Jason Hite

Education

2007 **High School Diploma**, *Blythewood High School*, Blythewood, SC.
Graduate with honors.

2012 **Bachelor of Science**, *North Carolina State University*, Raleigh, NC.
Applied Mathematics - nuclear engineering and computational methods concentrations.

2019 **Doctor of Philosophy**, *North Carolina State University*, Raleigh, NC.
Nuclear Engineering - wide area radiation source localization

Experience

2019-Present **Postdoctoral Research Associate**, *Oak Ridge National Laboratory*.
Applications of statistical and inverse methods to nuclear security and nonproliferation.

2015-2019 **Graduate Research Assistant**, *North Carolina State University*.
Research in applications of parameter estimation methods and inverse problems to nuclear security. Supported by the Consortium for Nonproliferation Enabling Capabilities (CNEC). Supervised by Dr. John Mattingly.

2014 **Teaching Assistant**, *North Carolina State University*.
Teaching assistant for NE301, taught by Dr. Scott Palmtag.

2013 **Graduate Research Assistant**, *North Carolina State University*.
Continuation of undergraduate research. Applications of reduced-order modeling to data calibration for reactor physics calculations using SCALE and VERA. Supported by Consortium for the Advanced Simulation of LWRs.

2010-2012 **Undergraduate Research Assistant**, *North Carolina State University*.
Exploratory research in uncertainty quantification and computational methods for nuclear engineering. Developed and implemented several new methods for computational model order reduction. Supervised by Dr. Hany S. Abdel-Khalik.

Technical Skills

Languages English (native), Japanese (proficient), Spanish (basic)

Programming Python, C, C++, Fortran, Haskell, Mathematica, MATLAB, Javascript, Unix Shell

Design 3D modeling and CAD, design and layout of printed circuit boards, 3D printing; some experience with CNC machining and computer-aided manufacturing (CAM)

Embedded Design, construction, and programming of electronics and embedded systems including AVR and ARM-based environments; some experience with FPGAs

Software SCALE, MCNP, DAKOTA, MPI, OpenMP, PyMC

Miscellaneous Linux, BSD, MacOS, Windows, geospatial information systems (GIS), version control (primarily Git and Subversion), LaTeX, database administration, standard UNIX tools and systems administration

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Publications and Presentations

Journal Articles

- J. Cook, R. Smith, J. Hite, R. Ştefănescu, J. Mattingly. *Application and Evaluation of Surrogate Models for Radiation Source Search*. Algorithms, vol. 12 no. 12. doi:10.3390/a12120269.
- K. Schmidt, R. Smith, J. Hite, J. Mattingly, Y. Azmy, D. Rajan, R. Goldhahn (2019). *Sequential optimal positioning of mobile sensors using mutual information*. Statistical Analysis and Data Mining, vol. 12 no. 6. doi:10.1002/sam.11431.
- R. Ştefănescu, J. Hite, J. Cook, R. Smith, J. Mattingly. *Surrogate-based robust design for a non-smooth radiation source detection problem*. Algorithms, vol. 12 no. 6. doi:10.3390/a12060113.
- J. Hite, J. Mattingly, D. Archer, M. Willis, A. Rowe, K. Bray, J. Carter, J. Ghawaly (2018). *Localization of a radioactive source in an urban environment using Bayesian Metropolis methods*. Nuclear Instrumentation and Methods in Physics Research, vol. 155. doi:10.1016/j.nima.2019.09.032.
- J. Hite, J. Mattingly (2018). *Bayesian Metropolis methods for source localization in an urban environment*. Radiation Physics and Chemistry. doi:10.1016/j.radphyschem.2018.06.024.
- R. Stefanescu, K. Schmidt, J. Hite, R. Smith, J. Mattingly (2017). *Hybrid optimization and Bayesian inference techniques for a non-smooth radiation detection problem*. International Journal for Numerical Methods in Engineering, no. 111.10. doi:10.1002/nme.5491.
- Y. Bang, H. Abdel-Khalik, J. Hite (2012). *Hybrid reduced order modeling applied to nonlinear models*. International Journal for Numerical Methods in Engineering, no. 91. doi:10.1002/nme.4298.

Peer-Reviewed Conference Proceedings

- J. Hite, J. Mattingly, K. Schmidt, R. Stefanescu, R. Smith (2016). *Bayesian Metropolis methods applied to sensor networks for radiation source localization*. Proceedings of the 2016 IEEE International conference on multisensor fusion and integration for intelligent systems, Baden-Baden, Germany. [Invited]
- C. Wang, J. Hite, H. Abdel-Khalik (2014). *Intersection subspace method for uncertainty quantification*. Transactions of the American Nuclear Society, no. 111.
- J. Hite, C. Wang, B. Khuwaileh, H. Abdel-Khalik (2014). *Flexible uncertainty analysis of computer models with Alchemy*. Transactions of the American Nuclear Society, no. 111.
- J. Hite, H. Abdel-Khalik (2012). *Subspace methods for Markov-chain Monte Carlo*. Transactions of the American Nuclear Society, no. 107.
- H. Abdel-Khalik, J. Hite (2011). *Reduced order modeling: Tensor-free expansion for nonlinear features identification*. Transactions of the American Nuclear Society, no. 104.
- J. Hite, H. Abdel-Khalik (2011). *Dimensionality reduction in global nonlinear optimization*. Transactions of the American Nuclear Society, no. 105.
- J. Hite, Y. Bang, C. Wang, H. Abdel-Khalik (2011). *Heuristic approach for ESM-based reduced order modeling*. Transactions of the American Nuclear Society, no. 105.

Technical Reports

- J. Hite, H. Abdel-Khalik (2014). *PCMM Analysis of Insilico*, CASL Technical Report: CASL:L3:VUQ.V&V.P8.05. [Restricted Access]
- J. Hite, H. Abdel-Khalik, R. Smith, M. Wentworth, E. Prudencio, B. Williams (2013). *Uncertainty quantification and data assimilation (UQ/DA) study on a VERA core simulator component for CRUD analysis*, CASL Technical Report: CASL-U-2013-0184-000.