FACULTY QUICK FACTS

55+
Faculty Patents
Awarded Since 2001

Number of patents awarded to Graduate School faculty between 2001-2019.

256
Refereed Publication Authorships

Number of refereed publication authorships by Graduate School department faculty during FY 2019.

30+
Fellows of Professional Organizations

Graduate School faculty members have over 30 professional association membership designations as Fellows.

247
Faculty-advised Dissertations & Theses

Number of PhD dissertations and MS theses completed and submitted to the Defense Technical Information Center during FY 2019.

Contents

Dean’s Message ................................................................. 3
Value Proposition of AFIT .................................................. 4
Graduate School Dean’s Bio ............................................. 5
ENY: Aeronautics & Astronautics ............................. 6-29
ENG: Electrical & Computer Engineering .......... 30-62
ENP: Engineering Physics ........................................ 63-107
ENC: Mathematics & Statistics ............................... 108-126
ENS: Operational Sciences ...................................... 127-148
ENV: Systems Engineering & Management ... 149-178
Graduate School Faculty Directory ......................... 179
There is no place like the Air Force Institute of Technology (AFIT). There is no academic group like AFIT’s Graduate School of Engineering and Management. Although we run an educational institution similar to many other institutions of higher learning, we are different and unique because of our defense-focused graduate-research-based academic programs. Our programs are designed to be relevant and responsive to national defense needs. Our programs are aligned with the prevailing priorities of the US Air Force and the US Department of Defense. Our faculty team has the requisite critical mass of service-tested faculty members. The unique composition of pure civilian faculty, military faculty, and service-retired civilian faculty makes AFIT truly unique, unlike any other academic institution anywhere. This is an asset that has helped to position the Air Force as the most technologically advanced and lethal force in the world. The trifecta of cultures embracing the military, academia, and federal processes makes AFIT very adaptive and relevant to the operational needs of the Air Force, the Department of Defense, and the Federal priorities.

Over eighty percent of our students are active military officers. These specially-selected officers, in combination with approved civilians and contractors, make the intellectual environment uniquely defense focused. The super sharp makeup of our students helps to keep faculty on their intellectual toes, thereby increasing the platform of excellence of the faculty.

We are directly engaged in game-changing technologies such as Hypersonics, Directed Energy, Autonomy, Digital Engineering, Defense Innovation, and Artificial Intelligence. In the true sense of living up to the innovation culture of Dayton, Ohio, our faculty have received over 55 U.S. Patents in recent years. Our faculty have over 30 professional association membership designations as Fellows. This is one of the highest per capita Fellow designations among major institutions.

I am immensely proud of the quality of our faculty when benchmarked against other faculty groups in the nation and around the world. It is in that context that we have put together this Faculty Excellence Showcase, which is designed to shared worldwide. Please join me in congratulating our faculty for the level of excellence we have achieved collectively.

With the best AFIT regards to all,

Adedeji B. Badiru, Ph.D., PE, PMP, FIIE
Dean, Graduate School of Engineering and Management

The views expressed in this publication are those of the authors and do not reflect the official policy or position of the Air Force Institute of Technology, United States Air Force, Department of Defense, or United States government.
The Value Proposition of AFIT

The Graduate School of Engineering and Management at the Air Force Institute of Technology offers a unique value proposition to the United States Air Force and the Department of Defense. This value proposition is enabled by the synergy between our outstanding faculty, the rigorous and focused academic programs they create and provide, and the unique operational context of the institute and the collective work of our students and faculty. This uniqueness is unparalleled and not replicated anywhere else. AFIT has the uniqueness of operating in three different cultures, involving the military, the civilian academia, and the Federal Government. We are primarily a military organization that happens to have an academic mission. As an academic institution, we strive to meet and exceed the expectations for graduate programs and laud our values and contributions to the academic community. At the same time, we must recognize, appreciate, and promote the unique non-academic values and accomplishments that our faculty team brings to the national defense, which is a priority of the Federal Government. In this respect, through our diverse and multi-faceted contributions, our faculty, as a whole, excel, not only along the metrics of civilian academic expectations, but also along the metrics of military requirements, and national priorities.

The underlying values promoting excellence in performance to meet the needs and mission of the United States Air Force are not always apparent in compilations of academic profiling, but they are essential in the scheme of national defense. Many of our civilian faculty and administrators have prior military service experience, which elevates the unity of purpose and enhances the culture of AFIT. Many of our military faculty have been recognized for their unique contributions to national defense missions and serve as invaluable role models for the students of AFIT. Thus, the defense-focused activities of our faculty provide a platform of uniqueness, relevance, and responsiveness to national priorities. This booklet celebrates the unique values imparted by our trifecta of operational cultures.

Footnote: Many of the other contributions our faculty make to national defense are not items we can write or talk about in an open document.

What AFIT Provides That Cannot be Found in Other Academic Programs

- Unwavering, undiluted, and uncompromised commitment to classified work. Other institutions that may do classified work do not have the singularity of focus in that pursuit
- Salutatory responsiveness to the needs of the Air Force, the Department of Defense, and national defense
- Unshifting focus on what matters to the U.S. Air Force
- Military faculty actively involved in military deployments, thereby increasing our military relevance
- Academic courses taught by PhD-credentialed full-time faculty instead of teaching assistants
- Embedded understanding by faculty, staff, and administrators of what the AFIT students need to deliver their missions to the Air Force, the Department of Defense, and the national defense

“The military faculty contribute a diverse breadth of military experience to the Air Force focused educational mission while providing an active duty perspective for the students. As role models and mentors, the military faculty serve a vital function in AFIT’s mission. The Air Force invests considerable resources to educate and prepare military faculty, and faculty with several years of experience can provide a vastly improved educational experience for students, both in terms of instructional effectiveness and research quality.”
Dr. Adedeji B. Badiru, PE, PMP, FIIE  
PhD Industrial Engineering, University of Central Florida  
Dean, Graduate School of Engineering and Management  
Professor of Systems Engineering

Most Notable Publications


Selected Honors & Awards

• Outstanding Global Engineering Education Award, Industrial Engineering and Operations Management (IEOM) award (2016)
• Air Force-level Winner of National Public Service Award, The American Society for Public Administration and the National Academy of Public Administration (2015)
• IIE Medallion Award, Institute of Industrial Engineers (2012)
• ASC Award for Outstanding Scientists and Engineers, Dayton Affiliate Society Council (ASC), 2009
• Honor Societies: Tau Beta Pi, Phi Kappa Phi, Alpha Pi Mu, Kappa Mu Epsilon, Omega Alpha

Significant Accomplishments

• DEJI® Model – Trademark for systems Design, Evaluation, Justification, and Integration
• Fellow, Institute of Industrial & Systems Engineering (IISE)
• Fellow, Nigerian Academy of Engineering
• ABET Program Evaluator (PEV)

Research Interest Areas

• Systems Engineering Models
• Mathematical Modeling
• Learning Curve Models
• Systems Optimization

• Risk Quantification
• Analysis and Control
• Engineering Economic Analysis
Dr. Bradley S. Liebst
PhD, Aeronautical Engineering, Massachusetts Institute of Technology
Department Head, Aeronautics & Astronautics Engineering
Professor of Aerospace Engineering

Most Notable Publications


Selected Honors & Awards

• AFIT Leadership Excellence Award (2014)
• Affiliate Societies Council of Dayton Educator of the Year Award (2014)
• Best Paper of the Year from the Journal of Aerospace Engineering (2002)
• Best Institute of Technology Professor at University of Minnesota (1987)

Research Interest Areas

• Eigenstructure assignment control
• Stability and control of aerospace vehicles
• Aircraft handling qualities
• Passive and active control of large flexible structures
Maj Robert A. Bettinger
PhD, Astronautical Engineering, Air Force Institute of Technology
Deputy Director, Center for Space Research & Assurance
Assistant Professor of Astronautical Engineering

Most Notable Publications


Selected Honors & Awards

- 2019 AFIT Innovation Award – Junior Faculty (Centennial Award Series)
- Field Grade Officer of the Quarter (2019)
- AU Nominee for Air Force Outstanding Scientist/Engineer – Mid-Career Military (2019)

Research Interest Areas

- Atmospheric re-entry
- Aero-assisted maneuvers
- Astrodynamics
- Spacecraft survivability
Maj Brian T. Bohan  
PhD, Aeronautical Engineering, Air Force Institute of Technology  
Assistant Professor of Aeronautical Engineering

**Most Notable Publications**


**Selected Honors & Awards**

- 2016 - AFIT Student Field Grade Officer of the Quarter (#1/49)
- 2013 - Capt. Roland R. Obenland Annual Engineering Award 2012 (#1/158), Air Armament Center
- 2011 - AFIT Commandant’s Award Winner – most exceptional master’s thesis (#1/222)
- 2011 - AFIT Dean’s Award Winner – most exceptional master’s thesis in the Aero/Astro Dept. (#1/52)
- 2011 - American Institute of Aeronautics and Astronautics (AIAA) Research Excellence Award
- 2005 - Sigma Gamma Tau National Honor Society in Aerospace Engineering Inductee
- 2003 - Tau Beta Pi National Engineering Honor Society Inductee

**Research Interest Areas**

- Turbomachinery and Small Gas Turbine Engine Design
- Advanced Combustion Techniques
- Reduced or Eliminated Bleed Air Engine Cooling
- Unsteady Fluidic Devices
- Gas Turbine Engine Computational Modeling
Most Notable Publications


Research Interest Areas

- Dynamics and control of aerospace systems, including control of aircraft, spacecraft, large flexible structures, and optical systems.
- Maneuver planning for satellite proximity operations
- Dynamics and control techniques for lightweight space optics and optimal/novel sensor systems
- Architectures for enhancing space situational awareness

Recent work includes:

- Developing optimal trajectory plans for Global Strike missions
- Optimal aircraft air and ground collision avoidance algorithms for manned and unmanned systems
- Active buffet alleviation using piezoelectric actuators for F-16 aircraft
Dr. Ramana V. Grandhi
PhD, Engineering Mechanics, Virginia Tech
Professor of Aeronautics and Astronautics

Most Notable Publications


Selected Honors & Awards

- American Society of Mechanical Engineers – ASME Fellow
- American Institute of Aeronautics and Astronautics – AIAA Fellow
- 2015 Distinguished Alumni Professional Achievement Award. Given by the National Institute of Technology, Warangal, India
- 2014 AIAA Sustained Service Award. Given for conference leadership, significant publications, and leadership in technical committees. Presented in Washington, DC.
- 2012 Outstanding Leadership Award. Given by Wright State University College of Engineering and Computer Science for leadership of Ph.D. in Engineering Program.

Research Interest Areas

- Aerospace Structures and Design
- Multidisciplinary Design Optimization
- Hypersonics
- Aircraft Structures
Dr. Robert B. Greendyke  
**PhD, Interdisciplinary Engineering (Joint Aerospace/Mechanical), Texas A&M**  
Associate Professor of Aerospace Engineering

**Most Notable Publications**


Lewis, S., Morgan, R., McIntyre, T., Alba, C., **Greendyke, R.**. “Expansion Tunnel Experiments of Earth Re-entry Flow with Surface Ablation”, *AIAA Journal of Spacecraft and Rockets*, posted online on February 16, 2016. DOI: 10.2514/1.A33267


**Research Interest Areas**

- Aerospace engineering
- Air weapons design
- Computational fluid dynamics
- Hypersonics
- Nonequilibrium flows
- Numerical simulation
Most Notable Publications


Research Interest Areas

- Rocket Propulsion
- Spacecraft Design
- Additive Manufacturing

Selected Honors & Awards

- AIAA Special Service Citation, 2018
- SOCHE Faculty Excellence in Teaching Award, 2017
Maj Joshua Hess  
PhD, Aeronautical Engineering, Air Force Institute of Technology  
Assistant Professor of Astronautical Engineering

Most Notable Publications


Selected Honors & Awards


Significant Accomplishments

- Member, AIAA Survivability Technical Committee

Research Interest Areas

- Spacecraft rendezvous and proximity operations
- Spacecraft attitude determination
- Relative satellite motion
- Estimation theory
- Optimal control theory
- Adaptive estimation
- Relative navigation between satellites conducting proximity operations
Lt Col Kirk W. Johnson  
PhD, Aerospace Engineering, Texas A&M University  
Assistant Professor of Aerospace Engineering

Most Notable Publications


Research Interest Areas

- Satellite relative motion dynamics and control (i.e. satellite formation flying, rendezvous and proximity operations)
- Satellite servicing
- Spacecraft navigation
- Space situational awareness
- Perturbation methods in orbital mechanics
Dr. Ryan A. Kemnitz  
**PhD, Materials Science, Air Force Institute of Technology**  
Assistant Professor of Aerospace Engineering

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**Most Notable Publications**


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**Research Interest Areas**

- Additive Manufacturing
- Carbon Nanotubes
- Materials Characterization
Dr. Andrew S. Keys
PhD, Electrical Engineering, University of Alabama in Huntsville
Associate Professor

Most Notable Publications


Significant Accomplishments


Research Interest Areas

- Development of sensors and detectors for the purpose of space-based remote sensing
- Electro-optics and photonic technologies
- Optical and laser systems
- Radiation hardening of avionics and electronics
- Advancement of related space technologies
Lt Col Jeffrey R. Komives  
**PhD, Aerospace Engineering & Mechanics, University of Minnesota**  
Assistant Professor of Aerospace Engineering

**Most Notable Publications**


**Selected Honors & Awards**

- AFIT MOOA Outstanding Military Professor Award, 2018
- AFIT Dept of Aeronautics and Astronautics Field Grade Officer of the Year, 2017
- John and Jane Dunning Copper Fellowship, University of Minnesota, 2014
- Eglin Air Force Base Mid-Career Military Engineer of the Year, 2010

**Significant Accomplishments**


**Research Interest Areas**

- Hypersonics
- Aerothermodynamics
- Computational Fluid Dynamics
- Machine Learning
- Boundary Layer Transition
Dr. Donald L. Kunz
PhD, Aerospace Engineering, Georgia Institute of Technology
Professor of Aerospace Engineering

Most Notable Publications


Selected Honors & Awards

- Distinguished Service Award, American Institute of Aeronautics & Astronautics (2006).

Significant Accomplishments

- Professional Engineer (ME) Commonwealth of Virginia

Research Interest Areas

- Rotorcraft aeromechanics
- Aeroelasticity
- Structural dynamics
- Dynamics
- UAV handling qualities
Lt Col Bryan Little  
**PhD, Astronautic Engineering, Purdue University**  
Assistant Professor of Astronautical Engineering

**Most Notable Publications**


**Research Interest Areas**

- Sensor Tasking for Space Situational Awareness
- Astrodynamics
- Cis-Lunar Orbit Design
- Space Based Electro-Optical Sensor Systems
Dr. Anthony N. Palazotto
PhD, Solid Mechanics, New York University
Distinguished Professor of Aerospace Engineering

Most Notable Publications


Selected Honors & Awards

- AIAA Achievement Award (2004)
- Structures, Structural Dynamics and Material Award, ASCE (1986)
- Hetanyi Award, Society of Experimental Mechanics, (1982)
- Cleary Award, Air Force Material Lab (1981)

Significant Accomplishments

- Fellow in AIAA, ASCE, Engineering Mechanics Institute, and American Academy of Mechanics

Research Interest Areas

- Nonlinear mechanics
- Shell analysis
- Finite elements
- Composite materials
- Viscoplasticity
- Nonlinear dynamics
Dr. Marc D. Polanka
PhD, Mechanical Engineering, University of Texas-Austin
Professor of Aeronautical Engineering

Most Notable Publications
Over 125 conference papers and over 50 peer reviewed journal articles


Selected Honors & Awards

- AFIT Innovation Award, Senior Faculty, 2019
- AIAA Outstanding Section Award, Very Large Category, 1st Place, 2011, 2012, and 2018
- AFIT/EN Civilian Category III of the Year, 2017
- AETC AF Outstanding Scientist/Engineer, Senior Civilian, 2017
- AIAA Sustained Service Award, 2017
- AFIT Faculty Administrative Fellow, 2016
- SOCHE Academic Leadership Fellow, 2015
- AFIT Civilian Category III of the Year, 2015
- AFIT Charles P. Brothers Award for Outstanding Volunteer Service, 2010

Significant Accomplishments

- Fellow, American Society of Mechanical Engineers (ASME)
- Associate Fellow, American Institute of Aeronautics (AIAA)
- Chair of the AIAA Associate Fellow Committee (2018-2021)
- Vice Chair of the ASME K-14 Heat Transfer Committee (2018-2020)

Research Interest Areas

- Any type of propulsion system, namely ultra compact combustor development
- Film cooling of turbine airfoils
- Rotating detonation engines
- Internal combustion engines
- Scramjets
Dr. Mark F. Reeder

PhD, Mechanical Engineering, Ohio State University
Professor of Aerospace Engineering

**Most Notable Publications**


**Research Interest Areas**

- Fluid Dynamics
- Air Vehicle Design
- Aerodynamic Measurement Techniques

**Significant Accomplishments**

- Co-author of 43 refereed journal publications and 4 US patents.
- AIAA Associate Fellow
- Member of the American Society of Mechanical Engineering
- Licensed Professional Engineer (State of Ohio)
Dr. Marina B. Ruggles-Wrenn  
PhD, Mechanical Engineering, Rensselaer Polytechnic Institute  
Professor of Aerospace Engineering

**Most Notable Publications**


**Selected Honors & Awards**

- Board of Governors Award, ASME (2016)
- Stinson Trophy, NAA (2015)

**Significant Accomplishments**

- Fellow, American Society of Mechanical Engineers (ASME)

**Research Interest Areas**

- Material behavior in extreme environments
- Advanced structural materials
- Composite materials and structures
- High-temperature structural design methods
- Viscoplasticity – constitutive modeling
Lt Col James L. Rutledge
PhD, Aeronautical Engineering, Air Force Institute of Technology
Associate Professor of Aeronautical Engineering

**Most Notable Publications**


**Selected Honors & Awards**

- AFIT Outstanding Military Faculty Award
- 2017 ASME Turbo Expo Best Paper (Heat Transfer)

**Significant Accomplishments**

- Professional Engineer, State of Texas

**Research Interest Areas**

- Fluid dynamics
- Heat transfer
- Propulsion
Dr. Fred Schauer
PhD, Mechanical Engineering, University of Illinois at Urbana-Champaign
Associate Professor of Aeronautical Engineering

**Most Notable Publications**


**Selected Honors & Awards**

- Air Force Research Laboratory Innovator of the Year (2011)
- Finalist for Collier Trophy (2009)
- American Institute of Aeronautics Engineer of the Year (2009)
- Air Force Scientist of the Year (2008)

**Significant Accomplishments**

- Fellow, Air Force Research Laboratory (AFRL)
- Associate Fellow, American Institute of Aeronautics (AIAA)
- AFOSR Star Team (2012-2014; 2006-2008)

**Research Interest Areas**

- Energy, propulsion, and power – particularly novel cycles.
Maj Levi M. Thomas  
PhD, Mechanical Engineering, Purdue University  
Assistant Professor of Aerospace Engineering

**Most Notable Publications**


**Selected Honors & Awards**

- Field-Grade Officer of the Quarter, School of Engineering & Management, 2Q 2019
- Expert Marksman M4 & M9
- Field Grade Officer of the Quarter, ENY, 2Q 2018 & 1Q 2018
- Awarded Full Tuition Fellowship, Purdue Military Research Initiative, 2014

**Significant Accomplishments**

- Professional Engineer licensed in state of Colorado since 2013
- FAA – Part 107 Small Unmanned Aerial System (UAS) Operator, Aug 2018
- Fluent German Speaker: 3/3/2+ Defense Language Proficiency Test and Oral Proficiency
- Graduate, US Army Air Assault School, Ft Drum, NY, Summer 2004

**Research Interest Areas**

- Optical diagnostics
- Turbulent combustion
- Hypersonics
- High-speed measurement techniques
Lt Col Michael M. Walker  
PhD, Aerospace Engineering, The Ohio State University  
Assistant Professor of Aerospace Engineering

**Most Notable Publications**


**Selected Honors & Awards**

- 2008 – Company Grade Officer of the Quarter (of 105), National Air & Space Intelligence Center
- 2011 – Senior Company Grade Officer of the Quarter (of 427), Space & Missile Center
- 2007 – Nominated to Sigma Gamma Tau – National Aerospace Engineering Honor Society
- 2003 – Outstanding Academic Performer, Air & Space Basic Course

**Research Interest Areas**

- Aerodynamics
- Swept-wing performance
- Active flow control
- Experimental and computational fluid mechanics
Dr. William E. Wiesel

Ph.D., Harvard University, Astronomy
Professor of Astronautical Engineering

Most Notable Publications


Significant Accomplishments

Author of three widely-regarded texts on spacecraft and orbital dynamics:

- Spaceflight Dynamics
- Modern Astrodynamics
- Modern Orbit Determination

Research Interest Areas

- Orbital mechanics, especially the application of the KAM theorem to orbital systems
- Dynamical system theory
- Control and estimation
- Control of time dependent nonlinear systems
- Satellite cluster navigation
- Mission planning
- Past research interests have included solar system orbital dynamics and planetary astronomy
Maj Costantinos Zagaris  
PhD, Astronautical Engineering, Naval Postgraduate School  
Assistant Professor of Astronautical Engineering

Most Notable Publications


Selected Honors & Awards

- Best Astrodynamics paper, AIAA SciTech Forum & Expo, Jan 2019
- AFIT Distinguished Graduate, Mar 2012

Research Interest Areas

- Autonomous spacecraft guidance and control
- Optimal control
- Reachability analysis
- Robotics
- Autonomous multi-agent systems
Dr. Kenneth M. Hopkinson
PhD, Computer Science, Cornell University
Department Head, Electrical & Computer Engineering
Professor of Computer Science

Most Notable Publications


Selected Honors & Awards

- 2014 AFIT Winner and Air Education and Training Command (AETC) Runner-Up for the Educator of the Year Award
- 2010 Air Education and Training Command (AETC) Junior Civilian Scientist of the Year
- Institute of Electrical and Electronics Engineers (IEEE) Senior Member
- Association for Computing Machinery (ACM) Senior Member

Research Interest Areas

- Networking
- Security
- Cryptography
- Remote Sensing
- Sensor Fusion
- Critical Infrastructure Protection
- Space Applications
Maj David J. Becker
PhD, Electrical Engineering, Air Force Institute of Technology
Assistant Professor of Electrical Engineering

Most Notable Publications


Maj Joan A. Betances  
PhD, Electrical Engineering, Air Force Institute of Technology  
Assistant Professor of Computer Science

Most Notable Publications


Research Interest Areas

- Software defined radio to address bandwidth limitations
- Identify threats to GPS and wireless systems
- Emitter authentication verification
Dr. Brett J. Borghetti
PhD, Computer Science, University of Minnesota, Twin Cities
Associate Professor of Computer Science

Most Notable Publications


Selected Honors & Awards

• Human Factors and Ergonomics Society Conference Best Paper Award (2017)
• Human Factors and Ergonomics Society Conference Best Paper Award (2016)
• AETC Nominee to AF: AF STEM Outstanding Science and Educator Award (2014)

Research Interest Areas

• Improving human-machine team performance in complex environments using artificial intelligence and machine learning.
Most Notable Publications


Research Interest Areas

- Remote sensing
- Image processing
- Space situational awareness
Capt Aaron J. Canciani
PhD, Electrical Engineering, Air Force Institute of Technology
Assistant Professor of Electrical Engineering

Most Notable Publications


Selected Honors & Awards

- ETA Kappa Nu Instructor of the Year Award (2017-2018)
- John McLucas Basic Research Award, Top Air Force Level Basic Research (2017)

Research Interest Areas

- Navigation using environmental features
- Magnetic anomaly navigation
- GPS-denied navigation techniques
- Optimal stochastic estimation techniques
Dr. Hengky Chandrahaliim  
PhD, Electrical and Computer Engineering, Cornell University

AFIT Nanofabrication and Characterization Facility Director  
Assistant Professor of Electrical Engineering

### Most Notable Publications


### Research Interest Areas

- Symbiotically enhancing electronic, phononic, magnonic, and photonic microsystems
- Optofluidics, photoacoustics, biophotonics, nonlinear optics, and optomechanics
- Mutually assisting micro- and nano-systems
- Fabrications of integrated novel micro- and nano-systems
- Molecular scale sensing

### Selected Honors & Awards

- Sentinel of Science top engineering reviewer award (2016)
- IEEE UFFC Best Student Paper Award (2009)
Dr. Peter J. Collins  
PhD, Electrical Engineering, Air Force Institute of Technology  
Professor of Electrical Engineering

Most Notable Publications


Selected Honors & Awards

- Antenna Measurement Techniques Association Distinguished Achievement Award (2018).
- Secretary of the Air Force, Harold Brown Award Recipient (2013).

Research Interest Areas

- Low Observables
- Electromagnetic materials design
- Remote sensing along with the underlying foundational disciplines of electromagnetic theory
- Computational electromagnetics
- Signature metrology

Significant Accomplishments

Lt Col Mark E. DeYoung
PhD
Assistant Professor of Computer Engineering

Most Notable Publications


Research Interest Areas

- Hardware/software co design
- Embedded systems
- Cyber situational awareness
- Computational statistics
- Software engineering
- Reverse engineering
Maj Richard Dill
PhD, Computer Science, Air Force Institute of Technology
Assistant Professor of Computer Engineering

Most Notable Publications


Orner, Jacob and Dill, R. “PROF An Assistive Tool for Educators to Semi-Autonomously Create Topic Maps and Skill Trees,” 20th Special Interest Group on Information Technology Education, Tacoma WA, 3 – 5 October


Research Interest Areas

- Cyber security
- Artificial intelligence
- Algorithms
- Wargaming
Dr. Scott R. Graham
PhD, Electrical Engineering, University of Illinois at Urbana-Champaign

Director, Center for Cyberspace Research
Associate Professor of Computer Engineering

Most Notable Publications


Selected Honors & Awards

• 2017 Air University Cat III Civilian of the Quarter

Research Interest Areas

• Embedded Systems Security
• Cyber Physical Systems
• Computer Communication Networks
Dr. Sanjeev Gunawardena
PhD, Electrical Engineering, Ohio University
Research Assistant Professor of Electrical Engineering

Most Notable Publications


Selected Honors & Awards

• Civilian CAT III Award, 2016 1st Quarter, School of Engineering and Management, Air Force Institute of Technology, April 2016.

Significant Accomplishments


Research Interest Areas

Most Notable Publications


Research Interest Areas

- Radiation hardening space electronics from single event upsets through hardware and software redundancy
- Field programmable gate arrays (FPGAs)
- Very large scale integrated (VLSI) circuits
Dr. Michael J. Havrilla  
PhD, Electrical Engineering, Michigan State University  
Professor of Electrical Engineering

**Most Notable Publications**


**Selected Honors & Awards**

- Vice President, Antenna Measurement Techniques Association (2018).
- Elected Senior Member, Antenna Measurement Techniques Association (2016).

**Research Interest Areas**

- Electromagnetics
- Metamaterials
- Stealth technology
- Antennas
- Nanophotonics
Dr. Douglas D. Hodson  
**PhD, Computer Engineering, Air Force Institute of Technology**  
Associate Professor of Computer Engineering

### Most Notable Publications


### Selected Honors & Awards

- Southwestern Ohio Council for Higher Education (SOCHE) Faculty Excellence Award (2017).

### Research Interest Areas

- Software Engineering  
- Modeling and Simulation  
- Real-Time Interactive Distributed Simulations  
- Software Engineering Analytics
Dr. Julie A. Jackson  
PhD, Electrical Engineering, The Ohio State University  
Associate Professor of Electrical Engineering

Most Notable Publications


Selected Honors & Awards

• IEEE Aerospace and Electronic Systems Society Fred Nathanson Memorial Radar Award Winner (2019).

• Air University and AFIT Winner Civilian Category 3 Quarterly Award (2018).

• Southwestern Ohio Council for Higher Education (SOCHE) 2016 Faculty Excellence Award (2016).

• Air Force level Winner: 2012 Air Force Science, Technology, Engineering, and Mathematics (STEM) Awards, Outstanding Engineer Award, Junior Civilian Category.

Significant Accomplishments

• Serves on the IEEE AESS Radar Systems Panel

Research Interest Areas

• Radar signal and image processing
• Radar cross section scattering prediction
• Phenomenology
Lt Col David W. King
PhD, Computer Science, Air Force Institute of Technology
Assistant Professor of Computer Science

Most Notable Publications


Selected Honors & Awards

• Outstanding Contributor, Squadron Officer School, 2015
• Distinguished Graduate, AFIT, 2014
• USAFE Ground Tactical Communications CGO of the Year, 2009
• 52 FW Communications and Information CGO of the Year, 2009
• Distinguished Graduate, Expeditionary Communications and Information Officer Training, 2005
• Distinguished Graduate, ROTC, University of Maryland, College Park, 2005
• John Levitow Award, Airman Leadership School, 1999

Significant Accomplishments

• Reviewer, IEEE Conference on Autonomic Computing and Self-Organizing Systems (ACSOS)

Research Interest Areas

• Emergence
• Self-organizing systems
• Artificial intelligence
• Multi-agent systems
• Agent learning
• Machine learning
• Games
Dr. Gary B. Lamont
PhD, Electrical Engineering, University of Minnesota Institute of Technology
Professor of Electrical and Computer Engineering

Most Notable Publications

Books (6), Book Chapters (8)


Papers – (over 200; 1970-2017)

Jason M. Blackford and Gary B. Lamont, “A Novel Approach to The Real-Time Strategy Build Order Problem with Skill Level as a Metric”, IEEE Transactions on Computational Intelligence and Games, 2016


Selected Honors & Awards

- IEEE Senior Life Member (2004).
- Eta Kappa Nu AFIT Teacher of the Year (2002).

Research Interest Areas

- Evolutionary computation
- Artificial immune systems
- Bio-inspired computing
- Information security
- Intrusion and anomaly detection
- Parallel and distributed computation
- Combinatorial optimization problems (single objective and multi-objective)
- Image processing
- Protein structure prediction
- Software engineering
- Digital signal processing
- Intelligent and distributed control systems
- Autonomous multi-agent systems (unmanned ad-hoc aerial vehicles, robots, etc.)
Maj Tod Laurvick
PhD, Electrical Engineering, Air Force Institute of Technology
Assistant Professor of Electrical and Computer Engineering

Most Notable Publications


Research Interest Areas

- Applications of advanced fabrication techniques and materials to the study of micro-electrical solid state and MEMS devices.
Dr. Robert C. Leishman
PhD, Mechanical Engineering, Brigham Young University
Research Assistant Professor of Autonomy

**Most Notable Publications**


**Research Interest Areas**

- Autonomous aerial vehicles
- Autonomy
- Non-GPS navigation

**Selected Honors & Awards**

- The Presidents Volunteer Service Award - Silver Category (2017).

- Image processing
- Sensor fusion and control
Maj James R. Lievsay
PhD, Electrical Engineering, University of Oklahoma
Assistant Professor of Electrical Engineering

Most Notable Publications


Selected Honors & Awards


Research Interest Areas

- Ground Moving Target Indication (GMTI)
- Space-Time Adaptive Processing (STAP)
- Passive Bistatic Radar
Dr. Richard K. Martin  

**PhD, Electrical Engineering, Cornell University**  

Professor of Electrical Engineering

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**Most Notable Publications**


**Selected Honors & Awards**

- Presidential Volunteer Service Award (gold level), AFIT-NASIC team (2016).

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**Research Interest Areas**

- Through-wall radio imaging
- Laser radar target identification
- Engineering education methodology
Dr. Laurence D. Merkle  
**PhD, Computer Engineering, Air Force Institute of Technology**  
Assistant Professor of Computer Engineering

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**Most Notable Publications**


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**Selected Honors & Awards**

- Best Poster, 22nd Colloquium for Information Security Systems Education
- Best Paper, Mechanical Engineering Division, 2005 American Society for Engineering Education Annual Conference & Exposition
- USAFA Department of Computer Science Research Excellence Award, 2001-02

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**Research Interest Areas**

- Algorithms
- Computability and complexity
- Computational science and engineering
- Cybersecurity education
- Evolutionary computation
- Games in computing education
- Optimization
- Quantum computing
- Space situational awareness
Dr. Robert F. Mills  
**PhD, Electrical Engineering, University of Kansas**  
Professor of Electrical Engineering

## Most Notable Publications


## Research Interest Areas

- Electronic warfare
- Avionics security
- RF fingerprinting

## Selected Honors & Awards

- Air Force Association Bernard A. Schriever Award for advancing aerospace power, technology, doctrine, or the Air Force as a profession (2015).


- Network operations and security
- Situation awareness
Dr. Barry E. Mullins
PhD, Electrical Engineering, Virginia Tech
Professor of Computer Engineering

**Most Notable Publications**


**Research Interest Areas**

- Cyber-physical systems security
- Cyber operations
- Critical infrastructure protection
- Computer/network/embedded systems security
- Reverse code engineering

**Selected Honors & Awards**

- Research Advisor for Chancellor’s Award Recipient (Best AFIT thesis) (2018).
Lt Col George E. Noel
PhD, Computer Science, Air Force Institute of Technology
Assistant Professor of Computer Science

Most Notable Publications


Selected Honors & Awards

• Member, Board of Referees, Digital Investigations – regular reviewer since 2014

Research Interest Areas

• Natural Language Processing
• Topic Models
• Ontology Learning

• Neural Networks
• Machine Learning
• Big Data
Dr. Scott L. Nykl
PhD, Computer Science, Ohio University
Assistant Professor of Computer Science

Most Notable Publications


Selected Honors & Awards

- AETC MAJCOM Winner - Air Force Outstanding Scientist/Engineer, Junior (2017)
- AFIT/ENG’s 3rd Quarter Nominee (2017)
- Gage H. Crocker Outstanding Professor Award Nominee (2016)

Research Interest Areas

Dr. Meir N. Pachter
PhD, Applied Mathematics, Israel Institute of Technology
Professor of Electrical Engineering

Most Notable Publications


Selected Honors & Awards

- Distinguished Researcher Award, granted by the Affiliated Professional Societies, Dayton, OH (1999).

Research Interest Areas

- Guidance, Control and Navigation
- Game Theory
- Optimal Control
- System Identification
- Mathematical Modeling
Dr. Gilbert L. Peterson  
PhD, Computer Science, University of Texas at Arlington  
Professor of Computer Science

**Most Notable Publications**


**Selected Honors & Awards**

- Chair of the IFIP Working Group 11.9 Digital Forensics (Present)
- International Federation of Information Processing Silver Core Award (2017)

**Significant Accomplishments**

- Air Force Outstanding Scientist Award, Junior Civilian (2008).
- Recipient of UTA/CSE Outstanding PhD Research Award (2001).

**Research Interest Areas**

- Artificial Intelligence Statistical Machine Learning
- Autonomous Robots
- Digital Forensics
Lt Col Patrick J. Sweeney
PhD, Computer Engineering, Dartmouth College
Assistant Professor of Computer Engineering
Computer Science and Engineering Division Chief

Most Notable Publications


Selected Honors & Awards

• 2016 AFRL Sensors Directorate FGO of the Year
• 2016 AFRL Sensors Directorate Senior Military Scientist/Engineer of the Year

Research Interest Areas

• Cybersecurity of Embedded Systems
• Cyber Physical Systems
• Trusted and Secure Avionics
• Reverse Engineering
Dr. Clark N. Taylor  
**PhD, Electrical Engineering, University of California, San Diego**  
Assistant Professor of Computer Engineering

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**Most Notable Publications**


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**Selected Honors & Awards**

- AFRL Sensors Directorate, Innovation Award, 2015.
- AFRL Sensors Directorate, Mid-Career Civilian Engineer/Scientist Award, 2014.
- AFOSR Young Investigator Award, 2007.

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**Significant Accomplishments**


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**Research Interest Areas**

- Vision-aided navigation
- Particle Filters
- Kalman Filters
- Distributed Data Fusion
- Uncertainty Estimation
Dr. Michael A. Temple  
PhD, Electrical Engineering, Air Force Institute of Technology  
Professor of Electrical Engineering

Most Notable Publications


Research Interest Areas

- Discovery, extraction and exploitation of Distinct Native Attribute (DNA) fingerprinting features supporting offensive, defensive and exploitive communication network operations.
- Device hardware identity and/or device normal vs. anomalous (aged, failed, attacked, etc.) operating state discrimination.

Significant Accomplishments

Dr. Andrew J. Terzuoli, Jr.
PhD, Electrical Engineering, The Ohio State University
Associate Professor of Electrical Engineering

Most Notable Publications


Significant Accomplishments

• Fellow of the Electromagnetics Academy (FEMA) (Present)

• IEEE Life Senior Member (Present)

Research Interest Areas

• Antennas and Electromagnetics
• Computer Model Based Studies
• Application of Parallel Computation, VLSI Technology, and RISC Architecture to Numerical and Transform Methods
• Remote Sensing & Communication

• Passive RF Sensing
• Wave Scattering, Radar Cross Section, and Stealth (LO/CLO) Technology
• Machine Vision and Image Processing
• Automated Object Recognition
Lt Col Kenneth W. Burgi
PhD, Engineering Physics, Air Force Institute of Technology
Interim Department Head, Engineering Physics
Assistant Professor of Optical Engineering

Most Notable Publications


Selected Honors & Awards

- Air Force Commendation Medal, 1st Oak Leaf Cluster (2013)
- Air Medal, 10th Oak Leaf Cluster (2012)
- Aerial Achievement Medal (2012)
- Air Force Achievement Medal (2005)
- Afghanistan Campaign Medal with 3 devices
- Iraq Campaign Medal with 2 Devices
- Global War on Terrorism Expeditionary Medal
- Global War on Terrorism Service Medal

Significant Accomplishments

- C-17A Instructor Aircraft Commander
- MC-12W Mission Commander
- 2,605 Flight Hours / 617 Sorties
- 1,295 Combat Flight Hours / 363 Combat Sorties

Research Interest Areas

- Scatterometry
- Statistical and adaptive optics
- Various aspects of light-matter interaction
Dr. William F. Bailey
PhD, Air Force Institute of Technology
Associate Professor Emeritus of Physics

Most Notable Publications


Selected Honors & Awards

• AF Outstanding Science and Engineering Educator—AFIT 2012
• AETC Merewether Award—AFIT 2004
• Professor Ezra Kotcher Award—AFIT 1993

Significant Accomplishments

• Developed Directed Energy Curriculum
• Developed Space Environment Curriculum
• Initiated discussions with Director of Weather that led to approval of new program—Atmospheric Science

Research Interest Areas

• Weakly ionized gases and reactive kinetics with special applications to semiconductor processing in gas discharges
• Shock characterization in ionized flows
• Solutions of the inhomogeneous electron kinetic equation
Maj James E. Bevins  
PhD, Nuclear Engineering, University of California, Berkeley  
Assistant Professor of Nuclear Engineering

**Most Notable Publications**


**Research Interest Areas**

- Experimental and computational research in radiation transport modeling
- Radiation detection and spectroscopy
- Nuclear weapon effects
- Nuclear physics measurements for nuclear security and forensic applications

**Additional Positions**

- Research Chair, AFIT Nuclear Events Analysis and Testing Center for Specialized Research
- Air Force Technical Applications Center Endowed Term Chair for Nuclear Treaty Monitoring
Dr. Abigail A. Bickley  
**PhD, Chemistry, University of Maryland**  
Research Assistant Professor of Nuclear Engineering

### Most Notable Publications


*Classified publications since 2013

### Significant Accomplishments

- Developed PhD-level Advanced Nuclear Forensics Classes taught at the Secret/CNWDI level
- Developed MS-level Technical Nuclear Forensics Course taught at the Secret/CNWDI level
- Referee for the NA-22 program for the National Nuclear Security Administration of the US Department of Energy
- Computational support for several National Labs, and HPC at AFRL/DSRC
- Mentorship of post-doctoral researchers, interns, research assistants, and PhD students
- Member, Nuclear Event and Analysis Testing Center for Specialized Research

### Research Interest Areas

- Radiation transport and modeling
- Optimization of nuclear systems
- Pre- and post-detonation nuclear forensics
- Nuclear weapons effects
Dr. Santasri R. Bose-Pillai  
PhD, Electrical Engineering, New Mexico State University  
Research Assistant Professor of Engineering Physics

Most Notable Publications


Selected Honors & Awards

- Elected senior member of Optical Society of America and SPIE, the International Society for Optics and Photonics for outstanding contributions in the field of Optics.

Research Interest Areas

- Atmospheric turbulence characterization using optical techniques
- Mitigation of turbulence effects and turbulence compensation in directed energy
- Laser communications and imaging applications
- Synthesis of partially coherent sources and their propagation through turbulence
Dr. Larry W. Burggraf  
PhD, Chemistry, University of Denver  
Professor of Chemical and Engineering Physics

**Most Notable Publications**


**Selected Honors & Awards**

- Recognized by Dr Ahmed Zewail (Nobel Laureate) in June 2009 Plenary Address at San Diego HPC Conference and in his autobiography “Voyage Through Time”

**Patents:**


**Significant Accomplishments**

- 2013 Nuclear Deterrence Operations Professional Team of the Year Award at the Air Education and Training Command level.

- Air Force Special Service Award (1994)

- AFRL HEDM Program ISp Award (1992)

- Air Force Institute of Technology PhD CI Distinguished Graduate (1981)

**Research Interest Areas**

- Positron spectroscopy
- Gamma Imaging
- Radioisotope propulsion
- Surface chemistry

- Molecular spectroscopy
- Laser printing of refractor alloys in concert with quantum chemistry calculations to solve DoD problems and create new capabilities
Lt Col Samuel D. Butler
PhD, Applied Physics, Air Force Institute of Technology
Assistant Professor of Physics

Most Notable Publications


Selected Honors & Awards

• Meritorious Service Medal
• Joint Service Commendation Medal with 1 device
• Air Force Commendation Medal
• Joint Service Achievement Medal
• Air Force Achievement Medal with 1 device
• Afghanistan Campaign Medal with 2 devices
• Global War on Terrorism Expeditionary Service Medal
• Nuclear Deterrence Operations Service Medal with ‘N’ Device

Significant Accomplishments

• Deployed to Southwest Asia in direct support of combat operations during Operation: INHERENT RESOLVE.
• Deployed to Afghanistan in direct support of combat operations during Operation: ENDURING FREEDOM.
• Awarded Afghanistan Campaign Ribbon with 2 devices, and Global War on Terrorism Expeditionary Ribbon.

Research Interest Areas

• Optical scatter
• Quantum information
Dr. Michael J. Caylor
PhD, Aerospace Engineering, University of Notre Dame
Associate Director, Center for Technical Intelligence Studies and Research
Research Assistant Professor of Engineering Physics

**Significant Accomplishments**

- Managed and executed $2.4M in center sponsor funding
Dr. Justin A. Clinton  
PhD, Nuclear Engineering, Rensselaer Polytechnic Institute  
Assistant Professor of Nuclear Engineering

**Most Notable Publications**


**Research Interest Areas**

- Illicit Special Nuclear Material (SNM) detection
- Computational methods for radiation transport
- Planar/tomographic imaging using gammas, neutrons, and muons

Lt Col Dexter completed a deployment in 2019 as a member of a Joint Task for support of Operation Inherent Resolve as a Subject Matter Expert (SME) for combating weapons of mass destruction (CWMD).

Developed PhD course in Advanced Nuclear Forensics taught at the Secret/CNWDI level

Major Dexter deploying in November 2018 to Northern Iraq in support of Operation Inherent Resolve as the first-ever subject matter expert (SME) for combating weapons of mass destruction (CWMD).

Research Interest Areas

- Nuclear Weapons Effects
- Nuclear forensics
- High energy density plasma physics

- Optical transport
- Digital image processing and analysis
- High energy laser interactions
Maj Daniel J. Emmons

**PhD, Applied Physics, Air Force Institute of Technology**
Assistant Professor of Applied Physics

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**Most Notable Publications**


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**Research Interest Areas**

- Ionospheric Disturbances
- Gas Discharges
- Laser & Plasma Kinetics
Col James R. Fee Jr.
PhD, Nuclear Engineering, Air Force Institute of Technology
Associate Dean, Graduate School of Engineering & Management
Assistant Professor of Nuclear Engineering

Most Notable Publications


Selected Honors & Awards

• Meritorious Service Medal with 3 Oak Leaf Clusters, 2019
• Lt Col Charles P. Brothers Outstanding Volunteer Service Award, 2015
• Defense Meritorious Service medal with 2 Oak Leaf Clusters, 2011

Research Interest Areas

• Effects of Nuclear Weapons
• Simulations of Electromagnetic Pulses
Dr. Manuel R. Ferdinandus
PhD, Optics, University of Central Florida
Research Assistant Professor of Engineering Physics

**Most Notable Publications**


**Research Interest Areas**

- Nonlinear optical characterization
- Dynamic metamaterials
- Nanoelectronics
- Photonic devices
Dr. Steven T. Fiorino
PhD, Physical Meteorology, Florida State University
Director, AFIT Center for Directed Energy
Professor of Atmospheric Physics

Most Notable Publications


Selected Honors & Awards

• Promoted to full Professor with tenure August 2019

• Promoted from Research Associate Professor to tenure-track Associate Professor, May 2016

Research Interest Areas

- Microwave remote sensing of the environment
- Development of weather signal processing algorithms
- Atmospheric effects on military systems such as high energy lasers and weapons of mass destruction
Lt Col Anthony L. Franz  
PhD, Physics, University of Maryland, College Park  
Assistant Professor of Physics

**Most Notable Publications**


**Selected Honors & Awards**

- Southwestern Ohio Council for Higher Education (SOCHE) Faculty Excellence Award for the Department of Engineering Physics, AFIT 2017.
- AFIT winner for the 2015 Air Force Outstanding Scientist and Engineer of the Year Award, Senior Military Category 2016.

**Significant Accomplishments**

- Deployed, Rustamiyah, Iraq, Jan 2009 - July 2009
- Deployed, Kabul, Afghanistan, Oct 2010 - Nov 2011

**Research Interest Areas**

- Remote Sensing
- Lasers and Optics
- Dynamics and Information in Complex Systems

• Remote Sensing  
• Lasers and Optics  
• Dynamics and Information in Complex Systems
Dr. Nancy C. Giles
PhD, Physics, North Carolina State University
Executive Associate Dean for Strategies
Professor of Physics

Most Notable Publications


Significant Accomplishments

- More than 5300 career citations of publications (under Giles or Giles-Taylor); h-index=38.
- Authored 198 journal publications. Served as research advisor for 6 PhD students in AFIT/ENP.
- In 2006, she was on sabbatical at AFRL, WPAFB, working with colleagues on wide bandgap II-VI materials. She has received funding from AFRL/RX, AFOSR, and AFRL/RD for her experimental research at AFIT. Currently serving as strategist for increased STEM education and research outreach for all AF personnel.

Book chapters:

Research Interest Areas

Solid State Physics: photoluminescence (PL), absorption, thermoluminescence, electron magnetic resonance (EPR) and time-resolved spectroscopies; aid AFRL in development of better optical and electronic materials for photorefractive, nonlinear frequency conversion, high-power electronics, and radiation detection; identification of point defects in crystalline semiconducting and optical materials; apply defect characterization to improve materials for optical parametric oscillators used in infrared countermeasures; characterize transition-metal ion charge states in laser-host materials and ultra-wide bandgap semiconductors; characterize spin systems in diamond for quantum devices.
Dr. Michael R. Hawks
PhD, Optical Sciences, Air Force Institute of Technology
Research Assistant Professor

Most Notable Publications


Research Interest Areas

- Electro-optic and infrared remote sensing
- Hyperspectral imaging
- Computational physics
Maj Nicholas C. Herr
PhD, Applied Physics, Air Force Institute of Technology
Assistant Professor, Department of Engineering Physics

Most Notable Publications


Research Interest Areas

- High energy laser material interactions
- Atomic force
- Microscopy
Lt Col Edward Lee Hobbs  
*PhD, Nuclear Engineering, The University of New Mexico*

Deputy Director, Nuclear Event Analysis & Testing Center for Specialized Research (NEAT CSR)

### Selected Honors & Awards

- Air Medal
- Defense Meritorious Service Medal
- Meritorious Service Medal

### Research Interest Areas

- Computational Nuclear Engineering
**Most Notable Publications**

**Michael R. Hogsed**, Kevin Choe, Norman Miguel, Buguo Wang, and John Kouvetakis, “Radiation-induced electron and hole traps in Ge1-xSnx (x = 0 – 0.094),” *Journal of Applied Physics*, Submitted October 2019. (2020)


Buguo Wang, **M. R. Hogsed**, T. R. Harris, P. M. Wallace, and J. Kouvetakis, “Enhanced optical and electrical performance of Ge1-xSnx/Ge/Si(100) (x=0.062) semiconductor via inductively coupled H2 plasma treatments,” *Semiconductor Science and Technology*, vol. 34, 045014 (2019)


Mee-Yi Ryu, Thomas R. Harris, Buguo Wang, Yung Kee Yeo, **Michael R. Hogsed**, and John Kouvetakis “Temperature-dependent photoluminescence studies of Ge1-\(\gamma\)Sny (\(\gamma=4.3\%-9.0\%\)) grown on Ge-buffered Si; indicating direct bandgap cross-over point,” *Journal of the Korean Physical Society* (2019)

**Research Interest Areas**

- Radiation effects on advanced microelectronic materials and devices
- Electrical and optical characterization of photonic Group IV semiconductor alloys
Dr. Darren E. Holland  
PhD, Mechanical Engineering, University of Michigan  
Research Assistant Professor of Engineering Physics

Most Notable Publications


Selected Honors & Awards

Patents:

Significant Accomplishments
- Member of Nuclear Event Analysis and Testing (NEAT) Center for Specialized Research (CSR)

Research Interest Areas

- Source detection and identification
- Design optimization and uncertainty analysis
- Radiation transport modeling, simulation, verification, and validation
- Machine learning techniques for imaging
CDR Royce W. James
PhD, Plasma Physics
Visiting Professor
Director, Coast Guard Academy Plasma Lab

Most Notable Publications


R.W. James, “Progress on Development of Low Pressure High Density Plasmas on the Helicon Plasma Experiment (HPX),” American Physical Society’s 61st Annual Meeting of the Division of Plasma Physics, Fort Lauderdale, FL; November, 5 - October, 24, (2019).


Selected Honors & Awards

- Coast Guard Meritorious Service Medal
- Black Engineer of the Year Award (BEYA): Professional Achievement Award
- US Coast Guard Academy’s Center for Academic Studies Summer Fellowship Award
- Coast Guard Commendation Medal
- Coast Guard Representative for National Aeronautics and Space Administration Astronaut Selection Process
- US Coast Guard Permanent Commissioned Teaching Staff (military version of Tenured Professor) sworn in – selected in 2005

Significant Accomplishments

- Air Force Institute of Technology Visiting Faculty Fellow
- Unitarian Universalist Association President’s International Award for Volunteer Service
- Special Congressional Recognition for Volunteer Service to Children and Families
- US Coast Guard Academy’s Ms. Frances Neal Humanitarian Award
- Columbia University Research Fellow

Research Interest Areas

- Laboratory and Space based Magnetized Plasmas
- Plasma Interactions with Electromagnetic Radiation (with emphasis on high energy lasers)
- Fusion Energy
- Plasma Water Treatment
Lt Col Christopher A. Lenyk  
**PhD, Air Force Institute of Technology**  
Assistant Professor of Nuclear Engineering

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**Most Notable Publications**


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**Research Interest Areas**

- Isolated point defects in single crystals
- Electron paramagnetic resonance (EPR)
- Thermoluminescence (TL)
- Photoluminescence (PL)
- Fourier-transform infrared (FTIR) spectroscopy
- Ultra-wide-bandgap oxides
- Scintillators
- Optical materials
- Radiation effects on materials
- Nuclear weapon effects
Dr. Robert D. Loper
PhD, Applied Physics, Air Force Institute of Technology
Assistant Professor of Physics

Most Notable Publications


Selected Honors & Awards

- SOCHE (Southwestern Ohio Council for Higher Education) Faculty Excellence Award 2018, 2015

Significant Accomplishments

- Visiting Scientist, Solar Physics, Space Weather Prediction Center, 2019
- Space Physics SME, Air University Electromagnetic Defense Task Force, 2018-19

Research Interest Areas

- Space Physics
- Space Weather
- Space Environment
- Solar Physics
- Magnetospheric Physics
- Plasma Physics
Dr. Kirk A. Mathews
PhD, Nuclear Engineering, Air Force Institute of Technology
Professor Emeritus of Nuclear Engineering

Most Notable Publications


Selected Honors & Awards

• Mervin E. Gross Award -- AFIT 17 Dec 1982

Research Interest Areas

• Neutral-particle radiation transport methods and algorithms: discrete ordinates spatial quadratures, angular quadratures, convergence acceleration, Monte Carlo estimators, discrete elements methods.

• Military applications of nuclear technologies
Dr. Michael A. Marciniak

PhD, Engineering Physics, Air Force Institute of Technology
Professor of Physics

Most Notable Publications


Selected Honors & Awards

• 2009 Wright Memorial Chapter, Air Force Association, Col Gage H. Crocker Outstanding Professor Award (1 Jan-31 Dec 2008)

Significant Accomplishments


Research Interest Areas

• Light-matter interaction, including polarimetric scatterometry of nanostructured materials (photonic crystals, plasmonic materials and optical meta-materials)
• Bidirectional reflectance distribution functions (BRDF) for optical signatures
• High-energy-laser damage assessment
Dr. John W. McClory
PhD, Nuclear Engineering, Air Force Institute of Technology
Associate Professor of Nuclear Engineering

Most Notable Publications


Significant Accomplishments

• Nuclear Engineering Program Curriculum Chair (2018-present)
• Member Joint National Security Applications Council-Peer Review Panel (JNSAC-PRP) (2013-present)
• Director, Nuclear Weapons Effects, Policy, and Proliferation Graduate Certificate Program (2013-present)

Research Interest Areas

• Radiation effects
• Radiation detector development
• Nuclear weapon effects
Dr. Jack E. McCrae
PhD, Physics, Air Force Institute of Technology
Research Assistant Professor of Physics

Most Notable Publications


Research Interest Areas

- Optics
- Lasers
- Quantum and non-linear optics
- Quantum computing
- Laser radar
- Modeling and measurements of atmospheric propagation, and imaging
Maj Omar A. Nava
PhD, Atmospheric and Oceanic Sciences, University of California Los Angeles
Assistant Professor of Atmospheric Science

Most Notable Publications


Selected Honors & Awards

• 2018 Colonel Charles A. Stone Award
• 2018 AETC Outstanding Weather Operations FGO of the Year
• 2018 AFIT FGO of the Quarter (1st Quarter)

Research Interest Areas

• Atmospheric Science
• Space Physics
• Tropical Cyclones
• Numerical Weather Prediction
Dr. Michael V. Pak
PhD, Theoretical Physics, St. Petersburg State University
PhD, Quantum Chemistry, Iowa State University
Research Assistant Professor of Physics

Most Notable Publications


Research Interest Areas

- Theory of quantization, topological quantum computing and quantum theory of multi-component systems.
- Development of new methods to accurately describe matter-antimatter interactions, and specifically positron annihilation in complex multi-electron environment.
- Physics of nuclear beta decay in intense radiation field.
Dr. Anil K. Patnaik
PhD, Quantum Optics, Physical Research Laboratory (India)
Associate Professor of Physics

**Most Notable Publications**


**Selected Honors & Awards**

- Research work in international news [Physics World, 2015]
- Japanese Society for Promotion of Science (JSPS) fellowship for the period 2001-2003, with a total research grant of 3 million yen

**Significant Accomplishments**

- Highly cited papers with ~ 1000 citations; h-index 17, i10-index 25 (Source: Google Scholar)
- Serving as Program Committee Member in Optical Society of America conference on Laser Applications in Chemical, Security and Environmental Analysis

**Research Interest Areas**

- Quantum optics and information
- Laser-matter applications to hypersonics, combustion and nuclear diagnostics

**Research Work in International News**

- Japanese Society for Promotion of Science (JSPS) fellowship for the period 2001-2003, with a total research grant of 3 million yen

**Quantum Optics and Information**

- Laser-matter applications to hypersonics, combustion and nuclear diagnostics

**Selected Honors & Awards**

- Research work in international news [Physics World, 2015]
-Japanese Society for Promotion of Science (JSPS) fellowship for the period 2001-2003, with a total research grant of 3 million yen

**Significant Accomplishments**

- Highly cited papers with ~ 1000 citations; h-index 17, i10-index 25 (Source: Google Scholar)
- Serving as Program Committee Member in Optical Society of America conference on Laser Applications in Chemical, Security and Environmental Analysis

**Research Interest Areas**

- Quantum optics and information
- Laser-matter applications to hypersonics, combustion and nuclear diagnostics
Dr. Glen P. Perram  
PhD, Physics, Air Force Institute of Technology  
Professor of Physics

**Most Notable Publications**


**Selected Honors & Awards**

- Air Force Science, Technology and Mathematics Award, Outstanding Senior Civilian Scientist
- Air Force Science and Engineering, Exploratory Team Award

**Significant Accomplishments**

- Fellow, Directed Energy Professional Society

**Research Interest Areas**

- Gas lasers
- Laser weapons
- Spectroscopy

- Chemical kinetics
- Remote sensing
Dr. James C. Petrosky  
PhD, Engineering Physics, Rensselaer Polytechnic Institute  
Director, Nuclear Events, Analysis & Testing Center for Specialized Research  
Professor of Nuclear Engineering  

**Most Notable Publications**


**Selected Honors & Awards**

- Charles Stone Award
- Aldren Research Excellence Award
- AETC Science and Technology Professor of the Year Award
- General Bernard Schriever Award
- Member of the AETC Nuclear Deterrence Operations Professional Team of the Year

**Significant Accomplishments**

- NNSA Review Committee Member of the following: Radiation Effects and High Energy Density Sciences (REHEDS) research consortium, Qualification Alternatives to the Sandia Pulsed Reactor (QASPR) and the Radiation-aware Electrical Multi-Scale Model Based Design (REMS-MDB) L2 review team

**Research Interest Areas**

- Radiation effects on electronic devices, EMP, experimental design, radiation detection, and nuclear weapon effects.
- Narrow- and wide-band gap materials, using combinations of electrical, optical, and absorption spectroscopy to gain information on the damaging effects of ionizing and non-ionizing radiation.
Dr. Grady T. Phillips  
PhD, Physics, Air Force Institute of Technology  
Research Assistant Professor (ORISE)

Most Notable Publications


Research Interest Areas

- Spectroscopy
- Remote sensing
- Laser/material interactions
- Gas phase lasers
- Optical diagnostics
Dr. Christopher A. Rice  
PhD, Optical Science and Engineering, Air Force Institute of Technology  
Research Assistant Professor of Physics

Most Notable Publications


Selected Honors & Awards

• ASAF Modeling and Simulation Award for Planning, 2017

Research Interest Areas

- Atmospheric propagation of high energy lasers
- Diode pumped alkali and rare gas laser gain cell construction
- Novel laser demonstration
- Aerosol field measurements
- Modeling, simulation, and validation of directed energy simulations
- Pulsed laser ablation of titanium and carbon
- New techniques of turbulence characterization over open paths
Dr. Heidi R. Ries  
PhD, Applied Physics, Old Dominion University  
Interim Chief Academic Officer  
Dean for Research  
Professor of Physics

**Most Notable Publications**


**Research Interest Areas**

- Radiation effects
- Nonlinear optical materials
- Electron paramagnetic resonance spectroscopy
- Laser processing of materials

**Selected Honors & Awards**

- Air Force Exemplary Civilian Service Award (2013)
- Air Force winner of the 2011 Department of Defense Women’s History Month Science, Technology, Engineering and Mathematics Role Model Award, Civilian category
- Air Force winner of the 2011 National Latina Distinguished Service Award
- Ten Top Women Award (Dayton Daily News, 2009)
- Air Force Meritorious Civilian Service Award (2008)

**Significant Accomplishments**

- Higher Learning Commission Team Chair and Peer Reviewer
- Chair, Board of Trustees, Engineering and Science Foundation of Dayton
Dr. Adib J. Samin
PhD, Mechanical Engineering, The Ohio State University
Assistant Professor of Nuclear Engineering

Most Notable Publications


Selected Honors & Awards

• 2018 Director’s Postdoctoral Fellowship at the Los Alamos National Laboratory (LANL).

• 2010 Distinguished University Fellowship for graduate students – The Ohio State University

Significant Accomplishments

• 2007 Physical Chemistry Undergraduate Award – Wayne State Department of Chemistry

Research Interest Areas

• Modeling and simulation of corrosion
• Defect transport
• Electrochemical phenomena
• Radiation damage
Lt Col Michael B. Shattan
PhD, Nuclear Engineering, University of Tennessee
Assistant Professor of Nuclear Engineering

Most Notable Publications


Selected Honors & Awards

• Bronze Star Medal
• Defense Meritorious Service Medal
• Meritorious Service Medal
• Joint Service Commendation Medal
• Army Commendation Medal

Research Interest Areas

• The use of Laser-Induced Breakdown Spectroscopy (LIBS) for nuclear forensics purposes
• Laser Diagnostics for high temperature plasma diagnostics
Dr. Bryan J. Steward  
PhD, Optical Sciences & Engineering, Air Force Institute of Technology  
Research Assistant Professor of Optical Engineering  
Technical Advisor, Center for Technical Intelligence Studies & Research

Most Notable Publications


Selected Honors & Awards

- Civilian of the Quarter: Persistent Infrared Squadron (NASIC), Category III (2013 & 2015)
- Civilian of the Quarter: GEOINT/MASINT Squadron (NASIC), Category II (Spring 2010)
- Civilian of the Quarter: Wright Patterson Air Force Base, Category I (Fall 2006)

Significant Accomplishments

- National Defense Science and Engineering Graduate Fellow (Sep 2004 – Aug 2007)

Research Interest Areas

- EO/IR Remote Sensing
- Radiometric Sensor and Scene Modeling
- Signal and Image Processing Algorithm Development
- Overhead Persistent Infrared (OPIR)
- On-Orbit Sensor Characterization
- Machine Learning
Lt Col Robert C. Tournay
PhD, Atmospheric Science, Colorado State University
Assistant Professor of Atmospheric Science

Most Notable Publications


Selected Honors & Awards

- Air Force Special Operations Command Weather Field Grade Officer of the Year, 2012
- Air Force Materiel Command Weather Field Grade Officer of the Year, 2011
- Air Force Weather Agency Company Grade Officer of the Year, 2009
- Air Force Weather Company Grade Officer of the Year, 2005

Research Interest Areas

- Land Surface-Atmosphere Interaction
- Hydrology
- Artificial Intelligence Applications to Weather Forecasting
Lt Col H. Rose Tseng
PhD, Atmospheric and Oceanic Sciences, University of California at Los Angeles
Assistant Professor and Curriculum Chair of Atmospheric Science
AFTAC Endowed Term Chair for Numerical Weather Monitoring

**Most Notable Publications**


**Selected Honors & Awards**

- Air Education and Training Command Weather Field Grade Officer of the Year (2017)

**Research Interest Areas**

- Nuclear monitoring (source term estimation and uncertainty quantification)
- Aerosols’ role in precipitation generation
- Ionosphere wave propagation
- Space-terrestrial weather coupling
- Ionosphere climatology

- Terrestrial decadal climatology
- Climate and sustainable farming practices
- Arctic sea ice decline attribution
Dr. Ronald F. Tuttle  
PhD, Nuclear Engineering, University of Missouri  
Associate Professor of Engineering Physics

Most Notable Publications


Research Interest Areas

Nuclear and em phenomenologies and biometrics; Collection instrumentation for IR data–radiometric and spectrometric processing and analysis; Passive ranging techniques; Advancement of MASINT techniques for detection and identification of underground facilities, WMDs, and IEDs; Prediction of plutonium production using advanced unit operations algorithms using bio environ sensors; Characterization of the optical parameters for nuclear and IR sensors for UAV and satellite applications; Development of algorithms for video analysis and content extraction for overt and covert surveillance systems; Advanced concepts for 3-D immersive environments using virtual spaces and serious gaming.
Dr. Gaiven Varshney
PhD, Applied Chemistry, Z. H. College of Engineering and Technology, AMU, India
Research Assistant Professor of Nuclear Engineering

Most Notable Publications


Significant Accomplishments

- Member of AFIT Nuclear Event Analysis and Testing Center for Specialized Research (NEAT CSR).

Research Interest Areas

- Radiation detection
- Investigation of post-detonation debris using various microscopic and spectroscopic characterization techniques
- Characterization of semiconductors and nanomaterials
- Wastewater treatment
- Environmental remediation
Most Notable Publications


Research Interest Areas

- Atomic and Molecular Physics
- Laser Modeling and Simulation
- Quantum Information
- Computer Graphics
- Mathematical Physics
- Condensed Matter Physics
Dr. Paul J. Wolf  
PhD, Physics, Air Force Institute of Technology  
Associate Dean for Academic Affairs  
Professor of Physics

**Most Notable Publications**


J. Holtgrave and P.J. Wolf, “Pressure broadening and line shifting of atomic strontium 5s2 1S0 → 5s5p 3P1 and 5s5p 3P0,1,2 → 5s6s 3S1 absorption transitions induced by noble-gas collisions,” *Phys. Rev A*, 72, 012711 (2005).

**Significant Accomplishments**

- Higher Learning Commission Peer Reviewer

**Research Interest Areas**

- Atomic and molecular spectroscopy
- Foundations of quantum mechanics
- Philosophy of science
- Existential-threat analyses
DEPARTMENT OF MATHEMATICS & STATISTICS

Dr. Alan V. Lair
PhD, Mathematics, Texas Tech University
Department Head, Mathematics and Statistics

Most Notable Publications


Research Interest Areas

- Nonlinear Diffusion
- Boundary Blowup Solutions of Semilinear Elliptic Equations
Dr. Benjamin F. Akers
PhD, Mathematics, University of Wisconsin-Madison Associate Professor of Mathematics

Most Notable Publications


Selected Honors & Awards


Research Interest Areas

- Approximate models in nonlinear wave problems
- Traveling and solitary waves
- The existence and stability of coherent structures in nonlinear wave equations
- Perturbation methods for eigenvalue problems
- Numerical analysis
- Fluid dynamics
- Nonlinear optics
Maj Timothy S. Anderson
PhD, Applied Mathematics, Air Force Institute of Technology
Assistant Professor of Statistics

Research Interest Areas

- Uncertainty Estimation
- Computational Statistics
- Bayesian Analysis
Dr. William P. Baker  
PhD, Applied Mathematics, Northwestern University  
Associate Professor of Mathematics

Most Notable Publications


Research Interest Areas

- Asymptotic and Perturbation Methods
- Wave Propagation and Scattering Theory
- Optimal Control Theory
- Thermal Dynamics of high speed wear events
- Vibrational dynamics of thermal loaded materials
Maj Eric L. Brooks
PhD, Applied Mathematics, Air Force Institute of Technology
Assistant Professor of Statistics
Dr. Dursun A. Bulutoglu
PhD, Statistics, University of California, Berkeley, California
Associate Professor of Statistics

**Most Notable Publications**


**Research Interest Areas**

- Design of Experiments
- Discrete Optimization
- Combinatorial Optimization
Dr. Matthew Fickus  
**PhD, Mathematics, University of Maryland**  
Professor of Mathematics

### Most Notable Publications


### Research Interest Areas

- Applied harmonic analysis, including applications of frame theory
- Compressed sensing and wavelets to problems of waveform design for radar and wireless communication
- Coding theory
- Quantum information theory

### Selected Honors & Awards

Lt Col Andrew J. Geyer  
PhD, Applied Mathematics (Statistics), Air Force Institute of Technology  
Deputy Department Head, Mathematics & Statistics  
Assistant Professor of Statistics

Most Notable Publications


Selected Honors & Awards

- Vice Chair, Committee on Probability & Statistics, American Meteorology Society

Research Interest Areas

- Design and Analysis of Experiments
- Integer Programming
- Multivariate Statistics
- Machine Learning
Lt Col Robert B. Hartlage  
**PhD, Operations Research, Air Force Institute of Technology**  
Assistant Professor of Statistics

**Research Interest Areas**
- Metaheuristics
- Network Optimization
- Applications in Transportation & Communication
Lt Col Jeremy D. Jordan
PhD, Operations Research, Air Force Institute of Technology
Assistant Professor of Statistics

Most Notable Publications


Selected Honors & Awards

- United States Air Force (USAF) Field Grade Officer Analyst of the Year (2015).
- Air Force Material Command (AFMC) Field Grade Officer Analyst of the Year (2015).

Research Interest Areas

- Networks
- Combinatorial optimization
- Applied statistics
- Decision analysis
Capt Tony Liu
PhD, Applied Mathematics, Arizona State University
Assistant Professor of Mathematics

**Most Notable Publications**


**Selected Honors & Awards**

- NSF Research Training Group Fellow, Arizona State University 2016-2019

**Research Interest Areas**

- Numerical Analysis
- Computational Methods
- Approximation Theory
- RBF Methods
Dr. Amy L. Magnus  
**PhD, Electrical Engineering, Air Force Institute of Technology**  
Research Assistant Professor of Mathematics  
Director, Quantum Autonomy Research Group

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**Most Notable Publications**


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**Research Interest Areas**

- Distributed intelligence
- Constraint programming learning theory
- Information fusion
- Artificial intelligence
- Machine learning
- Biometrics
Maj Dana F. Morrill

PhD, Applied Mathematics, Air Force Institute of Technology

Assistant Professor

Most Notable Publications

Journal Articles:

Conference Proceedings:

Refereed Conference Proceedings:

Research Interest Areas

- Numerical solutions to differential equations
- Fluid dynamics
- Numerical linear algebra
Lt Col Beau A. Nunnally
PhD, Applied Mathematics, Air Force Institute of Technology
Assistant Professor of Statistics

Most Notable Publications


Research Interest Areas

- Response Surface Methodologies
- Applications in Biostatistics
- Design of Experiments
- Linear and Non-Linear Regression
- Statistical Simulation
Dr. Mark E. Oxley
PhD, Mathematics, North Carolina State University
Professor of Mathematics

Most Notable Publications


Selected Honors & Awards

- The Gage H. Crocker Outstanding Professor Award, 2003

Significant Accomplishments


Research Interest Areas

- Partial differential equations (free and moving boundary value problems, finite-time extinction problems, differential equations in Banach spaces, reaction-diffusion equations)
- Applied analysis (functional analysis, optimization, wavelet analysis, category theory).
- Information fusion (classifier fusion, sensor fusion, evaluation of fusion techniques, receiver operating characteristic curves, manifolds, and analysis).
Dr. Christine Schubert Kabban
PhD, Applied Mathematics, Air Force Institute of Technology
Professor of Statistics

Most Notable Publications


Selected Honors & Awards

- 2018 Southwestern Ohio Council for Higher Education (SOCHE) Faculty Excellence Award

Research Interest Areas

- ROC curves
- Performance of Classification and Detection Methods
- Biostatistics
- Nonparametrics
- Regression Modeling
- Statistical Simulation
- Information Fusion and Big Data
- Epidemiology
- Structural Health Monitoring
- Feature Extraction
- Design of Experiments
- Categorical Data Analysis
Capt Jonathan S. Turner  
PhD, Applied Mathematics (Statistics), Air Force Institute of Technology  
Assistant Professor

Selected Honors & Awards

- Air Force Commendation Medal
- Air Force Achievement Medal
- Global War on Terrorism Medal

Research Interest Areas

- Combinatorics
- Design of Experiments
- Difference Sets
- Multiplier Theory
- Optimization (Deterministic and Heuristic)
- Response Surface
- Simulation (Agent Based)
Dr. Edward White  
PhD, Statistics, Texas A&M University  
Professor of Statistics

**Most Notable Publications**


**Selected Honors & Awards**

- Southwestern Ohio Council for Higher Education (SOCHE) Faculty Excellence Award winner (2016).

**Research Interest Areas**

- Design of Experiments
- Biostatistics
- Growth Curves
- Linear and Nonlinear Regression
- Categorical Data Analysis
- Log-Linear Models
- Statistical Simulation
- Response Surface Modeling
Dr. Aihua Wood
PhD, Mathematics, University of Connecticut
Professor of Mathematics

Research Interest Areas
- Partial differential equations
- Electromagnetic wave propagation
- Rarefied gas dynamics
Dr. Joseph J. Pignatiello  
**PhD, Industrial and Systems Engineering, Ohio State University**  
Department Head, Operational Sciences  
Professor of Operations Research

**Most Notable Publications**


**Selected Honors & Awards**

- 2013 Fellow, Institute of Industrial and Systems Engineers: In recognition for professional leadership and outstanding contributions to industrial engineering.

- 2006 Fellow, American Society for Quality: For outstanding leadership in the field of quality engineering as an educator; for innovative and significant research contributions in statistical process control and experiment design; and for distinguished editorial service to the quality profession.

**Research Interest Areas**

- Statistical Process Monitoring
- Change-Point Models
- Design and Analysis of Experiments
- Reliability

- Statistical Data Analysis
- Robust Design
- Six Sigma Methods
Dr. Darryl K. Ahner, P.E.
PhD, Systems Engineering (Operations Research), Boston University
Director, Scientific Test and Analysis Techniques Center of Excellence
Professor of Operations Research

Most Notable Publications


Selected Honors & Awards

• Affiliate Society Council of Dayton Outstanding Engineers & Scientists. 2017
• E. Grosvenor Plowman Award for Best Paper at Council of Supply Chain Management Professionals Global Conference. 2014
• 2012 Colonel Charles A. Stone Award (AFIT mission impact). 2012
• Legion of Merit for Analysis. 2008

Significant Accomplishments

• Program and Curriculum Chair, Data Analytics. 2019 - present
• Vice President, Secretary of the Society, Military Operations Research Society. 2016-2017
• Vice President for Professional Development, Military Operations Research Society. 2015-2016

Research Interest Areas

Lt Col Jason R. Anderson  
**PhD, Business Administration, Saint Louis University**  
Assistant Professor of Logistics and Supply Chain Management

### Most Notable Publications


### Selected Honors & Awards

- **AFIT Centennial Mentor of the Year**, 2019
- **MOAA (MILITARY OFFICERS ASSOCIATION OF AMERICA) Operational Sciences Faculty Winner**, 2019
- **AFIT ENS SOCHE Award Winner**, 2018
- **AFIT ENS Professor of the Year**, 2018
- **ASAM Professor of the Year**, 2017

### Research Interest Areas

- Transportation  
- Logistics Management  
- Inventory  
- Sourcing  
- Operations Management  
- Supply chain resilience  
- Simulation
Maj Timothy W. Breitbach
PhD, Engineering Systems, Massachusetts Institute of Technology
Assistant Professor of Logistics and Supply Chain Management

Most Notable Publications


Selected Honors & Awards

• The Major General Hugh J Knerr Exceptional Author Award, Field Grade Officer Category, The Exceptional Release
• Professor of the Year, Advanced School of Air Mobility (ASAM) 2017-18 (Selected by students)

Research Interest Areas

• Supply chain finance
• Humanitarian logistics and the role of supply chains in international development
• Supply chain resilience
• Supply chain applications of blockchain technology
Dr. Frank W. Ciarallo

PhD, Industrial Administration, Carnegie Mellon University

Associate Professor of Logistics & Supply Chain Management

Most Notable Publications


Selected Honors & Awards

- 2013 Faculty Award for Excellence in Service, College of Engineering & Computer Science, Wright State University
- 2012 Moving Spirit Award, Institute for Operations Research and the Management Sciences (INFORMS)

Significant Accomplishments

- Co-Editor, Journal of Defense Analytics & Logistics, 2019

Research Interest Areas

Dr. Lance E. Champagne
PhD, Operations Research, Air Force Institute of Technology
Assistant Professor of Operations Research

Most Notable Publications


Research Interest Areas

- Agent-based and discrete event simulation
- Applied and multivariate statistics
Lt Col Bruce A. Cox  
PhD, Industrial Engineering, Georgia Institute of Technology  
Assistant Professor of Operations Research

Most Notable Publications

Cox, B., Juditsky, A., and Nemirovski, A. “Dual subgradient algorithms for large-scale nonsmooth learning problems”  
https://doi.org/10.1007/s10107-013-0725-1

https://doi.org/10.1007/s10957-016-0949-3

Selected Honors & Awards

- Bronze Star

Research Interest Areas

- Large Scale Optimization
- Heuristic Search
- Neural Networks
- Resilient and Robust Supply Chain Network Design
- Optimal Location
Dr. William A. Cunningham III
PhD, Economics, University of Arkansas
Professor of Logistics and Supply Chain Management

Most Notable Publications


Research Interest Areas

- Strategic Mobility
- Cost/Benefit Analysis
- Econometric Modelling
- Costing
- Privatization and A-76 Studies
- Modal Choice Network Analysis
- Location Analysis
- Supply Chain Management
- RFID
Dr. Richard F. Deckro

**Doctorate of Business Administration, Decision Science, Kent State University**

Distinguished Professor of Operations Research

Joint Warfare Analysis Center Chair of Applied Operations Research

Director, Future Operations Investigation Laboratory (FOIL)

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### Most Notable Publications

- William N. Caballero, Brian J. Lunday & **Richard F. Deckro**


- J. Todd Hamill, **Richard F. Deckro** & John M. Kloeber, Jr

- Victor D. Wiley, **Richard F. Deckro**, & Jack A. Jackson,

### Selected Honors & Awards

- 2017 J. Steinhardt Prize Military Applications Society, INFORMS

- Named 1st Editor Emeritus, Military Operations Research

- 2016 Fellow, Military Operations Research Society

- Air Force Analyst Lifetime Achievement Award, 2009

- Clayton J. Thomas Award, Military Operations Research Society, 2009

### Significant Accomplishments


- Member, 2019 NATO OR&A Conference Programme Committee

### Research Interest Areas

- Information operations
- Irregular warfare
- Counterterrorism
- Social network modeling and analysis
- Applied mathematical programming and optimization
- Project and program management
- Campaign modeling
- Scheduling
- Network models
- Multi-criteria decision making
- Decision analysis
Lt Col John M. Dickens
PhD, Logistics Systems, University of North Texas
Assistant Professor of Logistics and Supply Chain Management

Most Notable Publications

- Glassburner et al., Theory of Paradox Within Service-Dominant Logic, Service Science, June 2018.

Selected Honors & Awards

- ENS 2018 Professor of the Year

Research Interest Areas

- Supply chain resilience
- Logistics service quality
- Value creation
- Value co-production and supply chain analytics
Dr. Mark A. Gallagher
PhD, Operations Research, Air Force Institute of Technology
Professor of Practice in Operations Research

Most Notable Publications


Selected Honors & Awards

- Meritorious Senior Career Professional – Presidential Rank Award (2018)
- Fellow of Society, Military Operations Research Society, 2014

Significant Accomplishments

- Chair of the Board, Snyder-Robinson Foundation, 2019-present
- Council Member, Military and Security Society, 2019-present
- INFORMS Prize Committee Chair, Institute for Operations Research and Management Sciences (INFORMS), 2019-2020
- Vice President for Society Services, Military Operations Research Society, 2009-2010

Research Interest Areas

- Military force structure analysis
- Model resolution
- Bayesian analysis
Dr. Raymond R. Hill Jr.
PhD, Industrial and Systems Engineering, Ohio State University
Professor of Operations Research

Most Notable Publications


Selected Honors & Awards

• Air Force Outstanding Science and Engineering Educator Award (2016)
• Affiliates Societies Council Outstanding Engineer and Scientist’s Award (2016)
• AETC Nominee for Air Force Senior Analyst of the Year (2016)

Research Interest Areas

• Applied Statistics
• Mathematical Optimization
• Heuristic Search Methods
• Applied Simulation Modeling/Analysis
• Agent Based Modeling
• Validation
Maj Timothy W. Holzmann
PhD, Industrial Engineering, Clemson University
Assistant Professor of Operations Research

Most Notable Publications


Significant Accomplishments

• Distinguished Graduate, (AFIT) 2009
• Dean’s Award (AFIT) 2009

Research Interest Areas

• Network optimization
• Game theory
• Algorithm design
• Optimization under uncertainty
Capt Phillip R. Jenkins
PhD, Operations Research, Air Force Institute of Technology
Assistant Professor of Operations Research

Most Notable Publications


Selected Honors & Awards

- General Omar N. Bradley Research Fellowship in Mathematics, United States Military Academy, 2019
- Seth Bonder Scholarship for Applied Operations Research in Military Applications, Military and Security Society, 2018
- Richard H. Barchi Prize, Military Operations Research Society, 2018

Significant Accomplishments

- Distinguished Graduate, Squadron Officer School 2019
- Distinguished Graduate, M.S. in Operations Research Program (AFIT) 2017

Research Interest Areas

- Dynamic programming
- Approximate dynamic programming
- Markov decision processes
- Stochastic programming
- Applied statistics
- Multi-objective optimization
Dr. Seong-Jong Joo  
**PhD, Business Administration, Saint Louis University**  
Professor of Logistics & Supply Chain Management

### Most Notable Publications


### Selected Honors & Awards

- School of Business Outstanding Professor Award, April 21, 2014
- Enterprise Rent-A-Car Student’s Choice Award for Outstanding Faculty Member, May 4, 2012
- School of Business Outstanding Professor Award, April 18, 2012

### Research Interest Areas

- Supply chain strategies
- Sourcing
- Inventory management
- Transportation
- Survival/event history analysis
- Performance measurement
Lt Col Phillip M. LaCasse
PhD, Industrial & Manufacturing Engineering, University of Wisconsin, Milwaukee
Assistant Professor of Operations Research

Most Notable Publications


Research Interest Areas

- Operations research
- Applied statistics
- Smart manufacturing
- Machine learning
- Big data
Most Notable Publications


Selected Honors & Awards

- Professor Ezra Kotcher Award, Wright Memorial Chapter, Air Force Association, 2019
- Lessons Learned Senior Civilian Professional of the Year, United States Air Force, 2018
- Faculty Excellence Award, Southern Ohio Consortium of Higher Education (SOCHE), 2017
- Outstanding Young Member OR/MS Award, INFORMS Cincinnati-Dayton Chapter, 2016

Significant Accomplishments

- Vice President and President-elect, Military & Security (MAS) Society, Institute for Operations Research and Management Sciences (INFORMS), 2019-2020
- Chair, INFORMS Ad Hoc Committee on Effective Subdivision Practices, Institute for Operations Research and Management Sciences (INFORMS), 2019

Research Interest Areas

- Theoretical developments in math programming
- Game theoretic models
- Algorithmic design for global optimization
- Applications to the areas of network design, network optimization, network interdiction, network restoration, facility/resource location, and resource location/ allocation & assignment
Dr. John O. Miller
PhD, Industrial Engineering, Ohio State University
Associate Professor of Operations Research

Most Notable Publications


Research Interest Areas

- Computer Simulation
- Ranking and Selection
- Agent Based Modeling
- Opinion Dynamics
- Combat Modeling
Dr. Matthew JD Robbins  
**PhD, Industrial Engineering, University of Illinois**  
Associate Professor of Operations Research

### Most Notable Publications


### Selected Honors & Awards

- Richard H. Barchi Prize (Military Operations Research Society) 2018
- Outstanding Young Member Award (INFORMS, Cincinnati-Dayton Chapter) 2014
- Pritsker Doctoral Dissertation Award – First Place (Institute of Industrial Engineers) 2011

### Significant Accomplishments

- Associate Editor, Military Operations Research (2019-present)
- Associate Editor, Naval Research Logistics (2019-present)
- President, INFORMS Cincinnati-Dayton Chapter (2019)
- Vice-President, INFORMS Cincinnati-Dayton Chapter (2018)
- Elected Council Member, INFORMS Military and Security Society (2019-2020)

### Research Interest Areas

Computational stochastic optimization – the design, development, and testing of approximate dynamic programming and reinforcement learning algorithms that utilize simulation, mathematical programming, and machine learning techniques to solve large-scale sequential decision-making problems under uncertainty; application areas include the dispatch of military medical evacuation assets, the routing of military distribution assets, and the battle management of mobile, autonomous systems.
Maj Thomas P. Talafuse
PhD, Industrial Engineering, University of Arkansas
Deputy Director, Statistical Test & Analysis Techniques Center of Excellence
Assistant Professor of Operations Research

Most Notable Publications


Selected Honors & Awards

• University of Arkansas Department of Industrial Engineering Graduate Research Award, 2016
• Dr. James T. Moore Graduate Research Prize for Outstanding Thesis (MORS), Air Force Institute of Technology, 2011

Research Interest Areas

• Reliability and reliability growth
• Risk analysis
• Applied statistics
• Engineering optimization
Dr. Jeffery D. Weir  
PhD, Industrial Engineering and Operations Research,  
Georgia Institute of Technology  
Associate Head, Operational Sciences  
Professor of Operational Sciences

Most Notable Publications


Research Interest Areas

- Decision Analysis
- Applied Statistics
- Deterministic Optimization
Lt Col Marcelo Zawadzki
PhD, Operations Research, Technological Institute of Aeronautics/
London School of Economics and Political Science
Assistant Professor of Operations Research

**Most Notable Publications**


**Research Interest Areas**

- Risk Analysis
- Decision Analysis
- Problem Structuring Methods
Dr. Michael R. Grimaila, CISM, CISSP  
PhD, Computer Engineering, Texas A&M University  
Department Head, Systems Engineering & Management  
Professor of Systems Engineering

**Most Notable Publications**


**Selected Honors & Awards**

• AFIT Board of Visitors Colonel Charles Stone Award (2012).


• Senior Member IEEE (2005).

**Significant Accomplishments**

• Corresponding Editor, Journal of Defense Modeling and Simulation, 2018-Present.


• Assistant Editor, The Defense Cyber Review, Army Cyber Institute, West Point, 2016-Present.

**Research Interest Areas**

- Civil Defense / CBRNE Response
- Computer and Network Security
- Quantum Networking
- Modeling and Simulation
- Systems Engineering
Dr. Christopher M. Chini  
**PhD, Civil Engineering, University of Illinois at Urbana-Champaign**  
Assistant Professor

### Most Notable Publications


### Selected Honors & Awards

- UCOWR Ph.D. Dissertation Award in Water Policy and Socio-Economics, 2019
- ASCE EWRI Conference Student Sustainability Presentation Competition Winner, 2016
- National Science Foundation Graduate Research Fellowship (NSF-GRFP), 2015
- Department of the Army Achievement Medal for Civilian Service, 2013

### Significant Accomplishments


### Research Interest Areas

- Energy and Water Nexus
- Resource Conservation
- Installation Resilience
- Climate Change Impacts on the DOD
- Resilience Planning
Dr. John M. Colombi  
PhD, Electrical Engineering, Air Force Institute of Technology  
Professor of Systems Engineering

**Most Notable Publications**

*Author or coauthor on over 100 publications*


**Selected Honors & Awards**

- 2019: Primary advisor for 173 students on 109 projects; Committee member on 129 more students
- 2019: AFIT Leadership Award – Senior Faculty
- 2018: Senior Member, IEEE
- 2017: ABET Program Evaluator for Systems Engineering
- 2015: Southwest Ohio Council for Higher Education (SOCHE) Faculty Excellence Award
- 2015: Department Best Teacher Award; 2012, 2011 Department Educator of the Year
- 2011: Ohio Magazine Excellence in Education

**Significant Accomplishments**

Served 21 years active duty in the US Air Force (retired LtCol) as a Developmental Engineer, taking a variety of research, engineering and management assignments, including:

- Program Manager, Command and Control (C2) Enterprise;
- Chief Engineer, Airborne Warning and Control System (AWACS) Systems;
- Chief, AWACS Command and Control Programs Integrated Product Team;
- Chief, Defensive Information Operations Research Team, National Security Agency; and
- Communication Systems Engineer, Rome Laboratories

**Research Interest Areas**

- Model-based Systems Engineering (MBSE) for conceptual trade space exploration
- Autonomous aircraft design and test
- Complex adaptive systems
- Acquisition research
- Human systems integration
Maj Casey W. Cooper  
PhD, University of Oklahoma Health Sciences Center 
Assistant Professor of Industrial Hygiene

Most Notable Publications


Selected Honors & Awards

- Meritorious Service Medal, 2016
- Air Mobility Command, Biomedical Specialist of the Year, 2014
- 19th Medical Group Field Grade Officer of the Year, 2014
- Afghanistan Campaign Medal, 2014

Research Interest Areas

- Biodefense
- CBRN Countermeasures
- Bioaerosols
- Healthcare Acquired Infections
- Environmental Health
- Occupational Health
Lt Col Amy M. Cox
PhD, Systems Engineering, The George Washington University
Assistant Professor of Systems Engineering

Most Notable Publications

Selected Honors & Awards
- 2015: Merrit Williamson Best Conference Paper Award, American Society for Engineering Management
- 2012: Outstanding Air Force Program Manager, ACAT III or Equivalent
- 2011: Joint Service Achievement Medal, Achievement
- 2005: Distinguished Graduate, Defense Language Institute (French)

Significant Accomplishments
- Developed prototype degree program for Acquisitions Managers; first two Systems Management students graduated in March 2019
- Brevet, Flight Test Engineer, École du Personnel Navigant d’Essais et de Réception, Istres, FR, Specialization in Rotary Wing Aircraft, July 2006

Research Interest Areas
- User Innovation
- Innovation Portfolio Performance
- System Design and Architecture
- Social Network Analysis
- UAV Flight Test and Performance
Maj Justin D. Delorit, P.E.
PhD, Civil and Environmental Engineering, University of Wisconsin-Madison
Assistant Professor of Engineering Management

Most Notable Publications


Selected Honors & Awards

- Best Reviewer, Journal of Water Resources Planning and Management, 2018
- Air Force Arthur S. Flemming Award for Basic Science, 2018
- Federal Engineer of the Year, 2018
- University of Wisconsin James R. Villemonte Excellence in Research, 2018
- University of Wisconsin K. Patricia Cross Future Leaders Award, 2018

Research Interest Areas

- Resilient Installations
- Climate forecasting
- Climate change adaptation policy
- Energy-use and economic modelling
- Coupled human-natural systems
Maj Scott T. Drylie
PhD, Economics, George Mason University
Cost Analysis Program Chair

Research Interest Areas

- Economics of Institutions and Constitutions
- History of Thought
- Incentives, Information, and Coordination Issues
- Industrial Psychology
- Game Theory
Dr. John J. Elshaw
PhD, Management, Purdue University
Assistant Professor of Management

Most Notable Publications


Research Interest Areas

- Leadership, Human-Technology interaction (virtual teams, electronic monitoring, distance leadership)
- Learning curves and the impact on acquisition
- Workgroup and team processes within organizations, social networks, organizational climate and culture
- Cross-cultural leadership and communication
- Cognition and emotions
- Motivation (self-regulation, intrinsic versus extrinsic control)
- Human performance
- Organizational trust, performance, and commitment
Maj Ryan D. L. Engle  
**PhD, Systems Engineering, Air Force Institute of Technology**  
Assistant Professor of Systems Engineering

### Most Notable Publications


### Selected Honors & Awards

- Tau Beta Pi Engineering Honor Society
- Air Force Commendation Medal with three oak leaf clusters
- Air Force Achievement Medal with one oak leaf cluster
- Afghanistan Campaign Medal with one bronze star
- Global War on Terrorism Medal
- Air and Space Campaign Medal with one bronze star

### Research Interest Areas

- Data storage and retrieval systems
- Databases
- Data analytics
- Cyber security
- Modeling and simulation
- Quantum-based communications
- Software-defined radio applications
Dr. Robert David Fass
PhD, Business Administration, New Mexico State University
Assistant Professor of Systems Integration and Cost Analysis

**Most Notable Publications**


**Selected Honors & Awards**

- Phi Beta Kappa, 1989

**Significant Accomplishments**

- Delivers graduate education supported by 20-year military career (ret, Lt Col) as a warranted Contracting Officer (64P) in Defense Acquisition
- Thesis chair/committee member on over 50 defense acquisition related research projects since 2008
- Enhanced quantitative rigor of cost program curriculum with existing course enhancements and new courses

**Research Interest Areas**

Dr. Thomas C. Ford
PhD, Systems Engineering, Air Force Institute of Technology
Assistant Professor of Systems Engineering

Most Notable Publications


Selected Honors & Awards


Significant Accomplishments

- Delivers graduate education supported by 22-year military career (ret, Lt Col) as Developmental Engineer (62E) in Defense Acquisition
- Teaches online Systems Engineering Masters courses to military and civilian, current and future, Lead- and Chief-Engineers as well as Operators throughout CONUS and OCONUS
- Served on committee for two PhD students, advised or served on committee for 13 MS students performing Air Force-focused research
- Re-designed and modernized SENG520 Systems Engineering Design

Research Interest Areas

- Model-based Systems Engineering (MBSE)
- System Interoperability
- Modeling and Simulation Systems Design & Modeling
- Agile Software Systems Engineering
Maj Jason K. Freels  
PhD, Systems Engineering, Air Force Institute of Technology  
Assistant Professor of Systems Engineering

**Most Notable Publications**


**Selected Honors & Awards**

- 2016 Richard H. Barchi Prize - Military Operations Research Society, Recognizing the best paper given at the MORS Symposium
- 2013 Lloyd S. Nelson Award - American Society for Quality, Recognizing the technical paper providing the greatest immediate impact to practitioners

**Research Interest Areas**

- Data Analytics / Data Science
- Text Mining / Natural Language Processing
- Bayesian Statistical Methods
- System Risk & Reliability Prediction
- Reproducible Research
- System Degradation Modeling
Dr. Mark N. Goltz  
**PhD, Environmental Engineering and Science, Stanford University**  
Distinguished Professor Emeritus of Environmental Engineering and Science

### Most Notable Publications


### Selected Honors & Awards

- AFIT Distinguished Professor, 2015
- AFIT Graduate School of Engineering and Management Charles P. Brothers Outstanding Volunteer Service Award, 2014
- Fellow, Society of American Military Engineers, 2009

### Research Interest Areas

Groundwater contamination remediation technologies, Fate and transport of organic contaminants in the subsurface, Stimulating commercialization of environmental remediation technologies, Mathematical modeling of contaminant transport by groundwater, In situ bioremediation of chlorinated organic compounds in the subsurface, Scaling-up from the laboratory to the field, Physical and chemical water and wastewater treatment technologies, and Environmental modeling.
Dr. Willie F. Harper Jr.

PhD, Civil and Environmental Engineering, University of California, Berkeley

Professor of Environmental Engineering and Science

Most Notable Publications


Selected Honors & Awards

- Embassy Science Fellow (Togo), 2017-2018
- John L. McLucas Basic Research Award, 2016

Research Interest Areas

- Water quality, including biological and chemical treatment methods
Lt Col Andrew J. Hoisington
PhD, Environmental Engineering, University of Texas, Austin
Assistant Professor of Systems Engineering
GEM Curriculum Chair

Most Notable Publications


Selected Honors & Awards

• Society of American Military Engineers Educator of the Year, United States Air Force Academy Outstanding Academy Educator

Significant Accomplishments

• Led first ever DoD conference on microbiome of the built environment
• Principal Investigator on largest microbiome study to date in DoD
• Leads 20 students/year in master’s degree program

Research Interest Areas

• Microbiome of the Built Environment
• Built Environment and Mental Health
• Indoor Air Quality
• Biofingerprinting
• Microbiome and Mental Health
Dr. David R. Jacques  
PhD, Aeronautical Engineering, Air Force Institute of Technology  
Professor of Systems Engineering

**Most Notable Publications**


**Research Interest Areas**

Dr. Jacques is leading research in the area of effective multi-vehicle control for flexible reconnaissance and surveillance operations. As part of this work, he has been utilizing a tailored SE process for rapid conceptualization/design/build/test cycles to enable flight test evaluation of new operational concepts within a 9-12 month cycle time, with this work drawing in students and faculty from multiple departments. He especially enjoys research in the area of optimal design, where system effectiveness is used as the design objective as opposed to lower level subsystem performance measures. He is actively interested in using System Architecture as an analytic basis using methods from graph theory and/or discrete-event simulation.

**Selected Honors & Awards**

- 2016 – General Bernard Schriever Award for CY 2015
Lt Col Clay M. Koschnick
PhD, Industrial and Systems Engineering, University of Florida
Assistant Professor of Systems Engineering

Most Notable Publications


Research Interest Areas

- Engineering Economy
- Decision Analysis
- Econometrics
Maj Joseph P. Kristbaum
PhD, Human Factors Engineering, Wright State University
Assistant Professor of Systems Engineering

**Most Notable Publications**


**Selected Honors & Awards**

- Meritorious Service Medal
- Air Force Commendation Medal with oak leaf cluster
- Global War On Terrorism Expeditionary Medal
- Global War on Terrorism Service Medal

**Research Interest Areas**

- Organizational Behavior
- Judgement and Decision Making
- Optimization

- Human Systems Integration
- Human Systems Modeling
Dr. Brent T. Langhals
PhD, Management Information Systems, University of Arizona
Assistant Professor of Information Resource Management

Most Notable Publications


Selected Honors & Awards

• 2018 – AFIT Sigma Iota Epsilon Instructor of the Year
• 2013 – Department of Systems Engineering and Management Educator of the Year

Significant Accomplishments

• US Patent No. 9,667,947, Issued 30 May 2017 for “Stereoscopic 3-D Presentation for Air Traffic Control Digital Radar Displays” to SMSgt Jason Russi, Dr. Brent Langhals, Dr. Michael Miller, Mr. Eric Heft.

Research Interest Areas

• Data analytics
• Database
• Human-computer interaction
• Systems engineering
• Psychophysiological cues and vigilance
Dr. David S. Long
PhD, Engineering Systems with Human Factors, Massachusetts Institute of Technology
Assistant Professor of Systems Engineering

Research Interest Areas

- Systems integration
- System analysis
- Performance analysis
- Human factors application and instruction
- Aircraft maintenance
- Flight test
- System development
- Sub-system development
- System integration
- System maintenance
- Process improvements
- Human factors and integration
Dr. Eric G. Mbonimpa  
**PhD, Environmental Engineering, Purdue University**  
Assistant Professor of Environmental Engineering and Science

### Most Notable Publications


Emery I., **E. Mbonimpa**, A. Thal. “Climate-based policies may increase life cycle social costs of vehicle fleet operation.” *Energy Policy* 101, 1-9, 2017

### Significant Accomplishments


### Research Interest Areas

- Environmental Sustainability
- Life Cycle Assessment
- Water Quality and Treatment
- Energy Sustainability
- Natural Resource Management
- Contaminants Transport
- Environmental Policy
- Environmental Systems Modeling
Dr. Michael E. Miller
PhD, Industrial and Systems Engineering, Virginia Tech
Associate Professor of Systems Integration

Most Notable Publications


Selected Honors & Awards

- Southwestern Ohio Council for Higher Education Faculty Excellence Award, 2017

Significant Accomplishments

- Sixteen years of industry experience as a systems/human factors engineer in multi-national corporations.
- Contributed to more than 100 issued U.S. Patents in digital imaging, electronic displays, and user interface.
- Inventor of the RGBW pixel format employed by LG Electronics in OLED television.

Research Interest Areas

- Human-Machine Teaming
- Human Systems Integration
- Data Visualization
Dr. Mark G. Reith, CEH, CISSP  
PhD, Computer Science, University of Texas at San Antonio  
Assistant Professor of Cyber Systems

**Most Notable Publications**


**Selected Honors & Awards**

- Army Commendation Medal (2018)
- AFIT Team of the Quarter (2017)
- Bernard A. Schriever Essay Contest Winner (2017)

**Served in command positions contributing toward:**

- 67th Cyberspace Wing rated “Highly Effective” (AFSPC/IG, 2016)
- 690th Network Support Squadron rated “Highly Effective” (67 CW/IG, 2015)
- 67th Cyberspace Wing awarded 2013 Omaha Trophy (USSTRATCOM)
- 67th Cyberspace Wing awarded 2012 General Moorman Award (AFSPC)
- Joint Service Accommodation Medal (2011)
- Afghanistan Campaign Medal (2011)
- AFIT Field Grade Officer of the Quarter (2010)
- Outstanding Contributor Award (peer selection, Squadron Officer School, 2005)
- 6th Air Refueling Wing Company Grade Officer of the Quarter (2001)
- Young AFCEA Member of the Year, featured in Signal Magazine (2001)

**Significant Accomplishments**

- Featured in Wright-Patterson AFB’s *Skywrighter* article “Research Project Evolves into Cyber Education Hub” by Stacy Geiger (2 August 2019).

**Research Interest Areas**

- Cyber Education
- Cyber Situational Awareness & Mission Assurance
- Multi-domain Operations
- Cyber Warfare Theory
- Insider Threats
- Engineering Security into Software
- Software Exploitation
- Malicious Code
- Detection and Counter Technologies
- Artificial Intelligence
Dr. Jonathan D. Ritschel  
PhD, Economics, George Mason University  
Program Chair, Cost Analysis  
Assistant Professor of Cost Analysis

Most Notable Publications


Selected Honors & Awards

- DoD Financial Management Certification, Level 3 (2017)

Significant Accomplishments

- Delivers graduate education supported by 20-year military career (ret. Lt Col) as Cost Analyst (65W) in Defense Acquisition.
- Advised 12 students and served on 36 more committees engaged in relevant defense-sponsored topics.

Research Interest Areas

- Economics
- Cost and schedule analysis
- Public choice
- Operating and support costs
- Effects of acquisition reforms on cost growth in DoD weapon systems
- Research and development cost estimation
- Economic institutional analysis
Maj Steven J. Schuldt, P.E.

PhD, Civil Engineering, University of Illinois at Urbana-Champaign

Assistant Professor of Engineering Management

**Most Notable Publications**


**Selected Honors & Awards**

- AFIT Leslie M. Norton Teaching Excellence Award, 2019
- Air Force Major General L. Dean Fox Award, 2018
- Air Education and Training Command Field Grade Officer of the Year, 2018
- National Society of American Military Engineers Sverdrup Medal, 2018
- Air Force Arthur S. Flemming Award for Basic Science, 2017
- Air Force Federal Engineer of the Year, 2017
- Kunsan Air Base Field Grade Officer of the Year, 2017

**Research Interest Areas**

- Installation Resilience
- Project Management
- Construction Management

- Optimal Resource Utilization
- Sustainability
Maj John X. Situ
PhD, Systems Engineering & Operations Research, George Mason University
Assistant Professor of Systems Engineering

Most Notable Publications


Selected Honors & Awards

- Meritorious Service Medal
- Air Force Commendation Medal

Research Interest Areas

- Decision Analysis
- Stochastic Optimization
- Meta-heuristics
- Modeling & Simulation
- Dynamic Programming
Dr. Jeremy M. Slagley, CIH, CSP
PhD, Occupational Safety and Health, West Virginia University
Assistant Professor of Industrial Hygiene and Environmental Science

Most Notable Publications


Selected Honors & Awards
• 2018 Southwest Ohio Council for Higher Education (SOCHE) Faculty Excellence
• 2017 AFIT Cat III Civilian of the Quarter
• 2011 Best Journal Publication Award, American Industrial Hygiene Association (AIHA), Engineering Committee

Significant Accomplishments
• ABET Program Evaluator
• Member, Noise Committee, AIHA (2004-present) [Chair 2015-2016; 2018-2019]

Research Interest Areas
• Engineering controls of occupational health hazards
• Exposure assessment strategies
• Hazardous noise

• Aerosols
• CBRN detection and decontamination
Lt Col John E. Stubbs
PhD, Systems Engineering, Air Force Institute of Technology
Deputy Department Head, Systems Engineering and Management
Assistant Professor and Program Chair of Environmental Engineering and Science

Most Notable Publications


Selected Honors & Awards

• Meritorious Service Medal, 2014

Significant Accomplishments


Research Interest Areas

• Physical water treatment processes
• Chemical water treatment processes
• Water treatment trains
• Environmental sustainability
Dr. Alfred E. Thal, Jr.
PhD, Environmental Engineering, University of Oklahoma
Associate Professor of Engineering Management

Most Notable Publications


Selected Honors & Awards

• Sigma Iota Epsilon (SIE) Management Instructor of the Year, 2015
• Best Application Paper Award, Western Decision Sciences Institute (WDSI) Annual Meeting, Maui, Hawaii, 31 Mar-3 Apr, 2015
• Best Paper Award in Engineering Economy Track, Industrial and Systems Engineering Research Conference (ISERC), Orlando, Florida, May 19-23, 2012
• Merritt A. Williamson Best Conference Paper Award, American Society of Engineering Management (ASEM), Rogers, Arkansas, October 13-16, 2010

Research Interest Areas

• Engineering management
• Facility/infrastructure management
• Project management
• Risk management
• Economic analysis
• Innovation
• Sustainability
• Process improvement
Lt Col Torrey J. Wagner
PhD, Electrical Engineering, Air Force Institute of Technology
Assistant Professor of Systems Engineering

Most Notable Publications


Selected Honors & Awards

• 2018 – Edward Hirsch writing competition award, Defense Acquisition University

Significant Accomplishments

• Developed a 3 course graduate Energy Systems Engineering track for the Systems Engineering program (2019)

• Meritorious Service Medal, 3rd oak leaf cluster (2017)

• Defense Meritorious Service Medal (2013)

Research Interest Areas

• Energy Systems Engineering
**FACULTY DIRECTORY**

### DEPARTMENT OF AERONAUTICS & ASTRONAUTICS

<table>
<thead>
<tr>
<th>Name</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maj Robert Bettinger</td>
<td>7</td>
</tr>
<tr>
<td>Maj Brian Bohan</td>
<td>8</td>
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<tr>
<td>Dr. Richard Cobb</td>
<td>9</td>
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<td>Dr. Ramana Grandhi</td>
<td>10</td>
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<td>Dr. Robert Greendyke</td>
<td>11</td>
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<td>Dr. Carl Hartfield</td>
<td>12</td>
</tr>
<tr>
<td>Maj Joshua Hess</td>
<td>13</td>
</tr>
<tr>
<td>Lt Col Kirk Johnson</td>
<td>14</td>
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<td>Maj Ryan Kemnitz</td>
<td>15</td>
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<tr>
<td>Dr. Andrew Keys</td>
<td>16</td>
</tr>
<tr>
<td>Lt Col Jeffrey Komives</td>
<td>17</td>
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<tr>
<td>Dr. Donald Kunz</td>
<td>18</td>
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<td><strong>Dr. Bradley Liebst</strong></td>
<td>19</td>
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<td>Lt Col Bryan Little</td>
<td>20</td>
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<td>Dr. Anthony Palazotto</td>
<td>21</td>
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<td>Dr. Marc Polanka</td>
<td>22</td>
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<tr>
<td>Dr. Mark Reeder</td>
<td>23</td>
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<tr>
<td>Dr. Marina Ruggles-Wrenn</td>
<td>24</td>
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<td>Lt Col James Rutledge</td>
<td>25</td>
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<tr>
<td>Dr. Fred Schauer</td>
<td>26</td>
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<tr>
<td>Maj Levi Thomas</td>
<td>27</td>
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<tr>
<td>Lt Col Michael Walker</td>
<td>28</td>
</tr>
<tr>
<td>Dr. William Wiesel</td>
<td>29</td>
</tr>
<tr>
<td>Maj Costantinos Zagaris</td>
<td>30</td>
</tr>
</tbody>
</table>

### DEPARTMENT OF ENGINEERING PHYSICS

<table>
<thead>
<tr>
<th>Name</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dr. William Bailey</td>
<td>64</td>
</tr>
<tr>
<td>Maj James Bevins</td>
<td>65</td>
</tr>
<tr>
<td>Dr. Abigail Bickley</td>
<td>66</td>
</tr>
<tr>
<td>Dr. Santasi Rose-Pillai</td>
<td>67</td>
</tr>
<tr>
<td>Dr. Larry Burggraf</td>
<td>68</td>
</tr>
<tr>
<td><strong>Lt Col Kenneth Burgi</strong></td>
<td>69</td>
</tr>
<tr>
<td>Lt Col Samuel Butler</td>
<td>70</td>
</tr>
<tr>
<td>Dr. Michael Caylor</td>
<td>71</td>
</tr>
<tr>
<td>Dr. Justin Clinton</td>
<td>72</td>
</tr>
<tr>
<td>Lt Col Michael Dexter</td>
<td>73</td>
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<tr>
<td>Maj Daniel Emmons</td>
<td>74</td>
</tr>
<tr>
<td>Maj James Fee</td>
<td>75</td>
</tr>
<tr>
<td>Dr. Manuel Ferdinandus</td>
<td>76</td>
</tr>
<tr>
<td>Lt Col Anthony Franz</td>
<td>77</td>
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<tr>
<td>Dr. Nancy Giles</td>
<td>78</td>
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<tr>
<td>Dr. Michael Hawks</td>
<td>79</td>
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<tr>
<td>Maj Nicholas Herr</td>
<td>80</td>
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<tr>
<td>Lt Col Edward Hobbs</td>
<td>81</td>
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<tr>
<td>Lt Col Michael Hopsed</td>
<td>82</td>
</tr>
<tr>
<td>Dr. Darren Holland</td>
<td>83</td>
</tr>
<tr>
<td>CDR Royce James</td>
<td>84</td>
</tr>
<tr>
<td>Lt Col Christopher Lenyk</td>
<td>85</td>
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<tr>
<td>Dr. Robert Loper</td>
<td>86</td>
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<tr>
<td>Dr. Kirk Matthews</td>
<td>87</td>
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<td>Dr. Michael Marciak</td>
<td>88</td>
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<td>Dr. John McClory</td>
<td>89</td>
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<td>Dr. Jack McCrae</td>
<td>90</td>
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<td>Maj Omar Nava</td>
<td>91</td>
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<td>Dr. Michael Pak</td>
<td>92</td>
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<td>93</td>
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<td>Dr. Glen Peram</td>
<td>94</td>
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<td>Dr. James Petrosky</td>
<td>95</td>
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<td>Dr. Grady Phillips</td>
<td>96</td>
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<td>Dr. Christopher Rice</td>
<td>97</td>
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<td>Dr. Heidi Ries</td>
<td>98</td>
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<td>Dr. Adib Samin</td>
<td>99</td>
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<td>Lt Col Michael Shattan</td>
<td>100</td>
</tr>
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<td>Dr. Bryan Steward</td>
<td>101</td>
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<td>Lt Col Robert Tournay</td>
<td>102</td>
</tr>
<tr>
<td>Maj Rose Tseng</td>
<td>103</td>
</tr>
<tr>
<td>Dr. Ronald Tuttle</td>
<td>104</td>
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<tr>
<td>Lt Col Gaven Varshney</td>
<td>105</td>
</tr>
<tr>
<td>Dr. David Weeks</td>
<td>106</td>
</tr>
<tr>
<td>Dr. Paul Wolf</td>
<td>107</td>
</tr>
</tbody>
</table>

### DEPARTMENT OF ELECTRICAL & COMPUTER ENGINEERING

<table>
<thead>
<tr>
<th>Name</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maj David Becker</td>
<td>31</td>
</tr>
<tr>
<td>Maj Joan Betances</td>
<td>32</td>
</tr>
<tr>
<td>Dr. Brett Borghetti</td>
<td>33</td>
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<tr>
<td>Dr. Stephen Cain</td>
<td>34</td>
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<td>Capt Aaron Cancini</td>
<td>35</td>
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<td>Dr. Hengky Chandralalim</td>
<td>36</td>
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<td>Dr. Peter Collins</td>
<td>37</td>
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<td>Lt Col Mark DeYoung</td>
<td>38</td>
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<tr>
<td>Maj Richard Dill</td>
<td>39</td>
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<td>Dr. Scott Graham</td>
<td>40</td>
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<td>Dr. Sanjeev Gunawardena</td>
<td>41</td>
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<td>Maj Nicolas Hamilton</td>
<td>42</td>
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<td>Dr. Michael Havrilla</td>
<td>43</td>
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<td>Dr. Douglas Hodson</td>
<td>44</td>
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<td><strong>Dr. Kenneth Hopkinson</strong></td>
<td>45</td>
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<td>Dr. Julie Jackson</td>
<td>46</td>
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<td>Lt Col David King</td>
<td>47</td>
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<td>Dr. Gary Lamont</td>
<td>48</td>
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<td>Maj Todd Laurick</td>
<td>49</td>
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<td>Dr. Robert Leishman</td>
<td>50</td>
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<td>Maj James Livesay</td>
<td>51</td>
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<tr>
<td>Dr. Richard Martin</td>
<td>52</td>
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<tr>
<td>Dr. Laurence Merkle</td>
<td>53</td>
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<td>Dr. Robert Mills</td>
<td>54</td>
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<td>Dr. Barry Mullins</td>
<td>55</td>
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<td>Lt Col George Noel</td>
<td>56</td>
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<td>Lt Col Scott Nyki</td>
<td>57</td>
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<tr>
<td>Dr. Michael Pachter</td>
<td>58</td>
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<td>Dr. Gilbert Peterson</td>
<td>59</td>
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<tr>
<td>Lt Col Patrick Sweeney</td>
<td>60</td>
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<tr>
<td>Dr. Clark Taylor</td>
<td>61</td>
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<tr>
<td>Dr. Michael Temple</td>
<td>62</td>
</tr>
<tr>
<td>Dr. Andrew Tenzuoli</td>
<td>63</td>
</tr>
</tbody>
</table>

### DEPARTMENT OF MATHEMATICS & STATISTICS

<table>
<thead>
<tr>
<th>Name</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dr. Benjamin Akers</td>
<td>109</td>
</tr>
<tr>
<td>Maj Timothy Anderson</td>
<td>110</td>
</tr>
<tr>
<td>Dr. William Baker</td>
<td>111</td>
</tr>
<tr>
<td>Maj Eric Brooks</td>
<td>112</td>
</tr>
<tr>
<td>Dr. Dursun Bulutoglu</td>
<td>113</td>
</tr>
<tr>
<td>Dr. Matthew Ficks</td>
<td>114</td>
</tr>
<tr>
<td>Lt Col Andrew Geyer</td>
<td>115</td>
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<tr>
<td>Lt Col Robert Hartlage</td>
<td>116</td>
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<tr>
<td>Lt Col Jeremy Jordan</td>
<td>117</td>
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<td><strong>Dr. Alan Lair</strong></td>
<td>118</td>
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<tr>
<td>Capt Tony Liu</td>
<td>119</td>
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<tr>
<td>Dr. Amy Magnus</td>
<td>120</td>
</tr>
<tr>
<td>Maj Dana Morrill</td>
<td>121</td>
</tr>
<tr>
<td>Lt Col Beau Nunnally</td>
<td>122</td>
</tr>
<tr>
<td>Dr. Mark Oxley</td>
<td>123</td>
</tr>
<tr>
<td>Dr. Christine Schubert-Kabban</td>
<td>124</td>
</tr>
<tr>
<td>Capt Jonathan Turner</td>
<td>125</td>
</tr>
<tr>
<td>Dr. Edward White</td>
<td>126</td>
</tr>
</tbody>
</table>

### DEPARTMENT OF OPERATIONAL SCIENCES

<table>
<thead>
<tr>
<th>Name</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dr. Darryl Ahner</td>
<td>128</td>
</tr>
<tr>
<td>Lt Col Jason Anderson</td>
<td>129</td>
</tr>
<tr>
<td>Maj Timothy Breitbach</td>
<td>130</td>
</tr>
<tr>
<td>Dr. Frank Ciariello</td>
<td>131</td>
</tr>
<tr>
<td>Dr. Lance Champagne</td>
<td>132</td>
</tr>
<tr>
<td>Lt Col Bruce Cox</td>
<td>133</td>
</tr>
<tr>
<td>Dr. William Cunningham</td>
<td>134</td>
</tr>
<tr>
<td>Dr. Richard Decroko</td>
<td>135</td>
</tr>
<tr>
<td>Lt Col John Dickens</td>
<td>136</td>
</tr>
<tr>
<td>Dr. Mark Gallagher</td>
<td>137</td>
</tr>
<tr>
<td>Lt Col Raymond Hill</td>
<td>138</td>
</tr>
<tr>
<td>Maj Timothy Holzmann</td>
<td>139</td>
</tr>
<tr>
<td>Capt Phillip Jenkins</td>
<td>140</td>
</tr>
<tr>
<td>Dr. Seong-Jong Joo</td>
<td>141</td>
</tr>
<tr>
<td>Lt Col Phillip LaCasse</td>
<td>142</td>
</tr>
<tr>
<td>Dr. Brian Lunny</td>
<td>143</td>
</tr>
<tr>
<td>Dr. John Miller</td>
<td>144</td>
</tr>
<tr>
<td>Dr. Matthew JD Robbins</td>
<td>145</td>
</tr>
<tr>
<td><strong>Dr. Joseph Pignatiello</strong></td>
<td>146</td>
</tr>
<tr>
<td>Maj Thomas Talafuse</td>
<td>147</td>
</tr>
<tr>
<td>Dr. Jeffery Weir</td>
<td>148</td>
</tr>
<tr>
<td>Lt Col Marcelo Zawadzki</td>
<td>149</td>
</tr>
</tbody>
</table>

### DEPARTMENT OF SYSTEMS ENGINEERING & MANAGEMENT

<table>
<thead>
<tr>
<th>Name</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dr. Adejeji Badiri</td>
<td>150</td>
</tr>
<tr>
<td>Dr. Christopher Chini</td>
<td>151</td>
</tr>
<tr>
<td>Dr. John Colombi</td>
<td>152</td>
</tr>
<tr>
<td>Maj Casey Cooper</td>
<td>153</td>
</tr>
<tr>
<td>Lt Col Amy Cox</td>
<td>154</td>
</tr>
<tr>
<td>Maj Justin Delorit</td>
<td>155</td>
</tr>
<tr>
<td>Maj Scott Drylie</td>
<td>156</td>
</tr>
<tr>
<td>Dr. John Elshaw</td>
<td>157</td>
</tr>
<tr>
<td>Maj Ryan Engle</td>
<td>158</td>
</tr>
<tr>
<td>Dr. Robert Fass</td>
<td>159</td>
</tr>
<tr>
<td>Dr. Thomas Ford</td>
<td>160</td>
</tr>
<tr>
<td>Maj Jason Freels</td>
<td>161</td>
</tr>
<tr>
<td>Dr. Mark Goltz</td>
<td>162</td>
</tr>
<tr>
<td><strong>Dr. Michael R. Grimala</strong></td>
<td>163</td>
</tr>
<tr>
<td>Dr. Willie Harper</td>
<td>164</td>
</tr>
<tr>
<td>Lt Col Andrew Hoisington</td>
<td>165</td>
</tr>
<tr>
<td>Dr. David Jacques</td>
<td>166</td>
</tr>
<tr>
<td>Lt Col Clay Koschnick</td>
<td>167</td>
</tr>
<tr>
<td>Maj Joseph Kristbaum</td>
<td>168</td>
</tr>
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<td>Dr. Brent Langhals</td>
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</tr>
<tr>
<td>Dr. David Long</td>
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<tr>
<td>Dr. Eric Mbonimpa</td>
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<tr>
<td>Dr. Michael Miller</td>
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<tr>
<td>Dr. Mark Reith</td>
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<tr>
<td>Dr. Jonathan Ritschel</td>
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<tr>
<td>Maj Steven Schulte</td>
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<tr>
<td>Maj John Sito</td>
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<tr>
<td>Dr. Jeremy Slagley</td>
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<tr>
<td>Lt Col John Stubbs</td>
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<tr>
<td>Dr. Alfred Thal</td>
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<tr>
<td>Lt Col Torrey Wagner</td>
<td>180</td>
</tr>
</tbody>
</table>

**Graduate School faculty directory current as of November 2019. Names appear in alphabetical order by department. Graduate School Dean and Department Head names appear in bold.**