Academic Year 2020-2021 Faculty Excellence Showcase, AFIT Graduate School of Engineering & Management

Graduate School of Engineering and Management, Air Force Institute of Technology

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FACULTY QUICK FACTS

58
Faculty Patents Awarded Since 2001

256
Refereed Publication Authorships

30+
Fellows of Professional Organizations

247
Faculty-advised Dissertations & Theses

Number of patents awarded to Graduate School faculty between 2001-2020.

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

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

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

The quality of an academic institution is predicated on the quality of the faculty, which when enmeshed with the superior student body, produces a spectacular formula for excellence. The often heard question of “Why AFIT?” is easily answered by “Why Not AFIT!”

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.
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**

- Recipient of 2020 Taylor & Francis Lifetime Achievement Award
- Outstanding Global Engineering Education Award, Industrial Engineering and Operations Management (IEOM) award (2016)
- 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
Lt Col Brian T. Bohan  
PhD, Aeronautical Engineering, Air Force Institute of Technology  
Assistant Professor of Aeronautical Engineering

**Most Notable Publications**


**Research Interest Areas**

- Turbomachinery and Small Gas Turbine Engine Design
- Advanced Combustion Techniques
- Advanced materials and manufacturing
- processes of turbomachinery components
- Reduced or Eliminated Bleed Air Engine Cooling
- Unsteady Fluidic Devices
- Gas Turbine Engine Computational Modeling

**Selected Honors & Awards**

- 2020 - AFRL Aerospace Systems Directorate General Bernard P. Randolph Engineering Team Award
- 2019 - AFRL Turbine Engine Division Team of the Year (Responsive Open Source Engine (ROSE))
- 2019 - AFIT/ENY MOAA Outstanding Military Professor, #1/11 in Research Output
- 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 Inductee in Aerospace Engineering Inductee
- 2003 - Tau Beta Pi National Engineering Honor Society Inductee
Dr. Richard G. Cobb
PhD, Astronautical Engineering, Air Force Institute of Technology
Professor of Aerospace Engineering

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. Rama S. Gorla  
PhD, Mechanical Engineering, University of Toledo  
Professor of Aerospace Engineering

**Most Notable Publications**


**Selected Honors & Awards**

- Life Fellow ASME
- Fenn Distinguished Research Professor, 2008
- The Distinguished Technical Educator Award from the Cleveland Technical Societies Council on May 17, 2006.
- Distinguished Faculty Teaching Award from Cleveland State University in 2004
- Teaching Excellence Award from the Northeast Ohio Council on Higher Education in 2004
- Distinguished Faculty Research Award from Cleveland State University in 1999

**Research Interest Areas**

- Fluid Dynamics
- Heat Transfer
- Turbomachinery
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


Research Interest Areas

- Aerospace engineering
- Air weapons design
- Computational fluid dynamics
- Hypersonics
- Nonequilibrium flows
- Numerical simulation
Maj John Hansen  
PhD, Aerospace Engineering, University of Michigan  
Assistant Professor of Aerospace Engineering

Most Notable Publications


Selected Honors & Awards

• 2016 Field Grade Officer of the Year, Operations Group, Eglin AFB, FL

• 2011 Best Presentation for Poster Session, Technical Research and Development Institute Annual Symposium, Tokyo, Japan

• 2008 Best Presentation in Aircraft & Flow Control, Dayton-Cincinnati Aerospace Sciences Symposium, Dayton, OH

• 2007 - Sigma Gamma Tau National Honor Society in Aerospace Engineering Inductee

Significant Accomplishments

• Fluent Japanese Speaker 3/3 Defense Language Proficiency Test

Research Interest Areas

• Aircraft stability and control  
• Aero-servo-elasticity and control  
• Optimization
Dr. Carl R. Hartsfield  
*PhD, Astronautical Engineering, Naval Postgraduate School*  
Assistant Professor of Aerospace Engineering

### Most Notable Publications


### Research Interest Areas

- Rocket Propulsion
- Spacecraft Design
- Additive Manufacturing

### Selected Honors & Awards

- AFIT Category 4 Civilian of the Year, 2019
- AIAA Special Service Citation, 2018
- SOCHE Faculty Excellence in Teaching Award, 2017

### Significant Accomplishments

- Member of AIAA Small Satellites Technical Committee (2019 - Present)
- Program Chair for Dayton Cincinnati Aerospace Sciences Symposium 2018
Maj Joshua A. Hess
PhD, Aeronautical Engineering, Air Force Institute of Technology
Assistant Professor of Astronautical Engineering

Most Notable Publications


Selected Honors & Awards

• General Muir S. Fairchild Award, member of AFIT Center for Space Research and Assurance team award (2020)

• Lance P. Sijan Award, AFIT/EN nominee (2019)


Significant Accomplishments

• Field Grade Officer of the Quarter (EN, Q1 2020)

• Member, AIAA Survivability Technical Committee

Research Interest Areas

• Spacecraft rendezvous and proximity operations
• Spacecraft attitude determination
• Relative satellite motion
• Optimal control theory
• 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 formation flying
- Rendezvous and proximity operations
- Orbital warfare
- Cislunar space applications
Most Notable Publications

DOI: https://doi.org/10.1016/j.matdes.2019.108178

DOI: https://doi.org/10.1016/j.rinma.2019.100034

DOI: https://doi.org/10.1016/j.matdes.2019.108095

DOI: https://doi.org/10.1016/j.mtcomm.2018.10.016

DOI: https://doi.org/10.1016/j.mtcomm.2018.10.017

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 MOAA 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

More than 255 archival and over 450 presentations


Selected Honors & Awards

- Nominated for AIAA honorary Fellow, National Academy of Engineering (NAE), and Crichlow Award
- AIAA Achievement Award (2004)
- Structures, Structural Dynamics and Material Award, ASCE (1986)
- Hetanyi Award, Society of Experimental Mechanics, (1982)

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 55 peer-reviewed journal articles


Selected Honors & Awards
• Air Force Outstanding Science and Engineering Educator Award, 2019
• AFIT/EN Distinguished Teaching Professor, 2019
• AFIT Innovation Award, Senior Faculty, 2019
• AETC AF Outstanding Scientist/Engineer, Senior Civilian, 2017
• AIAA Sustained Service Award, 2017
• AFIT Faculty Administrative Fellow, 2016
• AFIT Civilian Category III of the Year, 2015
• AIAA Outstanding Section Award, Very Large Category, 1st Place, 2011, 2012, and 2018
• 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)
• Chair of the ASME K-14 Heat Transfer Committee (2020-2022)

Research Interest Areas
• 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**


**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)

**Research Interest Areas**

- Fluid Dynamics
- Air Vehicle Design
- Aerodynamic Measurement Techniques
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**

- 2019 ASME Turbo Expo Best Paper (Heat Transfer)
- 2018 AFIT Outstanding Military Faculty
- 2017 ASME Turbo Expo Best Paper (Heat Transfer)

**Significant Accomplishments**

- Fellow, American Society of Mechanical Engineers (ASME)
- AFIT Senior Military Faculty
- 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

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**Most Notable Publications**


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**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)

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**Significant Accomplishments**

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

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**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

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### Most Notable Publications


### 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

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### Significant Accomplishments

Author of three widely-regarded texts on spacecraft and orbital dynamics:
- Spaceflight Dynamics
- Modern Astrodynamics
- Modern Orbit Determination

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### Past Research Interests

- 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
Lt Col Michael D. Zollars
PhD,  Aeronautical Engineering, Air Force Institute of Technology
Assistant Professor of Aeronautical Engineering

Most Notable Publications


Research Interest Areas

- Optimal control theory
- Autonomous aircraft guidance and control
- Trajectory optimization
- Aircraft stability and control
- Dynamics
- Estimation theory
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


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.

Dr. Stephen C. Cain  
**PhD, Electrical Engineering, University of Dayton**  
Associate Professor of Electrical Engineering

### Most Notable Publications


### Research Interest Areas

- Remote sensing
- Image processing
- Space situational awareness
Dr. Hengky Chandrahali
PhD, Electrical and Computer Engineering, Cornell University
Director of AFIT Nanofabrication and Characterization Facility
Assistant Professor of Electrical Engineering

Most Notable Publications


Research Interest Areas

- Symbiotically enhancing electronic, phononic, magnonic, and photonic microsystems
- MEMS-enabled reconfigurable quantum systems
- Optofluidics, photoacoustics, biophotonics, nonlinear optics, and optomechanics
- Mutually assisting micro- and nanosystems
- Fabrication techniques for novel integrated micro and nanosystems
- Molecular engineering

Selected Honors & Awards

- National Academy of Science’s Fellowship Research Advisor (2020)
- IEEE NEMS Best Student Paper Finalist (as an advisor) (2019)
- Top Reviewers for Sentinels of Science: Engineering (2016)
- Institute of Electrical and Electronics Engineers (IEEE) Senior Member (2011)
- 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).

Significant Accomplishments


Research Interest Areas

- Low Observables
- Electromagnetic materials design
- Remote sensing along with the underlying foundational disciplines of electromagnetic theory
- Computational electromagnetics
- Signature metrology
Maj Joseph A. Curro
PhD, Electrical Engineering, Air Force Institute of Technology
Assistant Professor of Electrical Engineering

Research Interest Areas
- Alternative Navigation
- Deep Learning
- Deep Reinforcement Learning
Lt Col Mark E. DeYoung
PhD, Computer Engineering, Virginia Polytechnic Institute and State University
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


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

Maj Nicolas S. Hamilton
PhD, Electrical Engineering, Air Force Institute of Technology
Assistant Professor

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
Lt Col Wayne C. Henry  
PhD, Electrical Engineering, Air Force Institute of Technology  
Assistant Professor of Computer Engineering

**Most Notable Publications**


**Selected Honors & Awards**

- Tau Beta Pi, Engineering Honor Society, 2019
- Eta Kappa Nu, Electrical Engineering Honor Society, 2019
- AFRL International Project Team Award, 2009

**Research Interest Areas**

- Software Reverse Engineering
- Cyber Security
- Human-Computer Interaction
- Covert Channels / Steganography
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
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
**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


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**Selected Honors & Awards**

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

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**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.)
Dr. Robert C. Leishman
PhD, Mechanical Engineering, Brigham Young University
Research Assistant Professor of Autonomy

Most Notable Publications


Selected Honors & Awards

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

Research Interest Areas

• Autonomous aerial vehicles
• Autonomy
• Non-GPS navigation

• 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


**Significant Accomplishments**

- Holds seven patents

**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

Most Notable Publications


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

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


Selected Honors & Awards

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


Research Interest Areas

• Electronic warfare
• Avionics security
• RF fingerprinting
• 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/sensing
- Internet of Things security
- Cyber operations

Selected Honors & Awards

- Research Advisor for Chancellor’s Award Recipient (Best AFIT thesis), S. Beyer, 2018
- Cage H. Crocker Outstanding AFIT Professor Award for CY2011, awarded by AFIT Board of Visitor.
- IEEE and Eta Kappa Nu – C. Holmes MacDonald Outstanding Electrical and Computer Engineering Teacher Award, 2011
- Air Force Science & Engineering Educator of the Year, 2010
- Professor Ezra Kotcher Award for CY2008, awarded by AFIT Board of Visitor, 2009
- Dr. Leslie M. Norton Teaching Excellence Award for CY2008, awarded by AFIT Student Association, 2009
- Outstanding Teaching Award, Eta Kappa Nu, Delta Xi Chapter, Electrical Engineering / Computer Engineering, 2009
- AFIT Thesis Advisor Award, Tau Beta Pi, Ohio Eta Chapter, for K. R. Schrader thesis, 2009
- Outstanding Academy Educator, Department of Electrical Engineering, U.S. Air Force Academy, Colorado, 2002

Critical infrastructure protection
- Computer/network/embedded systems security
- Reverse code engineering
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  
Associate 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 James M. Sattler
PhD, Electrical Engineering, Air Force Institute of Technology
Assistant Professor of Electrical Engineering

Most Notable Publications


Selected Honors & Awards

- IEEE Dayton Section Ravi Pallerla Young Professionals Award 2018
- AFIT Student Field Grade Officer of the Year 2016
- Rensselaer Polytechnic Institute Erik Jonsson Prize 2002

Research Interest Areas

- Semiconductor Devices
- Radiation Effects on Semiconductor Devices
- Secondary Electron Emission
Lt Col Michael Seal  
PhD, Electrical Engineering (Low Observables), Air Force Institute of Technology  
Assistant Professor of Electrical Engineering

**Most Notable Publications**


**Research Interest Areas**

Lt Col Seal’s research interests lie primarily in the area of applied computational electromagnetics, specifically in the application and expansion of the family of semi-analytic solution to modern problems. Other areas of active research and collaboration include antenna design and simulation for complex platform installations and electro-optics. He also has significant experiencing applying DoD High Performance Computing resources and the specific sub-discipline of operations research required to cast measured or physics based modeling results into operationally relevant metrics for direct and higher level analysis.
Most Notable Publications


Selected Honors & Awards

• AFRL Sensors Directorate External Mission Support (team member) – Cyber Test Support Team, 2017

• AFRL Sensors Directorate FGO of the Year, 2016

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

• AFRL Sensors Directorate Director’s Cup (team member) – Avionics Cyber Mitigations and Protections Team, 2015

• USAFA Department of Electrical and Computer Engineering FGO of the Year, 2010

Significant Accomplishments

• Member of HKN IEEE Honor Society, 1998 – Present

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

Most Notable Publications


Selected Honors & Awards

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

Significant Accomplishments


Research Interest Areas

- Vision-aided navigation
- Particle Filters
- Kalman Filters
- Distributed Data Fusion
- Uncertainty Estimation


**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


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

Significant Accomplishments

- Fellow of the Electromagnetics Academy (FEMA) (Present)
- IEEE Life Senior Member (Present)
Capt Matthew Vincie
PhD, Electrical and Computer Engineering, Air Force Institute of Technology
Deputy Director of AFIT Nanofabrication and Characterization Facility
Assistant Professor of Electrical Engineering

Research Interest Areas

- Solid-state Devices
- Micro-electromechanical Systems
- Monolithic Microwave Integrated Circuits
- Analog Circuit Design
- RF and Microwave Engineering
- Optoelectronics
- Vacuum Tube Devices
- Instrumentation and Measurement
- Control Systems
Lt Col Warren B. Watkinson II

MS, Computer Science, The Ohio State University (PhD in progress)

Instructor of Computer Science

Most Notable Publications


Selected Honors & Awards

• Computing-Mines Affiliates Partnership Program (CMAPP) Best Presentation 2018
• Computing-Mines Affiliates Partnership Program (CMAPP) Best Poster 2017

Research Interest Areas

- Multi-Agent Systems
- Deep Reinforcement Learning
- Machine Learning
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

**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

**Most Notable Publications**


**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. Thomas E. Brehm
PhD, Electrical Engineering, Air Force Institute of Technology
Assistant Professor of Engineering Physics

Most Notable Publications


Selected Honors & Awards

• Meritorious Civilian Service Medal, 2019
• Squadron and Group Civilian of the Year, 2011

Significant Accomplishments

• Director, Persistent Infrared Analysis Squadron, NASIC, 2015 – 2019
• Senior Intelligence Analyst, Signals Analysis Squadron, NASIC, 2004 – 2015

Research Interest Areas

• Data Analytics Applied to Intelligence Analysis
• Remote Sensing Applications
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 Michael L. Dexter
PhD, Nuclear Physics, Air Force Institute of Technology
Deputy Head, Engineering Physics Department
Director, AFIT Center for Technical Intelligence Studies and Research
Assistant Professor of Nuclear Physics

Most Notable Publications


Significant Accomplishments

• 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

Most Notable Publications


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

 Significant Accomplishments

• Chair, Modeling and Simulation Technical Area Working Group, Joint Directed Energy Transition Office
• Appointed to NATO STO Technical Team: SCI-316 on High Energy Laser Weapons: Quantifying the Impact of Atmospherics and Reflections

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
Maj Kyle E. Fitch
PhD, Atmospheric Sciences, University of Utah
Assistant Professor of Atmospheric Science

Most Notable Publications


Selected Honors & Awards

- AFIT Dean’s Award, Department of Engineering Physics 2016
- Advanced Technical Intelligence Outstanding Student Award 2016
- AFIT Distinguished Graduate 2016

Research Interest Areas

- Arctic cloud & precipitation physics
- Remote sensing of clouds
- Machine-learning-based image classification
- Wind & turbulence effects on snow
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
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 5600 career citations of publications (under Giles or Giles-Taylor); h-index=38.
- Authored 203 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.
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
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
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
Lt Col Milo W. Hyde IV
PhD, Electrical Engineering, Air Force Institute of Technology
Associate Professor of Optical Physics

Most Notable Publications


Selected Honors & Awards

• Air Force Association Wright Memorial Chapter General Bernard A. Schriever Award

• Military Officers Association of America Outstanding Military Faculty Award

• Eta Kappa Nu (Delta Xi Chapter) Outstanding Teaching Award for Electrical and Computer Engineering

Significant Accomplishments

• OSA Senior Member

• IEEE Senior Member

• SPIE Senior Member

Research Interest Areas

• Statistical optics

• Fourier optics

• Guided wave theory

• Electromagnetic material characterization
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)*.


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

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
Dr. Gary S. Kedziora  
PhD, Theoretical Chemistry, The Ohio State University  
Research Assistant Professor of Physics

**Most Notable Publications**


**Research Interest Areas**

- Electronic structure theory
- Chemical kinetics
- Spectroscopy
- The interaction of matter with electromagnetic radiation
- Multi-scale modeling of materials
- Catalysis
- High-performance computing
- Machine learning

**Significant Accomplishments**

- Technical Lead in the HPCMP PET (High Performance Computer Modernization Program, User Productivity Enhancement and Training) program for computational chemistry and materials science.
- Managed HPCMP PET portfolio for Scalable Algorithms research grants.
Lt Col Christopher A. Lenyk  
PhD, Air Force Institute of Technology  
Assistant Professor of Nuclear Engineering

**Most Notable Publications**


**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
Professor of Nuclear Engineering

Most Notable Publications


Research Interest Areas

- Radiation effects
- Radiation detector development
- Nuclear weapon effects

Selected Honors & Awards

- AFIT Dean’s Distinguished Teaching Professor (2019)

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)
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
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
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, Optical Society of America
• Fellow, Directed Energy Professional Society

Research Interest Areas

• Lasers devices
• 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. Heidi R. Ries
PhD, Applied Physics, Old Dominion University
Interim Chief Academic Officer
Dean for Research
Professor of Physics

Most Notable Publications


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

Research Interest Areas

• Radiation effects
• Nonlinear optical materials
• Electron paramagnetic resonance spectroscopy
• Laser processing of materials
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
Capt Peter A. Saunders
PhD, Atmospheric Science, University of Utah
Assistant Professor of Atmospheric Science

Most Notable Publications


Selected Honors & Awards

- 26 Operational Weather Squadron Lance P. Sijan Leadership Award, 2012
- Air Force Weather Company Grade Officer of the Year, 2012
- Air Force Materiel Command Weather Company Grade Officer of the Year, 2015

Research Interest Areas

- Tropical Cyclone Modeling
- Lightning and Cloud Scene Generation
- Artificial Intelligence Applications to Weather Forecasting
- EO/IR Remote Sensing
- Overhead Persistent Infrared (OPIR)
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)

**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

**Selected Honors & Awards**

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

**Significant Accomplishments**

- 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)
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
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
Dr. David E. Weeks
PhD, Physics, University of Arkansas
Professor of Physics

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
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

• SOCHE Excellence in Teaching (2012).
• Ohio Magazine Excellence in Education (2013).

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


Selected Honors & Awards

• Department of Mathematics & Statistics Instructor of the Year (2016 & 2017).

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
Lt Col Andrew J. Geyer
PhD, Applied Mathematics (Statistics), Air Force Institute of Technology
Deputy Department Head, Mathematics & Statistics
Associate 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
Capt Chancellor AJ Johnstone

**PhD, Statistics, Iowa State University**

Assistant Professor of Statistics

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**Selected Honors & Awards**

- Air Force Junior Analyst of the Year 2016

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**Research Interest Areas**

- Nonparametric Statistics
- Conformal Prediction
- Robust Optimization
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
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
DEPARTMENT OF MATHEMATICS & STATISTICS

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. Jeffery D. Weir  
PhD, Industrial Engineering and Operations Research, Georgia Institute of Technology  
Interim Department Head, Operational Sciences  
Professor of Operations Research

**Most Notable Publications**


**Research Interest Areas**

- Decision Analysis
- Applied Statistics
- Deterministic Optimization
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
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
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
DEPARTMENT OF OPERATIONAL SCIENCES

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,  

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**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

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**Significant Accomplishments**

- Member, 2019 NATO OR&A Conference Programme Committee

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**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
Maj Michael J. Garee
PhD, Industrial Engineering, Purdue University
Assistant Professor of Operations Research

Most Notable Publications


Selected Honors & Awards

• Inductee in Tau Beta Pi national engineering honor society (2019)

• Inductee in Omega Rho operations research honor society (2014)

Significant Accomplishments

• Program Committee member for Winter Simulation Conference 2020

Research Interest Areas

• Agent-based simulation
• Data visualization
• Computer science
• Engineering education
Maj Aaron V. Glassburner
PhD, Business-Logistics Systems, University of North Texas
Assistant Professor of Logistics and Supply Chain Management

Most Notable Publications


Research Interest Areas

- Inventory Theory
- Operations Management
- Supply Chain Resilience
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


Selected Honors & Awards

• 2019 UW-Milwaukee College of Engineering & Applied Sciences Distinguished Student Award

Research Interest Areas

• Operations research
• Applied statistics
• Smart manufacturing
• Machine learning
• Queueing systems
Dr. Brian J. Lunday
PhD, Industrial & Systems Engineering, Virginia Polytechnic Institute and State University
Professor of Operations Research

Most Notable Publications


Selected Honors & Awards

• Faculty Excellence Award, Southern Ohio Consortium of Higher Education (SOCHE), 2019-2020
• Dean’s Distinguished Teaching Professor Award, Air Force Institute of Technology, 2019
• Outstanding Young Member OR/MS Award, INFORMS Cincinnati-Dayton Chapter, 2016
• Professor Ezra Kotcher Award, Wright Memorial Chapter, Air Force Association, 2019
• Lessons Learned Senior Civilian Professional of the Year, United States Air Force, 2018
• Richard H. Barchi Prize, Military Operations Research Society, 2017

Significant Accomplishments

• Associate Editor, Military Operations Research, 2019-present
• Vice President and President-elect, Military & Security (MAS) Society, Institute for Operations Research and Management Sciences (INFORMS), 2019-2020

Research Interest Areas

• Mathematical optimization
• Bilevel programming
• Game theory
• Location theory
• Network interdiction
Dr. Joseph J. Pignatiello
PhD, Industrial and Systems Engineering, Ohio State University
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. 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.
Most Notable Publications


Selected Honors & Awards

• Outstanding Reviewer Award, Midwest Academy of Management 58th Annual Meeting, 2015
• Distinguished Graduate, Advanced Logistics Readiness Officer Course, 2014
• Distinguished Graduate, Squadron Officer School, 2013
• Distinguished Graduate, Air Force Institute of Technology, 2013
• Top Graduate, Logistics Readiness Officer Basic Course, 2007
• Distinguished Graduate, Officer Training School, 2006

Significant Accomplishments

• Member of Council of Supply Chain Management Professionals (2017 – Present)
• Member of Logistics Officer Association (2006 – Present)

Research Interest Areas

• Operational Safety
• Organizational Leadership and Climate
• Supply Chain Resilience
Lt Col Jesse G. Wales
PhD, Operations Research with Engineering, Colorado School of Mines
Assistant Professor of Operations Research

Selected Honors & Awards

- Field Grade Officer of the Year, Air Force Inspection Agency, 2014
- Operations Research Honor Graduate, Air Force Institute of Technology, 2014
- Air Force Company Grade Analyst of the Year Honorable Mention, 2011
- Company Grade Officer of the Year, Det. 4, AF Operational Test and Evaluation Center, 2010
- Top Third Graduate, Squadron Officer School, 2008

Research Interest Areas

- Deterministic optimization
- Large-scale systems optimization
- Renewable energy systems
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**

- 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
Maj Paul M. Beach  
**PhD, Systems Engineering, Air Force Institute of Technology**  
Assistant Professor of Systems Engineering

### Most Notable Publications


Mailloux, L. O., **Beach, P. M.,** & Span, M. T. (2018, April). “Examination of security design principles from NIST SP 800-160.” In 2018 Annual *IEEE International Systems Conference (SysCon) (pp. 1-8).* IEEE.

### Selected Honors & Awards

- Honor Societies: Tau Beta Pi, Eta Kappa Nu
- Meritorious Service Medal
- Joint Service Commendation Medal
- Air Force Commendation Medal with Oak Leaf Cluster
- Air Force Achievement Medal
- Army Achievement Medal
- Distinguished Graduate, Intermediate Network Warfare Training (2012)

### Research Interest Areas

- Systems Security Engineering
- Systems Software Engineering
- Cybersecurity
- Data analytics
- Databases
Dr. Christopher M. Chini
PhD, Civil Engineering, University of Illinois at Urbana-Champaign
Assistant Professor of Engineering Management

Most Notable Publications


Selected Honors & Awards

- Editor’s Choice Award Article for Journal of Sustainable Water and the Built Environment Vol 6, Issue 3, 2020
- Water Resources Research Top Downloaded Paper of 2018-2019 Award, 2020
- UÇWR Ph.D. Dissertation Award in Water Policy and Socio-Economics, 2019
- National Science Foundation Graduate Research Fellowship, 2015
- Department of the Army Achievement Medal for Civilian Service, 2013

Research Interest Areas

- Water resources systems
- Energy-water nexus
- Climate change and infrastructure
- Energy resilience
- Water resilience
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 Warren J. Connell
PhD, Information Technology, George Mason University
Assistant Professor of Systems Engineering

Most Notable Publications


Selected Honors & Awards
- National System for Geospatial Intelligence Company Grade Officer of the Year, 2010
- 3-time F-35 Test Directorate Senior Officer of the Quarter, between 2019-2020

Significant Accomplishments
- Certified Information System Security Professional, 2013-present
- First-ever Cyber Test Lead for the F-35 Joint Program Office, 2020

Research Interest Areas
- Cyber Moving Target Defenses
- Autonomous Computing
- Aircraft Cyber Testing

• National System for Geospatial Intelligence Company Grade Officer of the Year, 2010
• 3-time F-35 Test Directorate Senior Officer of the Quarter, between 2019-2020

Significant Accomplishments
- Certified Information System Security Professional, 2013-present
- First-ever Cyber Test Lead for the F-35 Joint Program Office, 2020

Research Interest Areas
- Cyber Moving Target Defenses
- Autonomous Computing
- Aircraft Cyber Testing
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


Delorit, J. and Block, P., “Water market-scale forecast-informed option contracts.” *Journal of Water Resources Planning and Management*, Volume 125, Issue 5, 2019 DOI: [https://10.1061/(ASCE)WR.1943-5452.0001068](https://10.1061/(ASCE)WR.1943-5452.0001068)

Delorit, J. and Block, P., “Promoting competitive water resource use efficiency at the water-market scale: An inter-cooperative demand equilibrium-based approach to water trading.” *Water Resources Research*, 54(8), 5394-5421, 2018 DOI: [https://doi.org/10.1029/2017WR022323](https://doi.org/10.1029/2017WR022323)


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
Associate 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

- Certified Cost Estimator/Analyst, 2015  
  (International Cost Estimating & Analysis Association, Certificate # 2875)
- 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


Research Interest Areas

• Model-based Systems Engineering (MBSE)
• System Interoperability
• Modeling and Simulation Systems Design & Modeling
• Agile Software Systems Engineering

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
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
Lt Col Jeremy R. Geiger  
PhD, Systems Engineering, Air Force Institute of Technology  
Assistant Professor of Systems Engineering

Selected Honors & Awards

- 2010: Defense Meritorious Service Medal
- 2017: Meritorious Service Medal
- 2017: Aerial Achievement Medal with 2 Oak Leaf Clusters
- 2017: Field Grade Officer of the Year, 418 FLTS

Significant Accomplishments

- 2010: Deployed to Afghanistan in Operation Enduring Freedom
- 2013: United States Air Force Test Pilot School, Class 13A

Research Interest Areas

- Organizational Behavior
- Measure Development
- Verification & Validation
- Flight Test & Evaluation
- Business Processes & Efficiency
- Innovation
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
Dr. David R. Jacques  
**PhD, Aeronautical Engineering, Air Force Institute of Technology**  
Professor of Systems Engineering

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**Most Notable Publications**


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**Selected Honors & Awards**

- 2016 – General Bernard Schriever Award for CY 2015

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**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.
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
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. Jonathan D. Ritschel  
**PhD, Economics, George Mason University**  
Program Chair, Cost Analysis  
Assistant Professor of Cost Analysis

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### Most Notable Publications


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### Selected Honors & Awards

- DoD Financial Management Certification, Level 3 (2017)

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### 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.

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### 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

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Lt Col Steven J. Schuldt, P.E.
PhD, Civil Engineering, University of Illinois at Urbana-Champaign
Engineering Management Program Chair
Assistant Professor of Engineering Management

Most Notable Publications


Selected Honors & Awards

• Junior Chamber International USA Ten Outstanding Young American, 2020
• 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

Research Interest Areas

- Engineering controls of occupational health hazards
- Exposure assessment strategies
- Hazardous noise
- Aerosols
- CBRN detection and decontamination

Significant Accomplishments

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