School of Graduate Studies Newsletters

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May 2019 School of Graduate Studies Newsletter

Katie Esguerra
Embry-Riddle Aeronautical University

Dothang Truong
Embry-Riddle Aeronautical University

Don Metscher
Embry-Riddle Aeronautical University

Mark Friend
Embry-Riddle Aeronautical University

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SCHOOL OF GRADUATE STUDIES
NEWSLETTER

EMBRY-RIDDLE AERONAUTICAL UNIVERSITY | COLLEGE OF AVIATION

STRONGER EVERY DAY

Daytona Beach Campus

NOTES FROM THE INTERIM SGS ASSOCIATE DEAN

Dr. Mark Friend
Interim SGS Associate Dean; MSOSM Program Coordinator

CHANGES

This has been an interesting and productive academic year. Dr. Tony Cortés, former Associate Dean for the School of Graduate Studies (SGS), accepted a position with Mitsubishi Aircraft Corporation of America as their Director of Safety. In the fall, I agreed to serve as the Interim Associate Dean until the end of the fiscal year on June 30, 2019. By then, we are optimistic we will have a new Associate Dean onboard. Serving in this role has been an interesting time. I have a much better understanding of the contributions that are strengthening our school in so may ways.

Our highest regards are for the relatively new Dean of the College of Aviation at Embry-Riddle. As you would expect, Dr. Alan Stolzer is supportive and helpful in moving our programs forward. During the past academic year, he served as a catalyst to see the new Master of Science in Occupational Safety Management (MSOSM) in the School of Graduate Studies put into place for the fall 2019 semester. More information regarding that is included in this newsletter. When a need in the department arises, he is quick to help meet it.

Dr. Dothang Truong, Coordinator of the Ph.D. in Aviation program, has his nose to the grindstone carefully reviewing dissertation prospectuses, proposals, and defenses, and providing useful input for each defense. Also, he has been very active in writing and developing research proposals within SGS. His hard wok and improvement initiatives are evident throughout the program. One of his most recent initiatives has been to split one of our Ph.D. specializations into two: Aviation Safety or Aviation Human Factors. He has truly added to the quality of our Ph.D. in Aviation program.

Dr. Don Metscher, Coordinator of the Master of Science in Aeronautics (MSA) program, has addressed numerous challenges during the past year, including dealing with the constantly expanding number of MSA students. Since he assumed this role, enrollments have doubled, with about one hundred students in the program today, and steadily increasing graduation numbers. Expectations are that the spring graduation for this degree will be the largest ever thanks to his hard work and program improvements!

We are very proud to announce Dr. Jennifer Thropp will be promoted to the rank of Associate Professor and also has been approved for tenure within the School of Graduate Studies. Congrats Jennifer!

Dr. Scott Winter recently received a COA award for his contributions within the school. He has been very active in a number of research projects since joining ERAU two years ago.

Our SGS staff are quite active too. It's evident in so many ways, but the hard work and professionalism of Katie Esguerra, Bee Bee Leong, Jan Neal, and Susie Sprowl keep everything running smoothly. Overall, our school is productive and growing stronger every day. It's paying off for our students, our faculty, the university, and the aviation community.

My sincere thanks and appreciation to all of our faculty and staff for jobs well done! 👍

STUDENT RECOGNITION

OUTSTANDING STUDENTS IN THE COLLEGE OF AVIATION

Bradley Baugh (Ph.D. Cohort 9) was selected as the Outstanding Student in the College of Aviation (COA) for the Ph.D. in Aviation program, and Mwangi (Moh) Karuri has been selected as the Outstanding Student in the College of Aviation for the Master of Science in Aeronautics program. This award recognizes the student with exceptional achievement; integrity; selflessness; leadership ; and service to their respective programs, ERAU, and the world of aviation. Selection is based on faculty nomination and votes. The award ceremony took place on Tuesday, April 16, 2019, in the COA Atrium.

Congratulations, Brad and Moh!

Ken Ward's (Ph.D. Cohort 9) research project has been selected for a poster presentation at the 10th International Conference on Applied Human Factors and Ergonomics this July in Washington, D.C. This work represents an early investigation into a possible dissertation topic, and Ken's effort was in addition to any course requirements of the program.

Congratulations, Ken!

Ward, K. A., Winter, S. R., & Rice, S. (2019, July). Aircraft systems and passenger willingness to fly in autonomous air taxis. Poster presented at the 10th International Conference on Applied Human Factors and Ergonomics, Washington, DC.

David (30) Thirtyacre (Ph.D. Cohort 7) and his colleagues in the Worldwide campus UAV program just won the 2019 AUVSI XCELLENCE Award for the best Education and Training organization in the world.

30, congratulations on a super accomplishment, and keep those tweets coming!

Woojin Choi, (Ph.D. Cohort 9) will join Bechtel Corporation, one of the largest construction and project management companies in the U.S. to oversee planning, design, and requirements for the development of the Western Sydney Airport in Australia. The new airport is anticipated to become a transformational infrastructure that will drive a socio-economic growth of Sydney and meet Australia's growing aviation needs to connect the world. Set to open in 2026, the airport is named in honor of Australia's greatest female aviation pioneer, Nancy-Bird Walton.

Woojin, we wish you well in your new career and successful completion of your doctoral degree!

Aeronautics @ERAUwwcoa · May 1
#HardWork pays off! ERAU won 1st Place, AUVSI Xcellence Award Training & Education Organization. It's not too late. Sign-up for free TOP Level 1 Training today (1-5:30pm) from the #best. #XPO19 xponential.org/xponential2019...
#MayDay #UAS #sUAS #Drones #Part107 #AerialPhotography #GIS

ALUMNI NEWS

One of our Ph.D. alums, Dr. Stephen Curran, recently started as an adjunct lecturer in the School of Math, Physics, and Technology at the University of the Bahamas. He is jointly lecturing the second year bachelor's program with a course on Electronic Communications (ELET 243). Topics are communications theory, radio transmitters and receivers, and transmission impairment.

Dr. Curran graduated from ERAU in December 2017.

Congratulations, Stephen! We wish you much success in your new position.

PROFESSIONAL PROGRAMS ADDS HFACS

The Professional Programs Department is excited to share that Embry-Riddle Aeronautical University has expanded its face-to-face professional courses on the Daytona Beach Campus in Florida, as well as teamed with HFACS, Inc., to expand its human factors and aviation safety short-course offerings.

HUMAN FACTORS ANALYSIS CLASSIFICATION SYSTEM (HFACS)
Course Dates: May 7 - 8, 2019

PRINCIPLES OF AVIONICS
Course Dates: May 13 – 17, 2019

SYSTEM SAFETY ENGINEERING AND CERTIFICATION
Course Dates: July 16 - 18, 2019

ERAU provides open-enrollment seminars and can create customized training programs to meet the needs of aviation industries. Contact Sarah Ochs at dbproed@erau.edu or call 386.226.6928 to discover more.

MSA BROWN BAGS

David Toon, MSA Student

On November 28, 2019, David Toon gave an interesting presentation titled "Analysis of Second Order Timing of Technosignatures Near the Stereo-Ahead Satellite".

Abstract:

A recent find near the STEREO- Ahead satellite involving the COR2-sensor-initiated research of apparent technosignatures and their timing of occurrence to determine if the anomalies were random or non-random events.

Thank you, David!

Andrew Henry, MSA Student

On March 26, 2019, Andrew Henry gave an intriguing presentation titled "Effects of Musical Ability on Flight Planning, Situation Awareness, and Flight Path Deviations."

Abstract:

Numerous studies have been conducted on music education and the benefits that learning an instrument has on the brain. However, there is little research that connects a pilot's ability to play an instrument to a pilot's ability to fly an airplane. When learning an instrument, students learn non-musical abilities such as executive functioning skills, spatial reasoning, and other increased high-order cognitive abilities. Many of these cognitive abilities correspond with skills necessary to be a good pilot. This study seeks to compare pilots with musical ability and pilots without musical ability to see if an association can be made between learning a musical instrument and pilot performance, specifically in flight planning, situational awareness, and flight path deviations.

Thank you, Andrew!

MSA
BROWN BAGS

Dr. Jan Pan, SGS Visiting Professor

On February 26, 2019, Jane Pan, Ph.D. in Aviation alumnus, gave a very interesting brown bag presentation on her research.

"Understanding High-Speed Rail Passengers in China: A Segmentation Approach"

Abstract:

China has established the world's largest, high speed rail (HSR) system, which has fundamentally changed the way people travel in the domestic market. As China aims to double its HSR capacity in the next few years, the HSR population will continue to grow, calling for an in-depth understanding of HSR passengers. While HSR has been of academic interest for many years, existing research has not provided meaningful, demographic segmentation in the HSR context. This paper collected empirical data from HSR passengers in Beijing and Shanghai, the largest HSR markets in China, and performed a cluster analysis based collectively on three demographic variables – age, income, and education, which led to the formation of four segments – High-Ed Youths, Mature Travelers, New Starters, and Elite Travelers. Significant differences were found in terms of the passenger demographics and travel experiences across the four segments, to support the validity of the clustering solutions. The MANOVA test further revealed cross-segment differences in terms of passenger evaluation of five HSR variables–reasonableness of price, reliability, food choices, employee service, and likelihood for recommendation, suggesting the possibility of predicting passenger perceptions and behaviors based on their cluster membership. The findings demonstrate that passenger segmentation, based on multiple demographic variables, can provide deeper insights into the HSR population. For HSR providers in China, an understanding of the characteristics of the four passenger segments can assist them in developing service and communication strategies to cater to the different passenger needs.

Thank you, Jane!

MSA THESIS DEFENSE

Jasleen Kaur successfully defended her thesis on January 28, 2019.

"Behavioral Research Study on People Willing to go to Mars"

Abstract:

Challenges on Earth have encouraged researchers to search for potential habitable planets such as Mars. This research explored the effects on human behavior and the willingness to go to Mars when individuals were informed about possible risks of taking up such a mission. A survey collected self-report data concerning topics related to health issues, isolation, and lack of technology about participating in a mission to colonize Mars. This observational study examined participants' behavior and cognitive assessments over several days in various Mars habitats around the world.

As per reviewed literature, there are thousands of people who have already shown their interest to go to Mars. Since the technology is under development to send humans to Mars, researchers are making sure of the safest journey for the astronauts. It is imperative to select the right candidates among all these thousands of interested people. This study was helpful to review the physiological effects that crew face in isolation, to find out the solutions before any long-duration space mission, and to satisfy the hypothesis. There were 157 participants who participated in the survey, and 36 participated in the habitat observation study. The Researcher expected that most of the participants are not fully aware of the risks they may encounter in space. Once participants are aware, many are likely to decline the mission. The results from the daily diary questionnaire study convey that even though the participants stayed in isolation for a short period, participants still showed some symptoms of isolation, such as loneliness, boredom, and fatigue. Results also show that different age groups have different mindsets and motivation for the Mars mission. Results show some significant difference in the comparison study of participants < 30 and 30+ age group, such as < 30 age group participants show more interest in the mission to Mars with no return to Earth, both the < 30 and 30+ age groups responded that their decision is affected due to delay in communication, effect of extreme temperature, and receiving information solely from automation. Results from cognitive tests illustrate that participants took more time to solve the simple math problems with audio in the background as compared to the math problems with no audio in the background. Even though they took more time to solve the math problems, their recall answers were still wrong 40% in total.
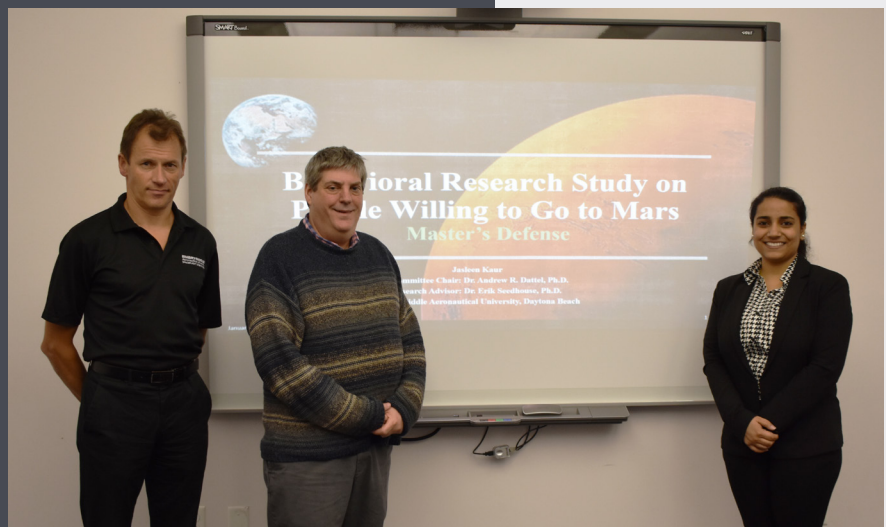
Congratulations, Jasleen! We wish you much future success.

PHD DISSERTATION DEFENSES

Karlene Petitt, Ph.D. successfully defended her dissertation on Friday, January 11, 2019.

"Safety Culture, Training, Understanding, Aviation Passion: The Impact on Manual Flight and Operational Performance"

Abstract:

The objective of this study was to understand pilots' proclivity toward automation usage by identifying the relationship between pilot training, aircraft and systems understanding, safety culture, manual flight behavior, and aviation passion. A survey instrument titled Manual Flight Inventory (MFI) was designed to gather and assess self-reported variables of manual flight behavior, aviation passion, safety culture perception, pilot training, and pilot understanding. Automation opinion-based questions were also asked to assist in understanding pilots' thoughts on automation, safety culture, policies, procedures, training methodologies and assessment measures, levels of understanding, and study techniques. Exploratory Factor Analysis (EFA) was utilized to identify underlying factors from the data, followed by confirmatory factor analysis (CFA) to confirm the factor structure. Structural Equation Modeling (SEM) was utilized to test the relationships between the variables. All hypotheses were significant; however, four of the thirteen hypotheses were not supported due to a negative relationship. The significant predictors of manual flight were: pilot understanding, pilot training, aviation passion, and safety culture. Pilots' understanding of the aircraft operating systems was determined to have the greatest influence over pilots' decisions to manually fly, and aviation passion was the second largest influencing factor. Pilot training had the greatest influence over pilot understanding, and safety culture presented the greatest influence over pilot training. Results identified that safety culture was negatively impacting pilot training, and pilot training was negatively influencing pilots' decision to manually fly. The contributions of this research have identified the significance of safety culture as associated with Safety Management Systems (SMS) as an influencing factor over pilot training and resultant operational performance. Pilot understanding is a direct result of pilot training, and current training practices are negatively influencing the decision for manual flight. Therefore, a solution to the industry problem—operational confusion (understanding), as well as guidance versus control (Abbott, 2015), and the lack of hand flying skills and monitoring ability (OIG, 2016)—can now be addressed by improving training practices. Future research and recommendations were provided.

Congratulations, Karlene! Well done!

PHD DISSERTATION DEFENSES

Paul L. Myers III, Ph.D. successfully defended his dissertation on Thursday, March 7, 2019.

"A Behavioral Research Model for Small Unmanned Aircraft Systems for Data Gathering Operations"

Abstract:

According to Hitlin (2017) of the Pew Research Center, only 8% of Americans own an unmanned aircraft. Additionally, regarding feelings if Americans saw an unmanned aircraft flying close to where they live, 26% say they would be nervous, 12% feel angry, and 11% are scared. As of March 9, 2018, there were 1,050,328 U.S. small unmanned aircraft system (sUAS) registrations compared to 947,970 on November 29, 2017. While sUAS use has increased in the U.S., it has lagged when compared to other items for personal use available to Americans as 92% own cell phones (Anderson, 2015). This slower acceptance rate identifies a potential need for more research as to why. No studies have specifically focused on individual factors for the behavioral intention of using sUAS for data gathering, encompassing the variables used in this study, nor a Structural Equation Model that shows relevant factors and associated relationships. Also, current ground theories fall short, lacking appropriate variables or modeling ability.

Thus, this dissertation study developed a new behavioral research model termed VMUTES to determine the factors that influenced individuals' intentions to operate small sUASs for data gathering and relationships between those factors. A sUAS system is comprised of integrated hardware, software, processes, or firmware. Data gathering is defined in this study as the transmission or recording of audio, pictures, videos, or collection of other data for modeler, civil, or public use. The new VMUTES model integrates portions of the technology acceptance model (TAM) and theory of planned behavior (TPB) model integrated with new factors: perceived risk and knowledge of regulations. The study used random sampling of Amazon Mechanical Turk® (AMT) members using an AMT Human Intelligence Task (HIT) that included a link to an online cross-sectional large-scale survey to collect data. Data Analysis included descriptive statistics analysis and the SEM process. Besides developing and validating a model and determining influencing factors, attention was also on verifying the relationships between constructs. Study limitations and future research recommendations are also discussed.

Results indicated the VMUTES model had a strong predictive power of sUAS use for data gathering with seven of the ten original hypotheses supported while having a good model fit. Four new hypotheses were also identified with three supported. Additionally, all VMUTES model factors except for facilitating conditions were determined to have either a direct or indirect effect on behavioral intention and/or actual behavior with the TAM and TPB related factors having the strongest effects.

Practically, this study filled an aviation research knowledge gap for sUAS use for data gathering. It also provided a research model and identified influencing factors of individuals' behavioral intentions related to sUAS use for data gathering. Thus, the newly developed model incorporating new variables can be used for further sUAS research and can provide an adaptable model for aviation and other technology areas to predict and facilitate new technology implementation where current models fall short. Finally, this study explored new and verified previously existing demographic variables for individuals who use sUASs for data gathering.

Congratulations, Paul. Great work!

WE ARE EXPANDING THE
SCHOOL OF GRADUATE STUDIES

NEW DEGREE OPPORTUNITY

DR. MARK FRIEND, MSOSM PROGRAM COORDINATOR

Photos: Adobe Stock

MASTER OF SCIENCE IN OCCUPATIONAL SAFETY MANAGEMENT (MSOSM)

The School of Graduate Studies will offer a Master of Science in Occupational Safety Management (MSOSM) in the fall of 2019. This new program will provide the theoretical foundation, research, and application skills required to effectively anticipate, recognize, evaluate, prevent, and control workplace safety, health, and environmental hazards and to manage comprehensive occupational safety and health programs. One of the unique features is that it is offered on the Daytona Beach, FL Campus where students will have the opportunity to observe maintenance and other related aviation facilities providing support for a large fleet of aircraft. These experiences will provide a perspective transferable to aviation and other industries.

According to Salary.com, the median annual Health and Safety Manager salary is $104,935, as of April 26, 2018, with a range usually from $84,271 to $117,259. They state that in the United States a person with an MS degree and the job title of Health and Safety Manager with 0-2 years of experience has a projected salary from $91,365 to $103,393.

The degree is a Board of Certified Safety Professionals (BCSP) Qualified Academic Program (QAP). Graduates of a QAP are eligible to apply for the Graduate Safety Practitioner® (GSP®), a BCSP-approved credential necessary to apply for the Certified Safety Professional® (CSP®). It is only available to SH&E graduates from degree programs which meet BCSP QAP standards.

PHD IN AVIATION
ANNOUNCEMENTS

NEW INDUSTRY ADVISORY BOARD MEMBER

We are happy to inform you that Dr. Fariba Alamdari has kindly agreed to serve on our Advisory Board. She is currently a Vice President at the Boeing Company. She received the Ph.D. degree in Air Transportation, and recently an Honorary Doctor of Science, from Cranfield University. Before joining Boeing in 2006, she served as the Chair of the Department of Air Transport, and Dean of the Faculty of Engineering, Manufacturing, and Science at Cranfield University. She has served on one dissertation in our program and had provided great feedback and recommendations to the student. We are fortunate to have her joining our Advisory Board. Her support and advice will be invaluable to our program.

NEW COHORT 11

Our admission committee has selected our new Cohort 11 to begin this July 2019 with their first residency. Congratulations to our newly admitted Ph.D. students!

1. Borges, Rafael
2. Carter, Mikkea
3. Dunagan, Joseph (Pat)
4. Guillen, Jesse
5. Guined, Jamie
6. Hashemi, Shereen (Sheri)
7. Herr, Jennifer
8. Kasemtanakul, Borvorn
9. Moll, Jason
10. Pettit, Michael
11. Phillips, Nathan
12. Simpson, Charles
13. Zubowski, David

NEW RESIDENCY FEE & TUITION

All Ph.D. in Aviation students, please be advised that the residency fee is now $1,500.00 USD, and our tuition rate has increased to $1,198.00 USD per credit hour. This decision was made at the University level.

COLLEGE OF AVIATION

SCHOOL OF GRADUATE STUDIES NEWSLETTER

Please feel free to send your announcements, updates, and photos to
Katie Esguerra at dunnk2@erau.edu for future newsletters.

Please contact the following Program Coordinators for more information:

Ph.D. in Aviation
Dr. Dothang Truong
truongd@erau.edu
386.323.5080

MS in Aeronautics (MSA)
Dr. Don Metscher
metscdb4@erau.edu
386.323.5061

MS in Occupational Safety Management (MSOSM)
Dr. Mark Friend
frien9b8@erau.edu
386.226.7747

600 S. Clyde Morris Blvd. | Daytona Beach, FL 32114

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