, and P. Howland, *"Studies in Bistatic Remote Sensing,"* Proceedings of the 2003 IEEE International Geoscience and Remote Sensing Symposium, no. 03-1374, Toulouse, France, July 21-25, 2003.

Terzuoli, A.J., Jr., P.Gilgallon and P. Howland, *"Topics in Bistatic Remote Sensing,"* Proceedings in the 2003 IEEE International Geoscience and Remote Sensing Symposium," no. 03-0642, Toulouse, France, July 21-25, 2003.

Ufimtsev, P.Ya., A.J. Terzuoli, Jr. (ed.), and R.D. Moore (trans.), *"Theory of Diffraction in Electromagnetics,"* Tech Science Press, ISBN:0-9657001-7-8, Encino CA, (2003).

Ufimtsev, P. Ya., A. J. Terzuoli, Jr. (ed.), and R. D. Moore (trans*.), "Theory of Edge Diffracted Waves,"* AFIT Report, November 2002.

TORVIK, PETER J., (ENY)

Torvik, P. J*., "Determining Material Properties of Non-linear Damping Materials from System Response Data,"* Proceedings of the 8th National Turbine Engine High Cycle Fatigue Conference, April 2003.

TRAGESSER, STEPHEN G., (ENY)

*Cobb, R.G., and S.G. Tragesser, *"Satellite Attitude Dynamics & Control Demonstrations for the Classroom,"* Paper AAS 03-506, AAS/AIAA Astrodynamics Specialists Conference, Big Sky MT, August 3-7, 2003.

Lovell, T.A., S.G. Tragesser, and K. Horneman, *"A Guidance Algorithm for Formation Reconfiguration and Maintenance Based on the Perturbed Clohessy-Wiltshire Equations,"* AAS/AIAA Astrodynamics Meeting, Big Sky, MT, August 2003.

Lovell, T.A. and S.G. Tragesser, *"Analysis of a Reconfiguration and Maintenance of Close Spacecraft Formations,"* 2003 AAS/AIAA Spaceflight Mechanics Meeting, Ponce, Puerto Rico, February 2003.

Lovell, T.A. and S.G. Tragesser, *"Near-Optimal Reconfiguration and Maintenance of Close Spacecraft Formations,"* New Trends in Astrodynamics and Applications Conference, College Park, MD, January 2003.

WIESEL, WILLIAM E., (ENY)

Wiesel, W.E. "Mission Planning for the Space Maneuver Vehicle," AAS 03-241, 2003 AAS/AIAA Spaceflight Mechanics Meeting, Ponce Puerto Rico, February 9-13, 2003.

Wiesel, W.E. *"Suppose A(t) Isn't Constant,"* AAS 03-114, 2003 AAS/AIAA Spaceflight Mechanics Meeting, Ponce, Puerto Rico, February 9-13, 2003.

WOOD, Maj WILLIAM D., (ENG)

Simpson, G.R. and W.D. Wood, *"Electromagnetic Scattering from a Gap in a Magneto-Dielectric Coating on an Infinite Ground Plane,"* Proceedings of 2003 USNC/CNC/URSI National Radio Science Meeting, Columbus OH, June 2003.

Simpson, G.R. and W.D. Wood, *"Modeling of Surface Feature Scattering Through a Coherent Subtraction Process,"* Proceedings of the 19th Annual Review of Progress in Applied Computational Electromagnetics, pp. 54-57, Monterey CA, March 2003.

Stewart, J.W. and W.D. Wood, *"A Study of a Bowtie Antenna Integrated into a High-Impedance Ground Plane,"* Proceedings of 2003 IEEE Antennas and Propagation Society International Symposium, pp. 855-858, Columbus OH, June 2003.

Stewart, J.W. and W.D. Wood, *"Assessing the Effect of Finite Conductivity on the Performance of Microstrip-Fed Patch Antennas,"* Proceedings of the 19th Annual Review of Progress in Applied Computational Electromagnetics, pp. 250-253, Monterey CA, March 2003.

Thomas, C., K. Hill, W. D.Wood, and G. Grider, *"EMCC Benchmark Radar Target Database,"* 2003 ElectroMagnetic Code Consortium Annual Meeting, Hampton VA, May 2003.

Wood, W.D. and P.J. Collins, *"The Design of Broadband Foam Columns,"* 2002 Antenna Measurement Techniques Association Symposium, pp. 222-227, Cleveland OH, November 2002.

YOUNG, Maj JOEL D., (ENG)

Young, J.D. and T. Dean, *"Exploiting Locality in Searching the Web,"* 19th Conference on Uncertainty in Artificial Intelligence, Acapulco, Mexico, August 8-10, 2003.

3.7 SUBSTANTIAL CONSULTATIONS

[*Denotes Duplicate Entry, Multiple Faculty Members]

DECKRO, RICHARD F., (ENS)

Senior Analyst of team which developed assessment model for DO, CJTF-180, Bagrahm AFB, Afghanistan for Phase IV operations.

Advised IO Cell, CJTF-180, Bagrahm, Afghanistan

Invited participant Bi-Lateral Workshop, Camp Smith, HI. Meeting to plan assistance for JICPAC, JIACG/CT and USPACOM/J081 with allied nation.

CNA Weapons Effectiveness Working Group, Chair Methodology Sub-Group.

DELLA-ROSE, Maj DEVIN J., (ENP)

*Della-Rose, D.J., C.M. Groves, and S. Quigley: Substantial consultations with HQ AFWA/XOGS and AFWA/DNX regarding the curriculum for AFIT's new space weather lab course (PHYS 792). March – October, 2003.

GOLTZ, MARK N., (ENV)

Goltz, M.N., Consultant to AF Center for Environmental Excellence on groundwater contamination source removal research proposal (Colorado School of Mines, CO), August, 2003.

GROVES, Maj CLARK M., (ENP)

*Della-Rose, Devin J., Clark M. Groves, and Stephen Quigley: Substantial consultations with HQ AFWA/XOGS and AFWA/DNX regarding the curriculum for AFIT's new space weather lab course (PHYS 792). March - Oct 2003.

Groves, Clark M.: Substantial consultation with the following institutions regarding importation of major space weather environmental data sets and models, for implementation in the AFIT Space Weather Computational Laboratory: Utah State University Center for Atmospheric and Space Science, University of Massachusetts (Lowell) Center for Atmospheric Research, Johns Hopkin University Advanced Research Laboratory, Air Force Research Laboratory Space Vehicles Directorate, March 2003 – present.

*Perram, G.P., M.A. Marciniak, and C.M. Groves: Managed three modeling and simulation contracts for the High Energy Laser (HEL) Joint Technology Office (JTO), and held substantial consultations with its members and customers. Provided special coordination for the integration of HEL weapons into the Joint Munitions Effectiveness Manual, January 2003 - present.

*Tuttle, R.R., C.M. Groves, and J.O. Miller: Substantial consultations with Dr. Francis Quek of Wright State University and a collaborative team from the University of Chicago, Purdue University, and the University of Illinois (Urbana). Group secured a $1.6 M research grant from the Advanced Research & Development Activity (ARDA) for the exploitation of information content in video-taped interactive group discourse in the military domain, to convert such archived planning behavior into indexed and accessible information for automated intelligence analysis, January 2003 - present.

HALE, Maj TODD B., (ENG)

Hale, T.B: Advised Defense Technology Security Administration/Engineering (DSTA/TD) regarding export of TR module technology.

KLADITIS, Capt PAUL E., (ENG)

Kladitis, P.E., A Red Team member for Kearfott/IC Sensors MVBM MEMS inertial measurement unit Fabrication Audit, Sponsor: AFRL/SNRP and DARPA/MTO MEMS IMU development project.

LAMONT, GARY B., (ENG)

Lamont, G.B., R. Ewing, and R. Linderman, "Bioinformatics, Parallel and Distributive Processing for Signal and Image Processing," Sponsor: AFRL/IF.

Lamont, G.B. and R. Pachter, "Protein Structure Prediction," Sponsor: AFRL/MM.

LOTT, Lt Col JAMES A., (ENG)

Lott, J.A., "Bipolar Quantum Cascade Lasers," Sponsor: AFRL/SN Wright-Patterson AFB OH.

Lott, J.A., "Design of Photonic Devices for Munitions," Sponsor: AFRL/MN Eglin AFB FL.

Lott, J.A., "Quantum Dot Lasers," Sponsor: AFRL/DE Kirtland AFB NM.

MARCINIAK, MICHAEL A., (ENP)

Air Force Research Laboratory, Sensors Directorate, Electro-Optical (EO) Sensor Technology Division, EO Combat Identification Technology Branch – Research advisor into effect of multi-mode vibration on signature estimation using a laser vibration sensor – valued at 0.5 man-year by sponsor.

Air Force Research Laboratory (AFRL), Space Vehicles Directorate, Spacecraft Component Technologies – Principal Investigator on Amorphous and thin-film $CuIn_{1-x}Ga_xSe_2$ (CIGS) solar cell research - $10.2K, valued at $15K by sponsor.

*Perram, G.P., M.A. Marciniak, and C.M. Groves: Managed three modeling and simulation contracts for the High Energy Laser Joint Technology Office, July 2002 - present.

MATHEWS, KIRK A., (ENP)

Appointed to Membership in the Satellite Sensor Review Panel (SSRP). This is a national-level panel of experts from universities (including, now, AFIT) and industry, the Department of Defense, the Department of Energy, National Laboratories, and the Department of State. The panel conducts semiannual reviews of technical issues regarding the satellite sensor systems used by the Air Force Technical Applications Center (AFTAC) to monitor compliance with nuclear weapons testing treaties. Participated in one (three-day) review.

Established a Memorandum of Agreement between AFTAC/TM and AFIT/EN that provides for close cooperation between a sponsored professor (Dr. Mathews) and an AFTAC scientist (Dr. Brennan) to the mutual benefit of both organizations. This will extend an effort that began with a MIPR of funds ($20K) from AFTAC/TM to AFIT/EN that supported Dr. Mathews and his students. Dr. Mathews has developed statistical analyses, hypothesis tests, exact distributions and confidence intervals for special nuclear radiation detection counting problems and has developed software that implements them for AFTAC use. He presented his work as a half-day seminar for eight AFTAC scientists and analysts. Further development is in progress.

MAYBECK, PETER S., (ENG)

Maybeck, P.S., "Design of Ultra-Tightly Coupled GPS-Aided Inertial Navigation Systems for the Next Generation of Miniature Munition Systems," Sponsors: AFRL/MNGN and AFOSR.

Maybeck, P.S., "Detection/Compensation of Jamming/Spoofing of GPS-Aided Inertial Navigation Systems," Sponsor: AFRL/SNAR.

Maybeck, P.S., "Multiple Model Algorithms Applied to Sensor/Actuator Failure Detection and Controller Reconfiguration for Survivable Flight Controller Design," Sponsor: AFRL/VAC.

Maybeck, P.S., "Tracking of Multiple Targets in Clutter Using Electronically Agile Radar," Sponsors: AFRL/SNAT, AFOSR, and Australian Air Force.

PERRAM, GLEN P., (ENP)

*Perram, G.P, M.A. Marciniak, and C.M. Groves: Managed three modeling and simulation contracts for the High Energy Laser Joint Technology Office, July 2002 - present.

Perram, G.P, Chairman, Modeling and Simulation Technical Area Working Group, High Energy Laser Joint Technology Office, May 2002 – present.

*Perram, G.P., M.A. Marciniak, and C.M. Groves: Office of the Secretary of Defense's Joint Technology Office for High-Energy Lasers – Member of hand-picked, three-man team executing $2.1M annually for modeling and simulation program.

RAQUET, JOHN F., (ENG)

Raquet, J.F., "Consulting and Laboratory Support of the Miniature Integrated Navigation Technology (MINT) Program.

Raquet, J.F., "Evaluation of Advanced GPS Course Materials".

SPENNY, CURTIS H., (ENY)

Spenny, C.H., Assessment of Lockheed Martin system engineering process in the C5A Engine Replacement Program, June 2003.

TERZUOLI, ANDREW J., JR., (ENG)

Terzuoli, A. J., Jr., National Intel Council (Passive Sensors) : Member Air & Missile Defense Advisory Board.

TUTTLE, RONALD R., (ENP)

*Tuttle, R.R., C.M. Groves, and J.O. Miller: Substantial consultations with Dr. Francis Quek of Wright State University and a collaborative team from the University of Chicago, Purdue University, and the University of Illinois (Urbana). Group secured a $1.6 M research grant from the Advanced Research & Development Activity (ARDA) for the exploitation of information content in video-taped interactive group discourse in the military domain, to convert such archived planning behavior into indexed and accessible information for automated intelligence analysis, January 2003 - present.

WIESEL, WILLIAM E., (ENY)

Wiesel, W. E, Mission planning for the space maneuver vehicle, One month effort and software delivery, work ongoing.

3.8 PRESENTATIONS

[*Denotes duplicate entry, multiple faculty authors.]

ABRAMSON, Lt Col MARK A., (ENC)

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BLECKMANN, CHARLES A., (ENV)

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BRADY, Lt Col STEPHAN P., (ENS)

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BURGGRAF, LARRY W., (ENP)

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CANFIELD, Lt Col ROBERT A., (ENY)

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Canfield, R.A., "System Design Innovation Using Multidisciplinary Optimization and Simulation," AFOSR Computational and Applied Math Program Review, University of Florida Graduate Engineering Research Center, Fort Walton Beach, Florida, May 29–30, 2003.

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COBB, Maj RICHARD G., (ENY)

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GOLTZ, MARK N., (ENV)

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KING, PAUL I., (ENY)

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KLADITIS, Capt PAUL E., (ENG)

Kladitis, P.E., "Mechanical Computing With MEMS," Invited Talk, HKN Professional Society Meeting, Wright-Patterson AFB, OH, November 6, 2003.

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LAMONT, GARY B., (ENG)

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LOTT, Lt Col JAMES A., (ENG)

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LOWTHER, Lt Col RONALD P., (ENP)

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MATHEWS, KIRK A., (ENP)

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MELOUK, SHARIF H., (ENS)

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OXLEY, MARK E., (ENC)

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Oxley, M. A., "Receiver Operating Characteristic Curves and Fusion of Multiple Classifiers," FUSION 2003, Cairns, Australia, July 2003.

PACHTER, MEIR, (ENG)

Pachter, M., "Applied Probability Theory for Decision Making in Cooperative Search, Classification and Attack," DARPA MICA/SHARED Workshop, The Ohio State University, Columbus OH, November 8, 2002.

Pachter, M., "Vision Based Navigation – Theory," 14th International Conference on Control Systems and Computer Science, Bucharest, Romania, Chaired the session A13.Robotics, July 2-5, 2003

Pachter, M. and A. Porter, "INS Aiding by Tracking an Unknown Ground Object – Theory," American Control Conference, Denver CO, Chaired the session WM16, June 4-6, 2003.

Jacques, D. and M. Pachter, "Investigation of Cooperative Behavior in Autonomous Wide Area Search Munitions," 2002 AIAA Missile Sciences Conference, Monterey CA, November 5-7, 2002.

Miller, D. and M. Pachter, "Aircraft Trim Control," 2003 AIAA Guidance, Navigation, and Control Conference, Austin TX, August 11-14, 2003.

Chandler, P. R. and M. Pachter, "Distributed Control of Multiple UAVs with Strongly Coupled Tasks," 2003 AIAA Guidance, Navigation and Control Conference, Austin TX, August 11-14, 2003.

Porter, A. and M. Pachter, "Bearings-Only Measurements for INS Aiding: Theory for the Three-Dimensional Case," 2003 AIAA Guidance, Navigation and Control Conference, Austin TX, August 11-14, 2003.

Jacques, D. and M. Pachter, "A Theoretical Foundation for Cooperative Search, Classification and Target Attack," Workshop for Cooperative Control and Optimization, Gainesville FL, December 4-6, 2002.

Schulz, C., D. Jacques, and M. Pachter, "Cooperative Control Simulation Validation Using Applied Probability Theory," 2003 AIAA Guidance, Navigation and Control Conference, Austin TX, August 11-14, 2003.

Schumacher, C., P. R. Chandler, L. S. Pachter, and M. Pachter, "UAV Task Assignment with Timing Constraints," 2003 AIAA Guidance, Navigation and Control Conference, Austin TX, August 11-14, 2003.

Subramanian, S. K., J. B. Cruz, P. R. Chandler, and M. Pachter, "Predicting Pop-UP Threats from an Adaptive Markov Model," Workshop for Cooperative Control and Optimization, Gainesville FL, December 4-6, 2002.

PALAZOTTO, ANTHONY N., (ENY)

Szmerekovsky, A. and A. Palazotto, "Consideration of Gouging Under High Energy Impact," 28th Annual Dayton-Cincinnati Aerospace Sciences Symposium, Dayton, OH, March 2003.

Crooks, H. and A. Palazotto, "Consideration of Residual Strains in Fatigue of Metals," 28th Annual Dayton-Cincinnati Aerospace Sciences Symposium, Dayton, OH, March 2003.

PERRAM, GLEN P., (ENP)

*Bartell, R. J., G. P. Perram, and M. A. Marciniak, "High Energy Laser Joint Technology Office High Energy Laser Parametric Engagement Level Model," Joint Technology Office High Energy Laser Lethality Conference, Newport News, VA, September 2003.

*Bartell, R. J., G. P. Perram, and M. A. Marciniak, "Development of the DoD Joint Technology Office High Energy Laser Parametric Engagement Level Model," 2003 Meeting of the MSS Specialty Group on Active E-O Systems, Boulder, CO, August 25-28, 2003.

*Dills, A., K. Gross, R. F. Tuttle, and G. P. Perram, "Surveillance of Bomb Detonations using Infrared Spectra and Imaging," AIAA/ICAS International Air and Space Symposium and Exposition, Dayton, OH, July 14-17, 2003.

*Dills, A., K. Gross, R. F. Tuttle, and G. P. Perram, "Extracting Key Features of the Temporal, Spectral and Spatial Infrared Signatures from the Detonation of Conventional and Novel Explosives," 3rd International Workshop on Non-Ideal Explosives, Socorro, NM, May 19-22, 2003.

Dills, A., K. Gross and G. Perram, "Detonation Discrimination Techniques Using a FTIR System and a NIR CCD," SPIE 17th Annual International Symposium on Aerospace/Defense Sensing, Simulation, and Controls, Orlando, FL, April 21-25, 2003.

*Dills, A., K. Gross, R. F. Tuttle and G. P. Perram, "Detonation Discrimination Techniques Using a FTIR system and a NIR CCD," Ohio Sectional Meeting of the American Physical Society, The Ohio State University, Columbus, OH, October 18-19, 2002.

Druffner, C. J., G. P. Perram, and R. R. Biggers, "Correlating Plasma Plume Imagery for Pulsed Laser Deposition of $YBa_2Cu_3O_{7-x}$ to Deposited Material Properties," Ohio Sectional Meeting of the American Physical Society, The Ohio State University, Columbus, OH, October 18-19, 2002.

*Gross, K., A. Dills, R. F. Tutttle, and G. P. Perram, "Remote Sensing of Fast Transient Infrared Events for Battle Space Characterization," AIAA/ICAS International Air and Space Symposium and Exposition, Dayton, OH, July 14-17, 2003.

Gross, K., A. Dills, and G. P. Perram, "Phenomenology of Exploding Ordinance Using Spectrally and Temporally Resolved Infrared Emissions," SPIE 17th Annual International Symposium on Aerospace/Defense Sensing, Simulation, and Controls, Orlando, FL, April 21-25, 2003.

*Gross, K., A. Dills, R. F. Tuttle and G. P. Perram, "Phenomenology of Spectrally and Temporally Resolved Infrared Emissions from Bomb Detonations," Ohio Sectional Meeting of the American Physical Society, Ohio State University, Columbus, OH, October 18-19, 2002.

*Groves, C. M., G. P. Perram, and M. A. Marciniak, "High Energy Laser Weapon Modeling and Simulation Process Description," Advanced Technologies Working Group of the Joint Munitions Effectiveness Manual quarterly meeting, Redstone Arsenal, AL, January 15, 2003.

*Groves, C. M., "Density Structure Parameterization of the High Latitude Ionosphere." Address to the 88th Weather Squadron Scientific Crosstalk Workshop, Wright-Patterson AFB, OH, February 5, 2003.

*Hengehold, R. H., G. P. Perram and M. A. Marciniak, "Introduction to Laser Technology Short Course," Edwards AFB, CA, July 21-22, 2003.

*Hengehold, R. H., G. P. Perram and M. A. Marciniak, "Introduction to Lasers Short Course," Kirtland AFB NM, March 17-18, 2003.

Lange, M. A., G. P. Perram, P. N. Barnes, and R. R. Biggers, "Production of High Temperature Superconducting Generators to Power Directed Energy Weapons on Tactical Aircraft," AIAA/ICAS International Air and Space Symposium and Exposition, Dayton, OH, July 14-17, 2003.

Lange, M. A., G. P. Perram, P. N. Barnes, R. R. Biggers, "Electronic, Vibrational and Rotational Energy Distributions in the Plumes Obtained During Pulsed Laser Deposition of Yttrium Barium Copper Oxide Targets," Ohio Sectional Meeting of the American Physical Society, The Ohio State University, Columbus, OH, October 18-19, 2002.

*Perram, G. P., R. J. Bartell and M. A. Marciniak, "High Energy Laser Parametric Engagement Level Models for Weapons Effectiveness and Investment Strategy Assessments," 26th Annual Review Conference of Atmospheric Transmission Models, Lexington, MA, September 23-24, 2003.

*Perram, G. P. and M. A. Maricinia k, "High Energy Laser System Performance and Weapon Effectiveness Modeling and Simulation," High Energy Laser Joint Technology Office Annual Program Review, Albuquerque, NM, May 7-9, 2003.

*Perram, G. P. and M. A. Marciniak, "HEL Joint Technology Office System Performance and Weapon Effectiveness Modeling and Simulation Program," Directed Energy Modeling and Simulation Conference, Directed Energy Professional Society, Albuquerque, NM, March 25-27, 2003.

*Perram, G. P. and M. A. Marciniak, "Standardized High Energy Laser Modeling and Simulation Infrastructure," Fifth Annual Directed Energy Professional Society Symposium, Monterey, CA, November 12-15, 2002.

*Phillips, G. T., G. P. Perram and W. B. Roh, "Diagnostic for Supersonic Mixing in the Chemical Oxygen-Iodine Laser," AIAA/ICAS International Air and Space Symposium and Exposition, Dayton, OH, July 14-17, 2003.

Phillips, G. T. and G. P. Perram, "Spatially-Resolved Temperatures in Laser Mixing Nozzles Using Laser Saturation Spectroscopy," 34th AIAA Plasmadynamics and Lasers Conference, Orlando, FL, June 23-26, 2003.

Pope, R. S., P. J. Wolf, M. R. Hawks, and G. P. Perram, "Pressure Broadening and Rotationally Inelastic Collisions In the O_2 b-X Transition," 26th Annual Review Conference of Atmospheric Transmission Models, Lexington, MA, September 23-24, 2003.

Sathiraju, S., P. T. Murray, T. J. Haugan, R. M. Nekkanti, I. Maartense, J. C. Tolliver, G. P. Perram, and P. N. Barnes, "Studies on Nanoparticulate Inclusion in Y-123 Thin Films," American Ceramic Society Annual Meeting (2003).

POTOCZNY, HENRY B., (ENG)

Potoczny, H. B., "Cryptography and Cryptanalysis," Dayton Metropolitan Honors Seminar, Dayton, OH, March 2003.

RAINES, RICHARD A., (ENG)

Raines, R. A., "Information Assurance and Operations Graduate Education within the USAF," Workshop on Cybersecurity, University of Louisiana, Lafayette, LA, September 2003.

Raines, R. A., "Center for INFOSEC Education and Research," Distinguished Review Board, Center for INFOSEC Education and Research, Wright-Patterson AFB, OH, September 2003.

Raines, R. A., "Information Operations Warriors in the Air Force," Chief Information Officer of the Air Force (Mr. John Gilligan), Pentagon, Washington D.C., April 2003.

Raines, R. A., "Center for INFOSEC Education and Research," Distinguished Review Board, Center for INFOSED Education and Research, Wright-Patterson AFB, OH, April 2003.

Raines, R. A., "Center for INFOSEC Education and Research," Undersecretary of the Air Force (Mr. Peter Teets), Wright-Patterson AFB, OH, February 2003.

Raines, R. A., "AFIT IA Education and Research," Air Combat Command SC (BG William Lord), Langley AFB, VA, November 2002.

Raines, R. A., "AFIT IA Education and Research," National Information Assurance Leadership Conference, Washington D.C., October 2002.

*Kneeland, T. F., R. A. Raines, M. A. Temple, and R. O. Baldwin, "Effective Ranges and Data Throughout for Unmodified Bluetooth Communication Devices," 2003 11th IEEE International Conference on Networking, Sydney, Australia, September 2003.

*Schwamb, T. M., R. O. Baldwin, R. A. Raines, and M. A. Temple, "Performance Analysis of a Dynamic Bandwidth Allocation Algorithm in a Circuit-Switched Communications Network," IEEE MILCOM 2002, Anaheim, CA, October 2002.

*Canadeo, C. M., M. A. Temple, R. O. Baldwin, and R. A. Raines, "Code Selection for Enhancing UWB Multiple Access Communication Performance Using TH-PPM and DS-BPSK Modulations," IEEE Wireless Communications and Network Conference (WCNC 2003), New Orleans, LA, March 2003.

*Lee, M. J., M. A. Temple, R. L. Claypoole, Jr., and R. A. Raines, "Wavelet Domain Communication System: Bit Error Sensitivity Characterization for Geographically Separated Transceivers," IEEE Military Communications Conference (MILCOM 2002), Anaheim, CA, October 2002.

RAQUET, JOHN F., (ENG)

Raquet, J. F., "Carrier-Phase Ambiguity Resolution," Short Course presented to AFRL/SN, Wright-Patterson AFB, OH, August-September 2003.

Raquet, J. F., "GPS 101," Short Course presented at Joint Navigation Conference, Las Vegas, NV. April 2003.

Raquet, J. F., "The Global Positioning System," 1-hour presentation to Dayton Honors Seminar students, Dayton, OH, November 2002.

Raquet, J. F. and M. Giebner, "Navigation Using Optical Measurements of Objects at Unknown Locations," 2003 Annual Meeting of the Institute of Navigation, Albuquerque, NM, June 2003.

Ormsby, C. D., J. F. Raquet, and P. S. Maybeck, "A Generalized Multiple Model Adaptive Estimator for Parameter and State Estimation," 59th Annual Meeting of the I.O.N., Albuquerque, NM, June 2003.

Bouska, T. J., J. F. Raquet, and P. S. Maybeck, "The Use of Optimal Smoothing and Nonlinear Filtering in Pseudolite-Based Flight Reference System," 59th Annual Meeting of the I.O.N., Albuquerque, NM, June 2003.

*Schutte, C., M. M. Miller, J. F. Raquet, and R. Tredway, "Augmenting Parachute Testing and Evaluation Using GPS-Based Position and Velocity," 2003 Annual Meeting of the Institute of Navigation, Albuquerque, NM, June 2003.

*Larson, C. D., P. S. Maybeck, and J. F. Raquet, "A Jamming-Adaptive, Ultra-Tightly Coupled GPS/INS Receiver," distribution authorized to U.S. Government agencies and their contractors (Critical Technology), Classified Session at the 59th Annual meeting of the I.O.N., Albuquerque, NM, June 2003.

*Hoffman, G., M. M. Miller, M. Kabrisky, P. S. Maybeck, and J. F. Raquet, "A Novel Electrocardiogram Segmentation Algorithm Using a Multiple Model Adaptive Estimator," IEEE Conference on Decision and Control, Las Vegas, NV, December 2002.

*Hale, T. B., M. A. Temple, M. C. Wicks, J. F. Raquet, and M. E. Oxley, "Localized Three-Dimensional Adaptive Spatial-Temporal Processing for Airborne Radar," 2002 IEE International Radar Conference, Institution of Electrical Engineers, Robin Mellors-Bourne, Savoy Place London, United Kingdom, (Best Paper), October 2002.

ROH, WON B., (ENP)

McKay, J. B., W. B. Roh, and K. L. Schepler, "Thermal Lensing in Cr^{2+}:ZnSe Face-Cooled Disks," Presented at the 2003 Advanced Solid-State Lasers Topical Meeting, San Antonio, TX, February 2-5, 2003.

*Phillips, G. T., G. P. Perram and W. B. Roh, "Diagnostic for Supersonic Mixing in the Chemical Oxygen- Iodine Laser," AIAA/ICAS International Air and Space Symposium and Exposition, Dayton, OH, July 14-17, 2003.

Russell, T. H. and W. B. Roh, "Laser Beam Cleanup Using Stimulated Raman Scattering in Fiber," SPIE Proceedings Vol. 4829, 377-8, 2002, the 19th Congress of the International Commission of Optics, Florence, Italy, August 25-30, 2002.

Russell, T. H. and W. B. Roh, "Laser Beam Cleanup Using Stimulated Raman Scattering in Fiber," Presented at the 19th Congress of the International Commission of Optics, Florence, Italy, August 25-30, 2002.

Willis, S. M. and W. B. Roh, "Phasing a Dual Optical Path System Using an Optical Fiber as a Phase Conjugate Mirror," Technical Digest of the 2003 SSDLTR, Albuquerque, NM, May 20-22, 2003.

SPENNY, CURTIS H., (ENY)

Spenny, C. H., "Telerobotics'', Honor Seminars of Metropolitan Dayton, Dayton, OH, October 2002.

Spenny, C. H., "Telerobotics'', Honor Seminars of Metropolitan Dayton, Dayton, OH, March 2003.

Spenny, C. H. "Toward Variable Autonomy in UAV-Centric Missions," Pre-conference Workshop, UCAV2003, Institute for Defense and Government Advancement, Alexandria, VA, March 2003.

TEMPLE, MICHAEL A., (ENG)

Kurian, J., M. A. Temple, M. J. Papaphotis, and W. M. Brown, "Mutually Dispersive Pulse Coding to Enhance Non-Linear Ambiguity Suppression," 2003 International Conference on Radar, Adelaide, Australia, September 3-5, 2003.

Canadeo, C. M., M. A. Temple, R. O. Baldwin, and R. A. Raines, "Code Selection for Enhancing UWB Multiple Access Communication performance Using TH-PPM and DS-BPSK Modulations," IEEE Wireless Communications and Network Conference (WCNC 2003), New Orleans, LA, March 2003.

Lee, M. J., M. A. Temple, R. L. Claypoole, Jr., and R. A. Raines, "Wavelet Domain Communication System: Bit Error Sensitivity Characterization for Geographically Separated Transceivers," IEEE Military Communications Conference (MILCOM 2002), Anaheim CA, October 2002.

*Hale, T. B., M. A. Temple, and M. C. Wicks, "Target Detection in Heterogeneous Airborne Radar Interference Using 3D STAP," IEEE 2003 Radar Conference, Institution of Electrical and Electronics Engineers, IEEE Aerospace and Electronic Systems Society, Huntsville, AL, May 2003.

*Hale, T. B., M. A. Temple, M. C. Wicks, J. F. Raquet, and M. E. Oxley, "Localized Three-Dimensional Adaptive Spatial-Temporal Processing for Airborne Radar," 2002 IEE International Radar Conference, Institution of Electrical Engineers, Robin Mellors-Bourne, Savoy Place London, United Kingdom, (Best paper), Oct. 2002.

*Kneeland, T. F., R. A. Raines, M. A. Temple, and R. O. Baldwin, "Effective Ranges and Data Throughout for Unmodified Bluetooth Communication Devices," 2003 11th IEEE International Conference on Networking, Sydney, Australia, September 2003.

*Schwamb, T. M., R. O. Baldwin, R. A. Raines, and M. A. Temple, "Performance Analysis of a Dynamic Bandwidth Allocation Algorithm in a Circuit-Switched Communications Network," IEEE MILCOM 2002, Anaheim, CA, October 2002.

TERZUOLI, ANDREW J., JR., (ENG)

Terzuoli, A. J., Jr., "Graduate Research and Education in Electrical and Computer Engineering," 2003 Summer SSGRR Symposium, L'Aquila, Italy, July 28-32, 2003.

Terzuoli, A. J., Jr., P. Gilgallon, and P. Howland, "Studies in Bistatic Remote Sensing," 2003 IEEE International Geoscience and Remote Sensing Symposium, Toulouse, France, July 21-25, 2003.

Terzuoli, A. J., Jr., P. Gilgallon and P. Howland, "Topics in Bistatic Remote Sensing," 2003 IEEE International Geoscience and Remote Sensing Symposium," Toulouse, France, July 21-25, 2003.

*Smallwood, B. P., A. J. Terzuoli, Jr., and R. A. Canfield, "Conformal Antennas on a Joined-Wing Aircraft," 2003 IEEE/AP-S/URSI International Symposium, Columbus OH, June 23-27, 2003.

*Smallwood, B. P., A. J. Terzuoli, Jr., and R. A. Canfield, "Structurally Integrated Antennas for Remote Sensing," 2003 IEEE International Geoscience and Remote Sensing Symposium, Toulouse, France, July 21-25, 2003.

*Smallwood, B. P., R. A. Canfield, and A. J. Terzuoli, Jr., "Structurally Integrated Antennas on a Joined-Wing Aircraft," 44th AIAA/ASME/ASCE/AHS Structures, Structural Dynamics, and Materials Conference, Norfolk VA, April 7-10, 2003.

TORVIK, PETER J., (ENY)

Torvik, P. J., "Determining Material Properties of Nonlinear Damping Materials from System Response Data," 8th National Turbine Engine High Cycle Fatigue Conference, April 14-16, 2003, Monterey, CA.

TUTTLE, RONALD F., (ENP)

*Dills, A., K. Gross, R. F. Tuttle, and G. P. Perram, "Surveillance of Bomb Detonations using Infrared Spectra and Imaging," AIAA/ICAS International Air and Space Symposium and Exposition, Dayton, OH, July 14-17, 2003.

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*Gross, K., A. Dills, R. F Tutttle, and G. P. Perram, "Remote Sensing of Fast Transient Infrared Events for Battle Space Characterization," AIAA/ICAS International Air and Space Symposium and Exposition, Dayton, OH, July 14-17, 2003.

*Gross, K., A. Dills, R. F. Tuttle and G. P. Perram, "Phenomenology of Spectrally and Temporally Resolved Infrared Emissions from Bomb Detonations," Ohio Sectional Meeting of the American Physical Society, Ohio State University, Columbus, OH, October 18-19, 2002.

WEBB, Maj TIMOTHY S., (ENC)

Webb, T. S., "Power for the Conditional Test in 2×2 Tables Using an Internal Pilot Design," Western North American Region (WNAR) of the International Biometrics Society (IBS), Golden, CO, June 2003.

WEEKS, DAVID E., (ENP)

*Bailey W. F., D. Weeks and W. Wood, "High Power Microwave Systems," HPM Short Course, presented at the Air Armament Center, Eglin AFB, FL, July 23, 2003.

*Bailey W. F., D. Weeks and W. Wood, "High Power Microwave Systems," HPM Short Course, presented at the Air Armament Center, Eglin AFB, FL, July 24, 2003.

*Boyd, J., X. Duan, J. W. Roberts, D. E. Weeks, and L. W. Burggraf, "Quantum Mechanical Calculations of Monoxides of Silicon Carbide Molecules," AFOSR Molecular Dynamics Contractor's Review, San Diego CA, May 18-21, 2003.

*Ferguson, E. G., G. D. Mounce, M. A. Marciniak, J. A. Lott, R. L. Hengehold, D. E. Weeks, R. Kaspi and G. W. Turner, "Ultra-Fast Spectroscopy of Optically Pumped Mid-Infrared Semiconductor Laser Materials and Devices," presented at the American Physical Society March 2003 Meeting (X8 4), Austin, TX, March 3-7, 2003.

Weeks, D. E., and D. R. Yarkony, "Non-Adiabatic Dynamics of B + H_2," AFOSR Molecular Dynamics Contractor's Review, San Diego CA, May 18-21, 2003.

Weeks, D. E., S. H.Yang, T. A.Niday, and D. R. Yarkony, "Scattering Matrix Elements and Non-Adiabatic Dynamics of the B + H_2 System," XIXth Conference on the Dynamics of Molecular Collisions, Lake Tahoe, CA, July 13-18, 2003.

WHITE, EDWARD D., III., (ENC)

Brown, T. W., E. D. White, and M. A. Gallagher, "Weibull-based Forecasting of R&D Program Budgets," 36th Annual DoD Cost Analysis Symposium (ADoDCAS), Williamsburg, VA, January 2003.

White E. D., J. V. Bielecki, G. W. Moore, and V. P. Sipple, "Estimating Engineering and Manufacturing Development Cost Growth Using Logistic and Multiple Regression," Society of Cost Estimating and Analysis (SCEA) National Meeting, Orlando, FL, June 2003.

WIESEL, WILLIAM E., (ENY)

Wiesel, W.E. "Suppose A(t) Isn't Constant," AAS 03-114, 2003 AAS/AIAA Spaceflight Mechanics Meeting, Ponce Puerto Rico, February 9-13, 2003.

Wiesel, W. E. "Mission Planning for the Space Maneuver Vehicle," AAS 03-241, 2003 AAS/AIAA Spaceflight Mechanics Meeting, Ponce Puerto Rico, February 9-13, 2003.

WILEY, Maj VICTOR D., (ENS)

*Kennedy, Kevin T., Richard F. Deckro, Victor D. Wiley and James Chrissis, "An Analysis of Multiple Layered Networks," Military Operations Research Society Symposium, Marine Corps Base Quantico, Quantico, VA, Jun 2003.

Lewis, M. T., M. A. Greiner, V. D. Wiley, and M. Rogers, "Integrating CAIV and Evolutionary Acquisition – A Multiattribute Design Evaluation Approach," 36th Annual DoD Cost Analysis Symposium, Williamsburg, VA, January 28-31, 2003.

WOOD, AIHUA W., (ENC)

Wood, Aihua W., "Topics on EM Scattering Problems," AFOSR EM Workshop, San Antonio, TX, January 2003.

Wood, Aihua W., "An Integral Method for Electromagnetic Scattering Problems," 11th Conference on Mathematical Applications of Finite Elements (MAFELAP 2003), Brunel University, Uxbridge, United Kingdom, June 2003.

WOOD, Maj WILLIAM D., (ENG)

Wood, W. D. and P. J. Collins, "The Design of Broadband Foam Columns," 2002 Antenna Measurement Techniques Association Symposium, Cleveland OH, November 2002.

Simpson, G. R. and W. D. Wood, "Electromagnetic Scattering from a Gap in a Magneto-Dielectric Coating on an Infinite Ground Plane," 2003 USNC/CNC/URSI National Radio Science Meeting, Columbus OH, June 2003.

Stewart, J. W. and W. D. Wood, "A Study of a Bowtie Antenna Integrated into a High-Impedance Ground Plane," 2003 IEEE Antennas and Propagation Society International Symposium, Columbus OH, June 2003.

Stewart, J. W. and W. D. Wood, "Assessing the Effect of Finite Conductivity on the Performance of Microstrip-Fed Patch Antennas," 19th Annual Review of Progress in Applied Computational Electromagnetics,Monterey CA, March 2003.

Simpson, G. R. and W. D. Wood, "Modeling of Surface Feature Scattering Through a Coherent Subtraction Process," 19th Annual Review of Progress in Applied Computational Electromagnetics, Monterey CA, March 2003.

Thomas, C., K. Hill, W. D. Wood, and G. Grider, "EMCC Benchmark Radar Target Database," 2003 ElectroMagnetic Code Consortium Annual Meeting, Hampton VA, May 2003.

YEO, YUNG KEE, (ENP)

*Ahoujja, M., H. C.Crocket, M. B. Scott, Y. K.Yeo, and R. L. Hengehold. "Electrical Characterization of Defects Introduced in 4H-SiC during High Energy Proton Irradiation and Their Annealing Behavior," Presented at the Spring Meeting of the Materials Research Society, San Francisco, CA, April 21-25, 2003.

*Ahoujja, M., H. Crocket, M. Scott, Y. K. Yeo, and R. L. Hengehold, "Optical Characterization of Proton Irradiated 4H-SiC," Presented at the March 2003 Meeting of the American Physical Society, Austin, TX, March 3-7, 2003.

*Claunch, E. N., M.Y. Ryu, E. A. Chitwood, Y. K.Yeo, R. L. Hengehold, and T. D. Steiner, "Luminesence Studies of $Al_xGa_{1-x}N$ implanted with Si," Presented at the 2003 Meeting of the American Physical Society, Austin, TX, March 3-7, 2003.

*Fellows, J. A., Y. K. Yeo, M. Y. Ryu, R. L. Hengehold, and T. D. Steiner, "Annealing Studies of Si-Implanted GaN by Hall-Effect and Photoluminescence Measurements," Presented at the 29th International Symposium on Compound Semiconductors, Lausanne, Switzerland, October 7-10, 2002.

*Freyenhagen, J. P., M. A. Marciniak, J. A. Lott, Y. K. Yeo, V. K. Kapur, and D. C. Senft., "Fabrication of Thin Film CIGS Solar Cells for Space-Based Assets," Presented at the March 2003 Meeting of the American Physical Society, Austin, TX, March 3-7, 2003.

*Ryu, M.Y., E. A. Chitwood, E. N. Claunch, Y. K. Yeo, R. L. Hengehold, and T. D. Steiner, "Electrical Activation Studies of $Al_{0.2}Ga_{0.8}N$ Implanted with Si," Presented at the March 2003 Meeting of the American Physical Society, Austin, TX, March 3-7, 2003.

*Ryu, M.Y., E. A. Chitwood, Y. K. Yeo, R. L. Hengehold, and T. D. Steiner, "Electrical and Optical Activation Studies of Si-Implanted $Al_xGa_{1-x}N$ by Hall-Effect and Photoluminescence Measurements," the 30th International Symposium on Compound Semiconductors (ISCS), MA3.3, San Diego, CA, August 25-27, 2003.

*Ryu, M.Y., Y. K.Yeo, E. N. Claunch, E. A. Chitwood, R. L. Hengehold, J. A. Fellows, and T. D. Steiner, "Annealing Studies of Si-Implanted $Al_{0.2}Ga_{0.8}N$," Presented at the Fifth International Conference on Nitride Semiconductors, Nara, Japan, May 25-30, 2003.

Yeo, Y. K., "Comparison of PL, CL, and Hall Measurements for doped and Ion-implanted Nitrides," ONR Workshop on Defect Characterization Techniques in Wide Gap Semiconductors, invited talk, Maui, HI, March 16-20, 2003.

Yeo, Y. K., "GaN-Based Semiconductors-Their Properties and Applications," The 2003 U.S.-Korea Conference on Science, Technology, and Entrepreneurship, invited talk, Pasadena, CA, August 8-10, 2003.

YOUNG, Maj JOEL D., (ENG)

Young, J. D. and T. Dean, "Exploiting Locality in Searching the Web," 19th Conference on Uncertainty in Artificial Intelligence, Acapulco, Mexico, PDF Version, August 8-10, 2003.

3.9 OTHER SIGNIFICANT PROFESSIONAL ACTIVITIES

ABRAMSON, Lt Col MARK A., (ENC)

Technical paper referee, SIAM Journal on Optimization.

Technical paper referee, Optimization and Engineering.

Technical paper referee, Optimization Methods and Software.

ANTHENIEN, Capt RALPH A., JR., (ENY)

Technical Program Co-chair 29th Dayton Aerospace Sciences Symposium.

Chief Judge - 2003 SAE Aerodesign East Competition.

Session Chair 28th Dayton Aerospace Sciences Symposium.

BALDWIN, Maj RUSTY O., (ENG)

Recognized for "exceptional service to the research community" Editor's Corner, Journal of Systems and Software, Vol. 64, No. 1, p. 1, October 2002.

Technical Paper Referee, Journal of Systems and Software.

Technical Paper Referee, IEEE Computer.

Technical Paper Referee, Transactions on Mobile Computing.

BIRJANDI, ROSA. H., (ENS)

Presented at Council of Logistics Management: Innovation and adoption of cross industry practices, Session 11E, CLM Annual Meeting, Chicago, IL, 21-24 September 2003.

Reviewer for Journal of Naval Research Logistics: Research on Calculating Mission Reliability of Complex Weapon Systems.

BLECKMANN, CHARLES A., (ENV)

Reviewer, Ohio Environmental Education Fund Proposals.

Member, AFRL Institutional Animal Care and Use Committee (IACUC).

BRADY, Lt Col STEPHAN P., (ENS)

Member, Pi Gamma Mu Social Science Honor Society, 1994 - present.

Member, International Society of Logistics, 1992 - present.

Member, Sigma Iota Epsilon Management Honor Fraternity, 1992 – present.

Member, Council of Logistics Management, 2000 – present.

Member, Institute for Operations Research and the Management Sciences, 2000 – present.

Member, Collaborative Planning, Forecasting and Replenishment (CPRF) Committee, Voluntary Interindustry.

Commerce Standards (VICS) Association, 2000 – present.

Member, Educational Advisory Committee, Collaborative Commerce Standards Institute. 2003 – present.

Member, SOLE (International Society of Logistics) Education Committee, 2003 – present.

Director of Certificate Programs, SOLE—International Society of Logistics, 2003 – present.

CANFIELD, Lt Col ROBERT A., (ENY)

Chair, AIAA Multidisciplinary Design Optimization Technical Committee.

Session Chair, 44th AIAA/ASME/ASCE/AHS Structures, Structural Dynamics, and Materials Conference, Norfolk, Virginia, April 7-10, 2003.

CHRISSIS, JAMES W., (ENS)

Selected to the AIAA Multidisciplinary Design Optimization (MDO) Technical Committee (TC).

ENS Representative to the Systems Engineering Institute group.

DECKRO, RICHARD F., (ENS)

Editor, *Military Operations Research.*

Area Editor, Service Systems, *Computers & Industrial Engineering.*

Editorial Advisory Board of *Computer & Operations Research.*

Editorial Advisory Board of *IEEE Transactions* on Engineering Management.

Technical Advisor, Working Group 8 – Information Operations/Information Warfare, Military Operations Research Society.

Member, CNA Weapons Effectiveness Working Group; Chair, Methodology Sub-Group.

Vice President/President Elect, Military Applications Society, INFORMS.

Member, MORS Publication Committee.

Judge of Student Projects USMA/DSE Capstone Conference.

Reviewer of research proposal for the Research Council of the Katholieke Universiteit Lueven, Belgium.

Reviewed proposal for NSF International Program.

Outside reviewer for promotion to Professor for USMA.

Reviewed for a number of professional archival journals.

GOLTZ, MARK N., (ENV)

City of Beavercreek Environmental Advisory Committee.

Consulting Associate Professor at Stanford University.

GREINER, Maj MICHAEL A., (ENV)

Associate Editor, Journal of Cost Analysis and Management.

Associate Editor, Journal of Contract Management.

GUSTAFSON, STEVEN C., (ENG)

Associate Editor, Optical Engineering.

HALE, Maj TODD B., (ENG)

IEEE Aerospace and Electronics Systems Society Education Committee.

Paper reviewer, IEEE Transactions on Aerospace and Electronic Systems.

Corresponding member of organizing committee for 2004 Waveform Diversity Conference in Edinburgh, Scotland.

Organizing committee member for 2004 Waveform Diversity Workshop in Verona NY.

HAVRILLA, MICHAEL, (ENG)

Reviewer, IEEE Transactions on Education, APS and PIERS.

Founding Member, Materials Measurement Group, Dayton OH.

Session Chair, "Wireless and Small Sample Measurements," APS/URSI Conference.

HENGEHOLD, ROBERT L., (ENC)

Member of the Executive Committee and Honors and Awards Chairman of the Ohio Section of the American Physical Society.

HILL, RAYMOND R., (ENS)

Military Track Co-Coordinator, Winter Simulation Conference, San Diego, CA, (December 2002).

MORS Mini-Tutorial Session Organizer, Johns Hopkins University-Advanced Propulsion Laboratory, Heuristic Search Methods and Agent Modeling tracks, (November 2002).

KHAROUFEH, JEFFREY P., (ENS)

Organized Session: Stochastic Modeling in Military Applications I, Applied Probability Cluster of INFORMS 2002, San Jose, CA, November 17-20, 2002.

Organized Session: Stochastic Modeling in Military Applications II (Panel), Applied Probability Cluster of INFORMS 2002, San Jose, CA, November 17-20, 2002.

Vice President/President-Elect, Cincinnati-Dayton Chapter of INFORMS

KLADITIS, Capt PAUL E., (ENG)

Secretary, Dayton Section IEEE Executive Committee.

Treasurer, Dayton Section IEEE Executive Committee.

AFIT IEEE Student Branch Advisor.

Reviewer for IEEE Transactions on Advanced Packaging and Journal of Micromechanics and Microengineering.

DARPA Program Reviewer, Broad Agency Announcement (BAA) 03-27 3-D Micro Electromagnetic Radio Frequency Systems (3-D MERFS), Defense Advanced Research Projects Agency/Microsystems Technology Office (DARPA/MTO).

KUNZ, DONALD L., (ENY)

Technical Program Chair, 45th AIAA/ASME/ASCE/AHS/ASC Structures, Structural Dynamics & Materials Conference.

Referee, The Aeronautical Journal.

Referee, Journal of the American Helicopter Society.

Referee, Smart Materials and Structures.

MAPLE, Lt Col RAYMOND C., (ENY)

Session Chair, Dayton-Cincinnati Aerospace Sciences Symposium.

Referee, AIAA Journal.

MARCINIAK, MICHAEL A., (ENP)

Ad Hoc Reviewer: Applied Physics Letters.

MAYBECK, PETER S., (ENG)

Dayton Section IEEE Student Activities Chairman and member of the Section's Executive Committee (consistently since 1975).

Taught "Introduction to Kalman Filters," segment of the AFIT Short Course for the ABL SPO and Center for Directed Energy, Kirtland AFB NM, March 17-21, 2003.

Co-Chair, Kalman Filtering and System Integration Session, I.O.N. 59th Annual Meeting, (June 2003).

Taught "Introduction to Kalman Filters" segment of the AFIT Short Course for 452 FLTS/ABL, Birk Flight Test Facility, Edwards AFB, CA, July 22-24, 2003.

MCMULLAN, Maj RICHARD J., (ENY)

Judge - 2003 SAE Aerodesign East Competition.

Referee, AIAA Journal.

MELOUK, SHARIF H., (ENS)

Reviewer, *International Journal of Production Research.*

MOORE, JAMES T., (ENS)

Associate Editor, Naval Research Logistics.

Associate Editor, Military Operations Research.

MUCZYK, JAN P., (ENV)

Editorial Board of the Journal of Comparative International Management.

Contributing Editor, Polish-American Journal.

OXLEY, MARK E., (ENC)

Member, Alumni Board for Department of Mathematics, Physics and Geography, Cumberland College, Williamsburg, KY.

Member, Steering Committee for Southeastern Atlantic Regional Conference on Differential Equations (SEARCDE).

Member, SPIE Conference Program Committee for Intelligent Computing: Theory and Applications, Orlando, FL, (April 2003).

Session Chair, SPIE Conference Intelligent Computing: Theory and Applications, Orlando, FL, (April 2003).

Organizer, Series of Lectures on "Industrial Strength Optimization," Hope Hotel Conference Center, WPAFB, OH, August 7, 2003.

PACHTER, MEIR, (ENG)

Member, AFOSR Review Panel.

Consultant to AFRL/VACA and AFRL/SNAT.

Member, AFRL/VACA AFOSR Star Team.

PETERSON, GILBERT L., (ENG)

Paper Reviewer, FLAIRS Special Track AI in Medicine.

RAINES, RICHARD A., (ENG)

Session Chair, 2003 11th IEEE International Conference on Networks.

Technical Paper Referee, Military Operations Research.

Technical Paper Referee, Computer Communications Journal.

RAQUET, JOHN F., (ENG)

Chairman, Institute of Navigation Educational Outreach Committee.

Chairman, ION Satellite Division Outreach Committee.

Technical Paper Referee, IEEE Transactions on Vehicular Technology.

Technical Paper Referee, IEEE Transactions on Aerospace and Electronics Systems.

Technical Paper Referee, IEEE Signal Processing Letters.

Member, Editorial Advisory Board and Technical Paper Referee, GPS Solutions.

Session Chair, Institute of Navigation 2003 Annual Meeting.

Member-at-Large, International Association of Geodesy (IAG) Special Committee 4.5 (Advanced RTK Concepts)

RIES, HEIDI R., (ENP, ENR)

Consultant-Evaluator for the Higher Learning Commission of the North Central Association of Colleges and Schools.

SEETHARAMAN, GUNA S., (ENG)

Program Committee IEEE-CAMP2005, Sicily, Italy.

TERZUOLI, ANDREW J., JR., (ENG)

Chapter Chair for Joint IEEE Societies APS, MTT, GRS.

Technical Paper Referee, IEEE Transactions on Antennas & Prop.

WOOD, Maj WILLIAM D., (ENG)

Technical Paper Referee, IEEE Electronics Letters, IEEE Trans. Ant. Prop., Radio Science.

3.10 SPECIAL AWARDS OR SPECIAL RECOGNITION

3.10.1 FACULTY

ABRAMSON, Lt Col MARK A., (ENC)

Nominated for Tucker Prize, Mathematical Programming Society.

BARTCZAK, Lt Col SUMMER E., (ENV)

AFIT Instructor of the Quarter, Spring 2003.

BAUER, KENNETH W., (ENS)

Capt Trevor Laine and Dr. Kenneth Bauer, Improved Target ID of Correlated Data Using Recurrent Neural Networks and Feature Selection, 71st MORS Symposium, Marine Corps Base Quantico. Best Paper in WG-15 at the 71st MORS Symposium, nominated for 71st MORSS Barchi Prize. June 10-12, 2003.

DECKRO, RICHARD F., (ENS)

Awarded unit coin by BG Bagby, Assistant Division Commander – Operations, 10th Mountain Division.

GREINER, Maj MICHAEL A., (ENV)

2003 Society of Cost Estimating and Analysis, National Estimator/Analyst of the Year (Education Category).

GUNSCH, GREGG H., (ENG)

Gunsch, G. H., led the student team in the graduate school competition of the annual DoD CyberDefense Exercise. AFIT Team was the winner of 2003 military school competition (AFIT's first participation).

HALE, Maj TODD B., (ENG)

Hale, T. B., Wright-Patterson AFB Sponsor of the Month.

Promoted to IEEE Senior Member.

Best Paper award at 2002 IEE International Radar Conference, Edinburgh, Scotland.

KHAROUFEH, JEFFREY P. (ENS)

Named Associate Editor for *IEEE Transactions on Reliability.*

KLADITIS, Capt PAUL E., (ENG)

Company Grade Officer of the Quarter, Graduate School of Engineering and Management, October 7, 2002.

Company Grade Officer of the Year, Graduate School of Engineering and Management, December 2002.

Superior Leader Award, Squadron Officer School (SOS), December 2002.

Professor Ezra Kotcher Award nominee for the Graduate School of Engineering and Management, (2003).

MAYBECK, PETER S., (ENG)

Maybeck, P. S., Instructor of the Year Award presented by Eta Kappa Nu, March 2003.

RAINES, RICHARD A., (ENG)

Raines, R. A., AFIT nominee, 2002 General Muir S. Fairchild Educational Achievement Award – Air University award for achievement in curriculum/program development.

RAQUET, JOHN F., (ENG)

Raquet, J. F., Institute of Navigation Early Achievement Award, for "Outstanding Achievement in the Art and Science of Navigation Early in His Career."

Raquet, J. F., Institute of Navigation AFIT Navigation Research Excellence Award (Master's Advisor) for thesis entitled, "Design and Testing of a Pseudolite-Based Flight Reference System."

REEDER, MARK F., (ENY)

AFIT EN Instructor of the Quarter, Summer 2003.

RUGGLES-WRENN, MARINA B., (ENY)

2003 ASME International, Pressure Vessel and Piping Division, 2003 Distinguished Service Award.

2003 ASME International, Pressure Vessel and Piping Division, Certificate of Recognition.

TERZUOLI, ANDREW J., JR., (ENG)

IEEE certificate of appreciation.

WHITE, EDWARD D., III., (ENC)

Received AFIT Instructor of the Quarter Award, Winter 2003.

3.10.2 STUDENTS

Bouska, T., Institute of Navigation AFIT Navigation Research Excellence Award, (2003).

Cho, Y. K., R. R. Hill, and J. T. Moore, "Developing New Greedy Heuristics Based on Knowledge Gained via Structured Empirical Testing," Proceedings of the 7th Annual International Conference of Industrial Engineering-Theory, Applications, and Practice, (Best Student Paper),BEXCO, Busan, Korea, October 24-26, 2002.

Cullenbine, Christopher A, M. A. Gallagher, and J. T. Moore, "A Tabu Search Approach to the Weapons Assignment Model," Presentation selected as Best Presentation for the Strategic Operations Working Group, 68th Military Operations Research Society Symposium, June 2000.

Kurian, J., AOC Academic Research Excellence Award, "Development of Variable Slope Piecewise-Based Brown Symbols for Application to Nonlinear Ambiguity Suppression," (2003).

Noel, R., Louis F. Polk Award, 2003.

Williams, J., Mervin Gross Award and Commandant's Award for outstanding Master's research, (2003).

AFIT Team winner of 2003 military school competition (AFIT's first participation).

APPENDICES

APPENDIX A FACULTY CREDENTIALS

ABRAMSON, MARK A., Lt Col, Assistant Professor of Mathematics and Deputy Head, Department of Mathematics and Statistics, (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 generalized pattern 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. Tel. 937-255-3636, x4524 (DSN: 785-3636, x4524), email = Mark.Abramson@afit.edu

AMEND III, JOSEPH H., Col P.E., Department Head, Department of Systems and Engineering Management, (AFIT/ENV) and Associate Professor of Civil Engineering, BS in Civil Engineering, 1971; MS in Civil Engineering, 1972; PhD in Civil Engineering, 1975 from Virginia Polytechnic Institute and State University; and Air Command and Staff College, Montgomery, AL, 1988. Col Amend's research interests include engineering and facility management, groundwater flow, subsurface remediation and environmental management. Tel. 937-255-3636, x4591 (DSN: 785-3636, x4591), email = Joseph.Amend@afit.edu

ANDERSON, BRADLEY E., Maj, Assistant Professor of Logistics Management, Department of Operational Sciences (AFIT/ENS); BS, Meteorology, University of Wisconsin - Madison, 1990; MS, Logistics Management, Air Force Institute of Technology, 1996; PhD, Business, Indiana University - Bloomington, 2002. Maj Anderson's research interests include reparable inventory management, mixed integer programming, network models, supply chain management, and evolutionary algorithms. Tel. 937-255-4915, x4646 (DSN 785-4915, x4646), email = Bradley.Anderson@afit.edu

ANTHENIEN, RALPH A. JR., Capt, Assistant Professor of Aerospace Engineering, Department of Aeronautics and Astronautics, (AFIT/ENY); BS, University of California (UC) at Berkeley, 1993; MS UC Berkeley, 1996; PhD, UC Berkeley, 1998. Capt. Anthenien's research interests include development of combustors for gas turbine engines, smoldering combustion, combustion in microgravity, micro-scale combustion and combustion diagnostics, as well as thermal management and novel propulsion technologies. He is a licensed professional engineer of the state of Ohio. He is a member of the AIAA, ASME, SAE and the Combustion Institute. Tel. 937-255-3636 x4643 (DSN: 785-3636 x4643), email = Ralph.Anthenien@afit.edu

BAILEY, WILLIAM F., Associate Professor of Physics, Department of Engineering Physics, (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

BAKER, WILLIAM P., Associate Professor of Mathematics, Department of Mathematics and Statistics, (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 have been 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

BALDWIN, RUSTY O., Maj, Associate Professor of Computer Engineering, Department of Electrical and Computer Engineering (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, queuing theory, performance modeling, and analysis and simulation of real-time communication systems. Tel. 937-255-3636, x4612 (DSN: 785-3636, x4612), email = Rusty.Baldwin@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 interests include probability, statistics and stochastic processes, as well as the design of experiments. Tel. 937-255-3636, x4529 (DSN: 785-3636, x4529), email = David.Barr@afit.edu

BARTCZAK, SUMMER E., Lt Col, Assistant Professor of Information Resource Management (AFIT/ENV); BS, United States Air Force Academy, CO, 1982; MS of Information of Resource Management, Air Force Institute of Technology, Dayton, OH, 1990; Masters of Military Operational Art, Air Command and Staff College, Air University, Montgomery, AL, 1998; PhD in Management Information Systems, Auburn University, Auburn, AL, 2002. Lt Col Bartczak's research interests include information/information technology (IT) management, knowledge management (KM), IT/KM workforce issues, and IT/KM strategy, innovation, and change.
Tel. 937-255-3636 x4826 (DSN: 785-3636, x4826), email = Summer.Bartczak@afit.edu

BAUER, KENNETH W., Jr., Professor of Operations Research, Dept of Operational Sciences (AFIT/ENS); 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. 937-255-4915, x4367 (DSN 785-4915, x4367), email = Kenneth.Bauer@afit.edu

BENTON, R. NICOLE, **Maj**, Instructor of Statistics, Department of Mathematics and Statistics, (AFIT/ENC); BS, Creighton University, 1985; MS, Air Force Institute of Technology, 1986; PhD candidate, Colorado State University. Maj Benton's research interests include queuing networks, stochastic processes, and reliability theory. Tel. 937-255-3636, x4513 (DSN: 785-3636, x4513), email = Robin.Benton@afit.edu

BIRJANDI ROSA H., Assistant Professor of Logistics Management, Department of Operational Sciences (AFIT/ENS); BS, Mathematics; MS, Applied Mathematics; PhD, Management Science / Operations Management, University of Maryland at College Park, 1998. Dr. Birjandi is interested in the area of Inventory Planning, production, distribution, and Mathematical programming models. Tel. 937-255-4915, x4512 (DSN 785-6565, x4512), email = Rosa.Birjandi@afit.edu

BIROS, DAVID P., Lt Col, Assistant Professor of Information Resource Management, Department of Systems and Engineering Management, (AFIT/ENV); BA, History and Secondary Education, Flagler College, 1985; MA, Public Administration, Troy State University; MS, Information Resource Management, Air Force Institute of Technology, 1992; PhD, Information and Management Sciences (minor concentration in Strategy), Florida State University, 1998. Maj Biros' research interests include information warfare, deception and deception detection in information technologies, biases in communication, and the diffusion of technology. Tel. 937-255-2998 (DSN 785-2998)

BLECKMANN, CHARLES A., Associate Professor of Engineering and Environmental Management, Department of Systems and Engineering Management (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, hazardous waste identification and management, land treatment of wastes, groundwater monitoring and remediation, biodegradation of wastes, fuels microbiology, and bioassays. Tel. 937-255-3636, x4721 (DSN: 785-3636, x4721), email = Charles.Bleckmann@afit.edu

BRADY, STEPHAN P., Lt Col, Assistant Professor of Logistics Management, Department of Operational Sciences (AFIT/ENS); BA, Political Science, Western Maryland College, 1985; MPA, Public Administration, University of New Hampshire, 1994; MS, Logistics Management, Air Force Institute of Technology, 1992; PhD, Business Administration, Pennsylvania State University, 1999. Lt Col Brady's research interests include transportation, logistics and collaborative supply chain management and innovative adoption, consumable and reparable inventory management, simulation, and modeling. Tel. 937- 255-4915, x4701 (DSN 785-4915, x4701), email = Stephan.Brady@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 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

BROTHERS, HEIDI S., Lt Col, Assistant Professor of Engineering Management, Department of Systems and Engineering Management (AFIT/ENV); BS, Civil Engineering, Portland State University, 1984; MS, Systems Management, University of Southern California, 1987; PhD, Environmental Engineering, University of Cincinnati, 1995. Lt Col Brothers' research interests include facility management, engineering management, contract management, and environmental management. Lt Col Brothers is a professional engineer. Tel. 937-255-2998 (DSN 785-2998)

BURGGRAF, LARRY W., Associate Professor of Engineering Physics, Dept. of Engineering Physics (AFIT/ENP); B.A., Chemistry, Olivet Nazarene University, 1968; M.S., Chemistry, Ohio State University, 1971; M.A., Applied Mathematics, University of West Florida, 1977; Ph.D., 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 chemistry; chemical, biochemical, and nuclear sensors; radiation imaging; and nuclear fuels chemistry. Dr. Burggraf's research currently applies physical chemistry tools including photoluminescence, secondary ion mass spectrometry, photoluminescence spectroscopy, infrared spectroscopy, Raman spectroscopy, atomic force microscopy, spectro-electrochemistry, and nuclear spectrometry to problems in chemical and biological detection, MEMS photothermal IR detectors, toxic interactions in cell membranes, photovoltaic cells, nuclear fuels detection, SiC processing chemistry, sol-gel processing, uranium oxide surface chemistry, and imaging hidden surfaces by gamma Compton tomography. Theoretical research to model surfaces and clusters centers on applying hybrid molecular mechanics / quantum mechanics models to predict structures, energies, dynamics and spectroscopy on surfaces of silicon, silicon carbide and uranium oxides. Dr. Burggraf has more than 30 publications. Tel. 937-255-3636 (DSN 785-3636 ext. 4507), email = Larry.Burggraf@afit.edu

CAIN, STEPHEN C., Assistant Professor of Electrical Engineering, Department of Electrical and Computer Engineering (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

CALICO, ROBERT A., Jr., Professor of Aerospace Engineering and Dean of Graduate School of Engineering and Management (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., Lt Col, Associate Professor in Aeronautics and Astronautics, Department of Aeronautics and Astronautics, (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. Lt Col Canfield's research interests include structural optimization, multidisciplinary analysis and design methods, structural dynamics and controls, and aeroelasticity. He has published fourteen journal articles and twenty-one papers in conference proceedings on these topics. Lt Col Canfield was recently the program manager for computational mathematics in the Mathematics and Space Sciences Directorate at the Air Force Office of Scientific Research (AFOSR). He is an Associate Fellow of the American Institute of Aeronautics and Astronautics. Tel. 937-255-3636, x4641, (DSN: 785-3636, x4723), email = Robert.Canfield@afit.edu

CHAMBAL, STEPHEN P., Maj, Assistant Professor of Operations Research, Department of Operational Sciences (AFIT/ENS); BS, United States Air Force Academy, 1993; MS, Arizona State University, 1994; PhD, Arizona State University, 1999. Maj Chambal's research interests include decision analysis, modeling and simulation, and reliability analysis. Tel. 255-2549 (DSN 785-2549)

CHILTON, LAWERENCE K., Associate Professor of Mathematics, Department of Mathematics and Statistics, (AFIT/ENC); BA, University of California at San Diego, 1981; MS, University of Illinois at Urbana-Champaign, 1988; PhD, University of Maryland, Baltimore County, 1997. Dr. Chilton's interests include finite element analysis, numerical analysis and scientific computing. His recent papers have been on mixed finite element methods and mortar finite elements. Tel. 937-255-3636, x4523 (DSN: 785-3636, x4523), email = Lawrence.Chilton@afit.edu

CHRISSIS, JAMES W., Associate Professor of Operations Research, Department of Operational Sciences (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, The Society for Industrial and Applied Mathematics, the Military Operations Research Society, The American Institute for Aeronautics and Astronautics, and Sigma Xi. Tel. 937-255-3636, x4606 (DSN 785-3636, x4606), email = James.Chrissis@afit.edu

CLAYPOOLE, ROGER L., JR., Maj, Assistant Professor of Electrical Engineering, Department of Electrical and Computer Engineering (AFIT/ENG). BS, Massachusetts Institute of Technology, 1989; MS, Air Force Institute of Technology, 1994; PhD, Rice University, 2000. His research interests include wavelet theory, signal estimation, image compression, and adaptive transform theory. Tel. 937-255-2024, (DSN: 785-2024), email = Roger.Claypoole@afit.edu

COBB, RICHARD G., Maj, Assistant Professor of Aerospace Engineering, Department of Aeronautics and Astronautics, (AFIT/ENY); BS, the Pennsylvania State University, 1988; MS, Air Force Institute of Technology, 1992; PhD, Air Force Institute of Technology, 1996. Maj Cobb's research interests include dynamics and control of flexible space structures, vibration isolation and suppression, system identification techniques and applied applications of optimal control theory. Prior to teaching at AFIT, Maj 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, Maj 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, Maj Cobb served as program manager for the Air Force Research Laboratory's Tech Sat 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, Maj Cobb also served as the technical advisor for the Space Vehicles Technology Branch, and Chief of the Dynamic Systems Group. Tel. 937-255-3636 x4559 (DSN: 785-3636, x4559), email = Richard.Cobb@afit.edu

COLOMBI, JOHN M., Lt Col, Assistant Professor of Electrical Engineering, Department of Electrical and Computer Engineering (AFIT/ENG), BSEE, University of Lowell, 1986; MSEE, Air Force Institute of Technology, 1992; PhD, Air Force Institute of Technology, 1996. His current research interest is systems architecturing of C2ISR Systems. Tel. 937-255-3355, x3347 (DSN: 785-3355, x3347), email = John.Colombi@afit.edu.

CUNNINGHAM, WILLIAM A. III, Professor of Logistics Management, Department of Operational Sciences (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, 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 .

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Secretary	255-3636	x4555
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Asst Dean	255-3636	x4544

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Center for Directed Energy	255-3636	X4504

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Education Technician	255-3636	x4631
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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. The Defense Technical Information Center has an acronym listing at http://www.dtic.mil/dtic/dtic-acronyms.html . The department symbols for the Graduate School of Engineering and Management are found in Appendix B.

ACC	Air Combat Command
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
AFOSR	AFRL/Air Force Office of Scientific Research
AFOTEC	Air Force Operational Test and Evaluation Center
AFRL	Air Force Research Laboratory
AFRL/AFOSR	AFRL/Air Force Office of Scientific Research
AFRL/DE	AFRL/Directed Energy Directorate
AFRL/HE	AFRL/Human Effectiveness Directorate
AFRL/IF	AFRL/Information Directorate
AFRL/ML	AFRL/Materials and Manufacturing Directorate
AFRL/MN	AFLR/Munitions Directorate
AFRL/PR	AFRL/Propulsion Directorate
AFRL/SN	AFRL/Sensors Directorate
AFRL/VA	AFRL/Air Vehicles Directorate
AFRL/VS	AFRL/Space Vehicles Directorate
AFCA	Air Force Communication Agency (AF Command Control Communications & Computer Agency)
AFSC	Air Force Security Agency (AF Security Police Agency)
AFSPC	Air Force Space Command
AFTAC	Air Force Technical Applications Center
AFWA	Air Force Weather Agency (Air Weather Service)
AIA	Air Intelligence Agency
AMC	Air Mobility Command
ARDA	Advanced Research and Development Activity
ASC	Aeronautical Systems Center
AU	Air University
CRADA	Cooperative Research and Development Agreement
DAGSI	Dayton Area Graduate Studies Institute
DE	Directed Energy Directorate
DISA	Defense Information Systems Agency
DoD	Department of Defense
DOE	Department of Energy
HQ AU	Headquarters, Air University
NAIC	National Air and Space Intelligence Center (NASIC)
NSA	National Security Agency
PACAF	Pacific Air Forces
SAF	Secretary of the Air Force
USAF	United States Air Force

APPENDIX D AFIT HISTORY

The Institute

The Air Force Institute of Technology (AFIT) traces its roots to the early days of powered flight when it was apparent that the progress of military aviation depended upon special education in this new science. Before 1919, aviation officers were educated at the Massachusetts Institute of Technology. Then, in 1919, the Air School of Application was established at McCook Field in Dayton, Ohio, the home of Orville and Wilbur Wright. When Congress authorized creation of the Air Corps in 1926, the School was renamed the Air Corps Engineering School and moved, along with all the operations at McCook field, to Wright Field in 1927. Shortly after Pearl Harbor, the school suspended classes, but reopened as the Army Air Forces Engineering School in 1944 to conduct a series of accelerated courses to meet emergency requirements.

After World War II, in 1946, the Army Air Force Institute of Technology was established as part of the Air Materiel Command and was composed of two colleges: Engineering and Maintenance, and Logistics and Procurement. These colleges were later redesignated the College of Engineering Sciences and the College of Industrial Administration. When the Air Force became a separate service in 1947, the Institute was renamed the Air Force Institute of Technology. That same year, the Air Installation Engineering Special Staff Officer's Course began. In 1948, responsibility for managing officers attending civilian institutions was transferred to the Air Force Institute of Technology.

In 1950, command jurisdiction of the Institute shifted from Air Materiel Command to Air University with headquarters at Maxwell Air Force Base, Alabama. The Institute, however, remained at what is now known as Wright-Patterson Air Force Base. In 1951, the two Air Force Institute of Technology colleges were combined into the Resident College. The Institute established a logistics education program at Wright-Patterson Air Force Base in 1955, and The Ohio State University conducted the first courses on a contract basis. In 1958, the Air Force Institute of Technology began a series of short courses in logistics as part of the Air Force Logistics Command Education Center. Later that year, the School of Logistics became a permanent part of the Air Force Institute of Technology.

In 1954, the 83rd Congress authorized the Commander, Air University, to confer degrees, upon accreditation by a nationally recognized association or authority, to persons who met all requirements for those degrees in the Air Force Institute of Technology Resident College. In October 1954, the Engineering Council for Professional Development accredited the undergraduate Aeronautical and Electrical Engineering program. Since then AFIT has awarded more than 14,000 degrees.

In 1963, the School of Logistics was redesignated the School of Systems and Logistics. The Civil Engineering Center was also redesignated as the Civil Engineering School and later became the Civil Engineer and Services School.

Over the next 30 years, the Institute's organization changed little, but it continued to grow and respond to the changing needs of the Air Force. New programs were developed and others were terminated. As an example, the Institute granted its last baccalaureate degree in 1985. In 1992, the Institute reorganized from three to four resident schools by specifically removing all graduate programs from the School of Systems and Logistics and establishing a new school, the Graduate School of Logistics and Acquisition Management. On October 1, 1999, the Graduate School of Logistics and Acquisition Management and the Graduate School of Engineering were combined to become the Graduate School of Engineering and Management.

In 1995, the Air Force Institute of Technology established its first program to be offered at a distant location. The Air Mobility Program, taught at Fort Dix, New Jersey, is a yearlong program designed to provide officers assigned to the Air Mobility Command the opportunity to further their education in a course of instruction specifically designed to enhance their expertise as operational airlift logistics experts. The first class of 10 students entered in the spring of 1995 and graduated the following May. The program utilizes facilities located at Fort Dix, New Jersey, adjacent to McGuire Air Force Base, home of Air Mobility Command's east coast operations center. Institute instructors travel to the Fort Dix site to teach these courses.

The Institute has long been an active participant in the larger educational community. In 1967, the Air Force Institute of Technology became a member of the Dayton Miami Consortium, which later changed its name to Southwestern Ohio Council for Higher Education. The Council is an association of colleges,

universities, and industrial organizations in the Dayton area, which are united to promote educational advancement. The Institute has traditionally been active in both the council and in other community and inter-institutional programs. In 1995, the Air Force Institute of Technology joined with two other local institutions, Wright State University and the University of Dayton, to form a consortium called the Dayton Area Graduate Studies Institute. This consortium's purpose is to coordinate, integrate, and leverage the resources of the three schools to improve and expand graduate-level educational opportunities in the engineering disciplines. This consortium has since expanded by adding The Ohio State University and the University of Cincinnati as affiliate members.

The Ohio Board of Regents, the educational governing board for the State of Ohio, funds the consortium to provide scholarships for graduate engineering students at the three local institutions. In addition, the Board of Regents provides state funds to encourage collaborative research in support of the Air Force Research Laboratory at Wright-Patterson Air Force Base. Through this program, teams of researchers from the consortium schools are funded to perform research, which supports that laboratory.

As the Air Force Institute of Technology begins its ninth decade of operation, faculty and staff members reflect with pride on the contributions the Institute's graduates have made to engineering, science, technology, medicine, logistics, and management. These immeasurable contributions have been vital to national security. The future promises to be even more challenging than the past, and the Air Force Institute of Technology is prepared to continue providing the environment and the opportunity for Air Force personnel to develop the professional and technological skills needed to master this dynamic challenge.

Research

Creative, relevant research programs are essential to both graduate education and the continuous modernization of military capability. Consequently, research has been an important element of the educational enterprise throughout AFIT's history, often in collaboration with scientists of the Air Force Research Laboratories co-located at Wright-Patterson Air Force Base and always in support of the Air Force Mission. The implementation of the PhD program at AFIT in 1965 resulted in significant growth of the research activities on the AFIT campus. In March 2001, AFIT opened a dedicated, $8.9 million laboratory facility supporting experimental research in aeronautical engineering, electrical engineering, applied physics and environmental science. In 2002, AFIT formally designated three research centers of excellence: the Center for Directed Energy, the Center for Information Security (INFOSEC) Education and Research (also a National Security Agency Center of Academic Excellence in Information Assurance Education), and the Center for Measurement and Signature Intelligence (MASINT) Studies and Research. AFIT subsequently established the Center for Systems Engineering and, in collaboration with the Air Force Materiel Command and at the direction of Secretary Roche.

APPENDIX E INFORMATION FOR OBTAINING A COPY OF A THESIS

Copies of theses with unlimited distribution may be obtained from either of 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:

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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.

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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, Engineering Physics and Logistics and Acquisition Management.

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