JAMES E. BEVINS

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Department of Engineering Physics ◇ Air Force Institute of Technology
Wright Patterson Air Force Base, Ohio 45433

EDUCATION

Ph.D.	**University of California, Berkeley** Nuclear Engineering, with a minor in Nuclear Policy	2017
M.S.	**Air Force Institute of Technology** Nuclear Engineering	2011
B.S.	**University of Tennessee** Nuclear Engineering	2009

PROFESSIONAL HISTORY

Air Force Institute of Technology Aug. 2017 - Present
Assistant Professor of Nuclear Engineering *WPAFB, OH*

- Researching detector development, nuclear weapon effects, post-detonation nuclear forensics, and neutron spectroscopy with an emphasis on optimized design of systems
- Applications in nuclear security and nonproliferation, shielding, medical isotope production, and technical nuclear forensics

University of California, Berkeley Aug. 2014 - Aug. 2017
Graduate Student/National Science Foundation Fellow *Berkeley, CA*

- Researched "Targeted Neutron Spectrum Modification for National Security Applications": Developed an energy tuning assembly (ETA) concept that was designed to modify the NIF neutron energy spectrum to a more "weapon-like" neutron spectrum
- Developed a novel metaheuristic optimization algorithm, Gnowee, that was implemented in a new nuclear design software, Coeus
- Performed neutron spectroscopy experiments at the 88-Inch Cyclotron to characterize the ETA performance

Sandia National Laboratory Mar. 2013 - Feb. 2014
Weapon Intern *Albuquerque, NM*

- Comprehensive technical, historical, and nuclear policy curricula designed to develop next generation of nuclear weapons experts and leaders through multi-agency interaction in coursework, site visits, and research projects
- Research Project Titled: Criticality Analysis of US Pits under Accident Scenarios
- Research Project Titled: An Automated Solid Model and MCNP Materials Import Scheme

Air Force Nuclear Weapons Center Apr. 2011 - Aug. 2014
Nuclear Engineer/Physicist *Kirtland AFB, NM*

- Organized, conducted, and led multi-agency Air Force Nuclear Weapons Center efforts to review, update, improve, and develop nuclear hardness models and mission planning guidance used for nuclear weapons delivery
- Planned, directed, performed, and reviewed nuclear weapon effects and survivability assessments in support of AF, DoD, and DOE acquisition efforts through analysis, simulation, and test for systems to include the Long Rang Stand-off (LRSO) missile, B61-12 nuclear bomb, Ground Based Strategic Deterrent (GBSD), and others

- Designed, developed, reviewed, and implemented new analysis software and capabilities to address gaps and/or improve fidelity in AF efforts to model different operational concepts and threats thereby improving the effectiveness of new acquisitions while reducing costs
- Conducted, developed, managed, and reviewed program planning, Statements of Work (SOWs), Independent Government Cost Estimate (IGCEs), cost and technical proposals, deliverables, and performance reports
- Technical advisor to senior nuclear policy makers and acquisition officials

Air Force Institute of Technology Jul. 2009 - Mar. 2011
Graduate Student *WPAFB, OH*

- Researched "Characterization of a Boron Carbide Heterojuction Neutron Detector": Developed an optimized semi-conducting boron carbide neutron detector
- Tested the degradation of sample devices in neutron fields at the Ohio State Research Reactor

Oak Ridge National Laboratory Aug. 2008 - Jun. 2009
Nuclear Research Intern *Oak Ridge, TN*

- Conducted modeling validation of liquid scintillator neutron coincidence detection scheme designed for security applications involving storage of highly enriched uranium
- Developed and modified existing energy deposition to detection event post-processing codes for MCNP-POLIMI

BWXT-Y12 Jun. 2006 - Sep. 2006
Criticality Safety Intern *Oak Ridge, TN*

- Performed criticality safety analysis for processes involving uranium milling, dissolution, storage, transport, etc.
- Reviewed manufacturing procedures and practices for compliance with criticality safety guidelines and procedures
- Conducted material surveys to track and monitor build-up and loss of uranium

Alabama Army National Guard Sep. 2001 - Aug. 2004
Explosive Ordnance Disposal Technical *Multiple Locations*

- Deployment to Bosnia: June 2003- April 2004
- Naval School EOD: Sep 2002 - June 2003
- Basic Training: July 2002- Sep 2002

SELECTED HONORS AND AWARDS

Military:

Air Force Institute of Technology Company Grade Officer of the Quarter	2018
Air Force Meritorious Service Medal	2014
Squadron Officer School Distinguished Graduate, Outstanding Contributor, Top 1%	2014
USAF Modeling & Simulation Cross-Functional Team Award	2012
AFMC Analytic Team of the Year Award	2012
Nuclear Capabilities Directorate Company Grade Officer of the Year	2012
Nuclear Capabilities Directorate Company Grade Officer of the Quarter	2012
Exceptional Performer, Air Space Basic Course	2009
Global War on Terrorism Service Medal	2004
Army Commendation Medal	2004
Army Achievement Medal (x2)	2003, 2004
Honor Graduate, Explosive Ordnance Disposal School	2003

Academic:

Tau Beta Pi Thesis Advisor Award	2019
Air Force Technical Applications Center Endowed Term Chair	2018
National Science Foundation Graduate Fellowship	2014-2017
Best Paper, NNSA University and Industry Technical Interchange	2016
Selected participant, Public Policy and Nuclear Threats Bootcamp	Jun.-Jul. 2015
IEEE Nuclear and Plasma Sciences Society Graduate Scholar Award	2011
Louis F. Polk Finalist	2011
Tau Beta Pi Honor Society	2010
Chancellor's Academic Achievement Award	2007
Nuclear Engineering Outstanding Freshman, Sophomore, and Junior Awards	2005-2007

GRADUATE STUDENT SUPERVISION

Graduate Student Supervision: Successfully chaired 5 MS student's committees. I currently chair 4 PhD student's and 2 Master's students' committees.

PhDs Chaired/In Progress (Start Year Listed):

2018	Robert Olesen, Nuclear Engineering
2019	Bryan Egner, Nuclear Engineering
2019	Brian Frandsen, Nuclear Engineering
2019	Nicholas Quartemont, Nuclear Engineering

PhDs Committee Member/Completed:

2019	Matthew Recker, Nuclear Engineering

MS Chaired/Completed:

2019	Amy Hoybook, Nuclear Engineering
2019	Nicholas Quartemont, Nuclear Engineering
2019	Bryan Egner, Nuclear Engineering
2018	Jonathan Sundman, Operations Management
2018	Jason Stickney, Nuclear Engineering

MS Chaired/In Progress (Start Year Listed):

2018	Aaron Burkhardt, Nuclear Engineering
2018	Ryan Chapman, Nuclear Engineering

MS Committee Member/Completed:

2019	Will Johnston, Nuclear Engineering
2018	Zachary Condon, Nuclear Engineering
2018	Robert Olesen, Nuclear Engineering

MS Committee Member/In Progress (Start Year Listed):

2018	Lansing Horan, Nuclear Engineering
2018	Trenton Freeman, Nuclear Engineering

RESEARCH GRANTS

Obtained support grants and awards in kind for various agencies for research, education, and equipment totaling nearly $1.8M since 2017.

2019

1. AFIT/ENP Research in Support of Defense Threat Reduction Agency Nuclear Technologies, DTRA, $110,000, Co-PI, 40% responsibility, PI - John McClory

2. Measurement of Fundamental Nuclear Data in Support of National Security, FRC, $20,000,PI, 100% responsibility
3. Endowed Term Chair for Nuclear Treaty Monitoring, AFTAC, $33,333, PI, 100% responsibility
4. Nuclear Survivability Experimentation, Modeling, and Data Verification, NNSA, $175,000, PI, 55% responsibility
5. Synthetic Post-Detonation Debris Production at the National Ignition Facility, DOD/NCB-TRAC, $350,000, Co-PI, PI - Alan Ross, LLNL

2018

1. AFIT/ENP Research in Support of Defense Threat Reduction Agency Nuclear Technologies, DTRA, $100,000, Co-PI, 35% responsibility, PI - John McClory
2. Imaging Fast Neutron Sources Using Rotating Scatter Masks, FRC, $31,000,PI, 100% responsibility
3. Endowed Term Chair for Nuclear Treaty Monitoring, AFTAC, $40,000, PI, 100% responsibility
4. Endowed Term Chair for Nuclear Material, AFTAC, $40,000, Co-PI, 25% responsibility, PI- James Petrosky
5. Targeted Modification of the NIF Neutron Energy Spectra for National Security Applications, NIF JNSAC, $1,000,000 (in kind), Co-PI, PI - Lee Bernstein
6. Synthetic Post-Detonation Debris Production at the National Ignition Facility, DOD/NCB-TRAC, $200,000, Co-PI, PI - Alan Ross, LLNL

2017

1. Endowed Term Chair for Nuclear Treaty Monitoring, AFTAC, $42,000, Co-PI, 50% Responsibility, PI - Lt Col James Fee

PUBLICATIONS

Archived Journals in Print (* denotes student)

2019:

1. M. C. Recker*, E. J. Cazalas, J. W. McClory, and **J. E. Bevins**, "Comparison of SiPM and PMT Performance Using a Cs2LiYCl6:Ce3+(CLYC) Scintillator with Two Optical Windows," *IEEE Transactions on Nuclear Science*, vol. 66, no. 8, pp. 1959–1965, 2019.
2. Bethany L. Goldblum, Andrew W. Reddie, Thomas C. Hickey, **James E. Bevins**, et al., "The nuclear network: Multiplex network analysis for interconnected systems," *Applied Network Science*, vol. 4, no. 36, 2019.
3. **J. E. Bevins**, Z. Sweger*, N. Munshi*, B. L. Goldblum, et al., "Performance evaluation of an energy tuning assembly for neutron spectral shaping," Nuclear Instruments and Methods in Physics Research Section A: Accelerators, Spectrometers, Detectors and Associated Equipment, vol. 923, pp. 79–87, 2019.

2018:

1. R. Olesen*, B. E. O'Day, D. E. Holland, L. W. Burggraf, and **J. E. Bevins**, "Characterization of Novel Rotating Scatter Mask Designs for Gamma Direction Identification," *Nuclear Instrumentation and Methods in Physics Research Section A*, 2018. (In Press, available online)

2. **James E. Bevins**, Elie Katzenson, James Kendrick, Rebecca Krentz-Wee, Sarah Laderman, Yubing Tian, "A Framework for Assessing Alternate Proliferation Pathways in the Age of Non-State Actors," *Nuclear Posture Review*, vol. 25, pp. 87-110, 2018.

3. M. K. Covo, R. A. Albright, B. F. Ninemire, M. B. Johnson, et al., "The 88-Inch Cyclotron: A One-Stop Facility for Electronics Radiation and Detector Testing," *Measurement*, vol 127, pp. 580-587, 2018.

4. D. E. Holland, **J. E. Bevins**, L. W. Burggraf, and B. E. O'Day, "Rotating scatter mask optimization for gamma source direction identification," *Nuclear Instruments and Methods Phys. Res. A*, vol. 901, pp. 104–111, 2018.

5. K. P. Harrig, B. L. Goldblum, J. A. Brown, D. L. Bleuel, L. A. Bernstein, **J. Bevins**, M. Harasty, T. A. Laplace, E. F. Matthews, "Neutron Spectroscopy for Pulsed Beams with Frame Overlap using a Double Time-of-Flight Technique," *Nuclear Instrumentation and Methods in Physics Research Section A*, vol. 877, pp. 359–366, 2018.

6. **J. E. Bevins** and R. S. Slaybaugh, "Gnowee: A Hybrid Metaheuristic Optimization Algorithm for Constrained, Black Box, Combinatorial Mixed-Integer Design," *Nuclear Technologies*, 2018.

2016:

1. N. Benczer-Koller, G. J. Kumbartzki, K. H. Speidel, D. A. Torres, et al., "Magnetic moment and lifetime measurements of Coulomb-excited states in 106Cd," *Physical Review C*, Vol. 94, 2016.

2. G. J. Kumbartzki, N. Benczer-Koller, K. H. Speidel, D. A. Torres, et al., "Z = 50 core stability in 110Sn from magnetic-moment and lifetime measurements," *Physical Review C*, Vol. 93, 2016.

Limited Distribution Journal Articles, in Print

2012:

1. **J. Bevins**, K. Dahl, J. McClory, J. Petrosky, A. Caruso, and S. Karki, "Bulk Radiation Damage Effects of a p-type B5C:Hx Thin Film on n-Si Heterojunction Diode," *Journal of Radiation Effects, Research and Engineering*, Vol. 30, No1, 2012.

Refereed, In Process (* denotes student)

1. Amy Hall*, Daniel A. Gum*, Richar Ferrieri, John Brockman, and **James E. Bevins**, "Development of an Experimentally-Validated MCNP6 Model for ^{11}C Production via the ^{14}N(p,α) Reaction Using a GE PETTrace Cyclotron," *Nuclear Technologies*, 2019. (Submitted August 2019)

2. N. J. Quartemont*, R. Slaybaugh, and L. Bernstein, **J. E. Bevins**, "Analysis of an Energy Tuning Assembly for Simulating Nuclear Weapon Environments at the National Ignition Facility," *Journal of Radiation Effects Research and Engineering*, 2019. (Submitted June 2019)

3. B. V. Egner*, Darren Holland, Larry Burggraf, and **James E. Bevins**, "Development of a Modular Mixed-Radiation Directional Rotating Scatter Mask Detection System," *Radiation Measurements*, 2019. (Submitted June 2019)

4. W. D. Johnston*, M. L. Dexter, J. W. McClory, and **J. E. Bevins**, "Simulating Surface-interacting nuclear Detonations using RECIPE and SHAMRC," *Journal of Radiation Effects Research and Engineering*, 2019. (Submitted June 2019)

5. N. J. Quartemont*, A. A. Bickley, and **J. E. Bevins**, "Nuclear Data Covariance Analysis in Radiation Transport Simulations Utilizing SCALE Sampler and the IRDFF Nuclear Data Library," *Transactions on Nuclear Science*, 2019. (Submitted March 2019)

Publications in Conference Proceedings (* denotes student)

1. Robert J. Olesen*, D. E. Holland, Erik Brubaker, James Cole, and **James E. Bevins**, "Advanced Radiation Imaging Algorithms with Rotating Scatter Masks," in *International Nuclear Materials Management Conference*, Palm Desert, CA, July 18th, 2019.

2. B. V. Egner*, D. E. Holland, L. W. Burggraf, **J. E. Bevins**, and V. M. Martin*, "Development of a dual-particle directional detection system using a rotating scatter mask," in *Hardened Electronics and Radiation Technology Conference*, San Diego, CA, April 11th, 2019.

3. W. D. Johnston*, M. L. Dexter, J. W. McClory, and **J. E. Bevins**, "Validation of the Impact of Reflected Shock on Surface Interacting Nuclear Detonations," in *Hardened Electronics and Radiation Technology Conference*, San Diego, CA, April 10th, 2019.

4. N. J. Quartemont*, **J. E. Bevins**, R. Slaybaugh, and L. Bernstein, "Analysis of an Energy Tuning Assembly for Simulating Nuclear Weapon Environments at the National Ignition Facility," in *Hardened Electronics and Radiation Technology Conference*, San Diego, CA, April 11th, 2019.

5. N. J. Quartemont*, **J. E. Bevins**, R. Slaybaugh, and L. Bernstein, "Development of a Novel National Ignition Facility Platform for Simulating Nuclear Relevant Neutron Environments," in *IEEE Nuclear Science Symposium and Medical Imaging Conference*, Sydney, Australia, November 14th 2018.

6. **J. E. Bevins**, S. Bogetic*, L. A. Bernstein, R. Slaybaugh, and J. Vujic, "Metaheuristic Optimization Method for Neutron Spectra Shaping," *Transactions of the American Nuclear Society*, vol. 118, Philadelphia, PA, June 18th, 2018.

7. D. E. Holland, **J. E. Bevins**, L. W. Burggraf, and B. E. O'Day, "Rotating scatter mask optimization for gamma source direction identification," presented at the *Symposium on Radiation Measurement and Applications*, Ann Arbor, MI, June 14th, 2018.

8. J. R. Stickney*, **J. E. Bevins**, E. Cazalas, and J. W. McClory, "Pulse Height Spectra Analysis of a Neutron Energy Tuning Assembly," presented at the *Symposium on Radiation Measurement and Applications*, Ann Arbor, MI, June 13th, 2018.

9. R. J. Olesen*, B. O. Day, D. Holland, L. Burggraf, and **J. Bevins**, "Characterization of Rotating Scatter Mask Designs for Novel Applications in Photon Detection," presented at the *Symposium on Radiation Measurement and Applications*, Ann Arbor, MI, June 13th, 2018.

10. Z. T. Condon*, L. W. Burggraf, J. V. Logan, B. E. O'Day, R. J. Olesen, **J. E. Bevins**, and J. C. Petrosky, "Multisource Location Using a Rotating Scatter Mask to Predictably Attenuate Full Energy Gamma-Ray Emissions," presented at the *Hardened Electronics and Radiation Technology Technology Technical Interchange Meeting*, Tucson, AZ, April 19th, 2018.

11. **James E. Bevins**, Bethany L. Goldblum, Elie Katzenson, James Kendrick, Rebecca Krentz-Wee, Sarah Laderman, Yubing Tian, "Alternate Nuclear Proliferation Pathways in the Age of Non-State Actors," *Transactions of the American Nuclear Society*, vol. 117, pp. 1009–1012, Washington, D.C., October 30th, 2017 (invited).

12. M. K. Covo et al., "88-Inch Cyclotron: The one-stop facility for electronics radiation testing," presented at *IEEE International Workshop on Metrology for AeroSpace (MetroAeroSpace)*, pp. 484-488, Padua, July 2017.

13. **James E. Bevins**, Bethany L. Goldblum, Tom Hickey, Elie Katzenson, James Kendrick, Rebecca Krentz-Wee, Sarah Laderman, Yubing Tian, Collin Ting, Alexa J Wehsener, "Alternate Nuclear Proliferation Pathways in the Age of Non-State Actors," presented at *Advances in Nuclear Nonproliferation Technology and Policy Conference*, Santa Fe, NM, September 2016.

14. **J. Bevins**, R. Slaybaugh, L. Bernstein, E. Henry, W. Dunlop, "Targeted Modification of Neutron Energy Spectra for National Security Applications," presented at *Hardened Electronics And*

Radiation Technology Technical Interchange Meeting, Monterey, CA, April 2016.

15. **J. Bevins**, R. Slaybaugh, L. Bernstein, W. Dunlop, E. Henry, "Application of Metaheuristic Optimization Methods for Neutron Spectral Shaping Applications," presented at *Conference on Data Analysis*, Santa Fe, NM, March 2016.
16. G. Kumbartzki, N. Benczer-Koller, et al., "Magnetic Moments of the 2_1^+ and 4_1^+ States in ^{110}SN*," presented at *Fall Meeting of the APS Division of Nuclear Physics*, 2015, vol. 60, no. 13.
17. A. Stevenson and **J. Bevins**, "Project Nimble Elder: Investigation of Practical Solutions for Active Interrogation," presented at *Hardened Electronics And Radiation Technology Technical Interchange Meeting*, Albuquerque, NM, April, 2013.
18. A. Stevenson, J. St. Ledger, and **J. Bevins**, "The AFNWC Nuclear Dust Cloud Modeling Initiative," presented at *Hardened Electronics And Radiation Technology Technical Interchange Meeting*, Monterey, CA, March 2012.
19. S. Karki, **J. E. Bevins**, Joseph Sandstrom, C. Clayton, M. S. Driver, B. Nordell, J. W. McClory, J. C. Petrosky , K. I. Pokhodnya and A. N. Caruso, "Fabrication and transport properties of a-B5C:Hx to n-type Si heterojunction diodes", *American Physical Society March Meeting*, Dallas, TX, March 2011.
20. Abigail A. Bickley, **James Bevins**, Anthony Caruso, James Petrosky, John McClory, Peter Dowben, and William Miller, " Design and testing of a boron carbide based neutron spectrometer for homeland security applications," *Abstracts Of Papers Of The American Chemical Society*, vol. 242. 1155, 2011.
21. **James Bevins**, John McClory, James Petrosky, and Anthony Caruso, "Theoretical Performance of a p-type B5C:Hx Thin Film on n-Si Neutron Detector", *Transactions of the American Nuclear Society*, vol. 103, pp. 212-216, November 2010.
22. **J. Bevins**, J. P. Hayward, J. Mihalczo, "Monte Carlo simulations of passive time correlation measurements for monitoring HEU in large storage arrays," *Proceedings of 50th INMM Annual Meeting*, Tucson, AZ, July 2009.

Conference Presentations (not including publications listed above)

1. P. Lalor*, Bethany L. Goldblum, Mathew Harasty, Joshua A. Brown, Thibault Laplace, **James E. Bevins**, "A Shape-constrained Neutron Spectrum Unfolding Technique," presented at *National Nuclear Security Administration University Program Review*, Raleigh, NC, June 5th, 2019.
2. A. W. Burkhardt* and **J. E. Bevins**, "Validation of Reactor Systems Transport Using KENO-VI Modeling," presented at the *American Nuclear Society Student Conference*, Richmond, VA, April 5th, 2019.
3. D. A. Gum*, A. Hall, R. Ferrieri, J. Brockman, and **J. E. Bevins**, "Characterizing a MURR GE PETrace Cyclotron Proton Beam Profile," presented at the *American Nuclear Society Student Conference*, Richmond, VA, April 5th, 2019.
4. Z. Sweger*, **J. Bevins**, N. Munshi, B. Goldblum, D. Bleuel, and R. Slaybaugh, "Foil Activation Analysis for Neutron Spectrum Unfolding," presented at *National Nuclear Security Administration University Program Review*, Ann Arbor, MI, June 7th, 2018.
5. B. Egner*, R. Torzilli*, **J. E. Bevins**, and B. E. O'Day, "Automated Parametric Optimization of a High-Purity Germanium Monte Carlo Neutral-Particle Model," presented at the *American Nuclear Society Student Conference*, Gainsville, FL, April 5th, 2018.
6. T. A. Laplace, J. A. Brown, B. L. Goldblum, D. L. Bleuel, K. P. Harrig, **J. Bevins**, M. Harasty, "Low Energy Light Yield of Organic Scintillators," University Program Review, 2017, Walnut

Creek, CA.

7. **J. Bevins**, "Modification of the NIF Neutron Spectrum for Forensics Applications," University and Industry Technical Interchange Review Meeting, 2016, Raleigh, NC.
8. **James E. Bevins**, Bethany L. Goldblum, Tom Hickey, Elie Katzenson, James Kendrick, Rebecca Krentz-Wee, Sarah Laderman, Yubing Tian, Collin Ting, Alexa J Wehsener, "Alternate Nuclear Proliferation Pathways in the Age of Non-State Actors," University and Industry Technical Interchange Review Meeting, 2016, Raleigh, NC.
9. **James Bevins**, Elie Katzenson, Tom Hickey, Erika Suzuki, James Kendrick, Nils Haneklaus, Yubing Tian, Bethany L. Goldblum, "Rethinking the Proliferation Paradigm: Alternate Nuclear Weapon Paths in the Age of Non-State Actors and Technology Democratization," 2015 Winter Project on Nuclear Issues Conference, Washington DC, 2015.
10. **J. Bevins**, "NIF Fission-Enhanced Tailored-Spectrum Irradiator," Sather Workshop, 2014, Berkeley, CA.
11. **J. Bevins**, B. Kowash, and J. McClory, "Calibration of AFIT Graphite Pile to Account for 241Am Ingrowth in the 239PuBe13 Source," ANS National Student Conference, 2010, Ann Arbor, MI.

Other Works

1. Holland, D., Olesen, R.*, Burggraf, L., O'Day, B., **Bevins, J**. 2019. "Rotating Scatter Mask Design Classes for Directional Radiation Detection and Imaging." U.S. Patent Application 62,816,435, filed March 11, 2019. Patent Pending.
2. Olesen, R.*, Egner, B.*, Holland, D., Martin, V.*, **Bevins, J**. 2019. "An Efficient, Dual-particle Directional Detection System using a Rotating Scatter Mask." U.S. Patent Application 62,816,451, filed March 11, 2019. Patent Pending.
3. **J. E. Bevins**, R. S. Slaybaugh, "Energy Tuning Assembly for Post-Detonation Nuclear Forensics," Invention Discolure, January, 2018.
4. **James Bevins**, Youdong Zhang, and Rachel Slaybaugh. "Coeus." Software. (released 2017) `https://github.com/SlaybaughLab/Coeus`
5. **James Bevins**, Youdong Zhang, and Rachel Slaybaugh. "Gnowee." Software. (released 2017) `https://github.com/SlaybaughLab/Gnowee`

TEACHING EXPERIENCE

Air Force Institute of Technology — Aug. 2017 - Present
Assistant Professor of Nuclear Engineering — *Wright Patterson AFB, OH*

Course	Title	Term (# Students)
NENG 612	Nuclear Engineering Laboratory	SU 19 (5)
NENG 631	Prompt Effects of Nuclear Weapons	SP 19 (13)
NENG 601	Research Apprenticeship	WI 19 (co-taught) (4)
NENG 699	Special Study	FA 18 (1)
NENG 685	Methods for Neutral Particle Transport	FA 18 (15)
NENG 612	Nuclear Engineering Laboratory	SU 18 (4)
NENG 725	Monte Carlo Radiation Transport	SP 18 (5)
NENG 650	Nuclear Instrumentation	WI 18 (co-taught) (6)
NENG 685	Methods for Neutral Particle Transport	FA 17 (5)

COMPUTER SKILLS

Languages	Python, JAVA, Fortran 90/95/2003, C++, PERL
Versioning and Testing	git, nose
Tools	Doxygen, LaTeX, Jupyter, MatLab, Mathematica, shell, vim
Nuclear Software	MCNP, ADVANTG, PyNE, SCALE

PROFESSIONAL SERVICE

Institute Activities

NENG Academic Advisor	2017-present
Assistant Radiation Safety Officer	2017-present
Cloud Services Strategy Tiger Team	Member, 2018
Federal Voting Assistance Officer	2018-Present
AFIT Study - IT Improvement	Member, 2019
AFIT Study - Collaboration Development	Member, 2019
21M Branch Chief	2019

Professional Activities

American Nuclear Society	Student Faculty Advisor, 2017-present
American Nuclear Society	Member, 2006-present