

Kathryn D. Huff

CONTACT INFORMATION	Blue Waters Assistant Professor <i>University of Illinois, Urbana-Champaign</i> <i>Nuclear, Plasma, and Radiological Engineering</i> <i>Affiliate Faculty, National Center for Supercomputing Applications</i>	mobile: (281) 734-1342 e-mail: katyhuff@gmail.com website: katyhuff.github.com
RESEARCH INTERESTS	Advanced nuclear reactors and fuel cycles, multi-physics simulation, nuclear fuel cycle analysis, scientific computation.	
PHD	University of Wisconsin - Madison, NUCLEAR ENGINEERING • An Integrated Used Fuel Disposition and Generic Repository Model for Fuel Cycle Analysis • Advisor: Professor Paul P.H. Wilson	Aug 2008 – Aug 2013
BA	University of Chicago, PHYSICS • Celestial Gain Calibrations of QUIET Telescope Polarimeters	Aug 2004 – Jun 2008
RESEARCH EXPERIENCE	University of Illinois at Urbana-Champaign, Urbana, IL <i>Assistant Professor, Nuclear Plasma and Radiological Engineering</i> <i>Blue Waters Asst. Prof., National Center for Supercomputing Applications</i> Principal investigator, advanced reactors and fuel cycles group.	Aug 2016 – Present Aug 2016 – Present
	University of California - Berkeley, NE Dept., Berkeley, CA <i>Postdoctoral Scholar, Nuclear Science and Security Consortium</i> <i>Data Science Fellow, Berkeley Institute for Data Science</i> Developing computational tools and multiphysics models for advanced reactor safety analysis.	Sep 2013 – Jul 2016 Aug 2014 – Jul 2016
	Argonne National Laboratory, Argonne, IL <i>Laboratory Graduate Research Appointee, Used Fuel Disposition Campaign</i> Developed a used fuel disposition and generic repository computational model.	Jun 2011 – Aug 2013
	University of Wisconsin - Madison, NEEP Dept., Madison, WI <i>Graduate Research Assistant, Computational Nuclear Engineering Research Group</i> Developed and applied CYCLUS, a nuclear fuel cycle systems analysis tool.	Jun 2008 – Aug 2013
	Idaho National Laboratory, Idaho Falls, ID <i>Graduate Research Assistant, Systems Analysis Campaign</i> Developed software functions and requirements for the Fuel Cycle Simulator concept.	Jun – Aug 2010
	Kavli Institute For Cosmological Physics, Chicago, IL <i>Research Assistant, Laboratory for Astrophysics and Space Research</i> Programmed & machined instrumentation. Planned protocol for QUIET polarimeter calibration.	Jan 2005 – Jun 2008
	Universidad de Chile, Physics Dept., Santiago, Chile <i>Research Assistant, Chicago-Chile Research Exchange Program</i> Constructed and operated a far-from-equilibrium granular materials experiment.	Jun – Sep 2006
	Los Alamos Neutron Science Center, Los Alamos, NM <i>Research Assistant, LANSCE-3</i> Applied digital filtration algorithms and MCNPX models to experimental data.	Jun – Sep 2004 May – Aug 2003
HONORS AND AWARDS	American Nuclear Society, Oestmann Professional Women's Achievement Award AE3, Collins Scholars Program Graduate NPRE, Students Award for Excellence in Undergraduate Teaching UIUC, Teachers Ranked as Excellent American Nuclear Society, Young Member Excellence Award National Energy Research Scientific Computing Allocation, Senior Investigator	2017 2017 2017 Fall 2016 2016 2015–2016

Data Science Fellowship, Berkeley Institute for Data Science, UC Berkeley	2014–2016
Nuclear Science and Security Consortium Postdoctoral Fellowship, UC Berkeley	2013–2016
DOE Office of Science Laboratory Graduate Appointment, Argonne National Lab	2011–2013
Roy G Post Foundation Nuclear Waste Management Graduate Scholarship	2011
John Randall Memorial Scholarship, American Nuclear Society FCWMD	2009
J.A McDeavitt Scholarship, University of Chicago, Chicago, IL	2007–2008
University Scholar Award, University of Chicago, Chicago, IL	2004–2008
Los Alamos Distinguished Student Performance Award, Los Alamos National Lab	2004

GRANTS
AWARDED

US Research Software Sustainability Institute (URSSI)	Period: 2017–2018
Source: NSF - OAC - SI2 - S2I2 Conceptualization	Award Total: \$499,999
Role: Senior Investigator	Huff Allocation: N/A
Dynamic Transition Analysis with TIMES	Period: 2018–2019
Source: I ² CNER	Award Total: \$76,359
Role: Co-PI	Huff Allocation: \$76,359
Investigation of Agricultural Uses of Nuclear Waste Heat	Period: 2017–2018
Source: Exelon	Award Total: \$151,257
Role: Co-PI	Huff Allocation: \$11,678
Consortium for Verification Technology	Period: 2015–2020
Source: NNSA Office of DNN R&D	Award Total: \$25,000,000
Role: UIUC PI, CVT Investigator	Huff Allocation: \$347,000
Consortium for Nonproliferation Enabling Capabilities	Period: 2014–2019
Source: NNSA Office of DNN R&D	Award Total: \$25,000,000
Role: UIUC PI, Thrust Area Lead	Huff Allocation: \$648,000
Collaborative, Open-Source Curriculum Development	Period: 2017–2018
Source: UIUC Strategic Instructional Innovations Program	Award Total: \$19,347
Role: PI	Huff Allocation: \$13,000
REU Site: INCLUSION at U. Illinois	Period: 2017–2020
Source: NSF - ACI	Award Total: \$380,036
Role: Senior Investigator	Huff Allocation: N/A
Demand-Driven Cynamore Archetypes	Period: 2016–2019
Source: DOE, NEUP R&D	Award Total: \$800,000
Role: Co-PI	Huff Allocation: \$395,066

BOOKS

[1] Scopatz, A., **Huff, K.**. “Effective Computation in Physics: Field Guide to Research in Python” O’Reilly Media. [ISBN:978-1491901533](#), 2015.

BOOK
CHAPTERS

[2] **Huff, K.**. “Case Study: Cyclus Project,” in The Practice of Reproducible Research, 1st ed., Justin Kitzes, Fatma Imamoglu, and Daniel Turek, Eds. University of California, Berkeley: University of California Press. [ISBN:9780520294752](#), 2017.

[3] **Huff, K.**. “Lessons Learned,” in The Practice of Reproducible Research, 1st ed., Justin Kitzes, Fatma Imamoglu, and Daniel Turek, Eds. University of California, Berkeley: University of California Press. [ISBN:9780520294752](#), 2017.

[4] **Huff, K.**. “Economics of Advanced Reactors and Fuel Cycles,” in Storage and Hybridization of Nuclear Energy, 1st ed., Hitesh Bindra, Ed. Elsevier S&T Books. (*in preparation*).

JOURNAL
PUBLICATIONS

[5] Lindsay, A., Ridley, G., Rykhlevskii, A., **Huff, K.** “Introduction to Moltres: an Application for Simulation of Molten Salt Reactors”, **Annals of Nuclear Energy**, <https://doi.org/10.1016/j.anucene.2017.12.025>, Apr. 2018.

[6] Lindsay, A., **Huff, K.** “Moltres: finite element based simulation of molten salt reactors”, **The Journal of Open Source Software**, <https://doi.org/10.21105/joss.00298>, Jan. 2018.

- [7] Allen, A., Aragon, C., Becker, C., Carver, J., Chis, A., Combemale, B., Croucher, M., Crowston, K., Garijo, D., Gehani, A., Goble, C., Haines, R., Hirschfeld, R., Howison, J., **Huff, K.**, Jay, C., Katz, D.S., Kirchner, C., Kuksenok, K., Lämmel, R., Nierstrasz, O., Turk, M., Nieuwpoort, R. van, Vaughn, M., Vinju, J.J., “Engineering Academic Software (Dagstuhl Perspectives Workshop 16252).” **Dagstuhl Manifestos** 6, 120. <https://doi.org/10.4230/DagMan.6.1.1>, 2017.
- [8] **Huff, K.** “Rapid Methods for Radionuclide Contaminant Transport in Nuclear Fuel Cycle Simulation”, **Advances in Engineering Software**, <https://doi.org/10.1016/j.advengsoft.2017.07.006>, 2017.
- [9] Andreades, C., Cisneros, A.T., Choi, J.K., Chong, A.Y., Fratoni, M., Hong, S., Huddar, L.R., **Huff, K.**, Kendrick, J., Krumwiede, D.L., Laufer, M., Munk, M., Scarlat, R.O., Wang, X., Zwiebaum, N., Greenspan, E. and P. Peterson. “Design Summary of the Mark-I Pebble-Bed, Fluoride Salt Cooled, High-Temperature Reactor Commercial Power Plant,” **Nuclear Technology**, vol. 195, no. 3, pp. 222-238, <https://doi.org/10.13182/NT16-2>, Sep. 2016.
- [10] **Huff, K.**, Gidden, M., Carlsen, R., Flanagan, R., McGarry, M., Opotowsky, A., Schneider, E., Scopatz, A., Wilson, P. “Fundamental Concepts in the CYCLUS Nuclear Fuel Cycle Simulation Framework.” **Advances in Engineering Software**, vol. 94, pp. 4659, <https://doi.org/10.1016/j.advengsoft.2016.01.014>, Apr. 2016.
- [11] Aruliah, D.A., Brown, C.T., Chue Hong, N.P., Davis, M., Guy, R.T., Haddock, S.H.D., **Huff, K.**, Mitchell, I., Plumbley, M., Waugh, B., White, E.P., Wilson, G.V., and Wilson, P.P.H. “Best Practices For Scientific Computing.” **PLOS Biology**, Vol 1, Issue 12, <https://dx.doi.org/10.1371/journal.pbio.1001745>, 2014.
- [12] Clerc, M., Dunstan, J., **Huff, K.**, Mujica, N., Varas, G. “Liquid-Solid-Like Transition in Quasi-One-Dimensional Driven Granular Media ”, **Nature Physics**, Vol 4, 249 - 254, <https://doi.org/10.1038/nphys884>, 2008.
- REFEREED CONFERENCE PROCEEDINGS [13] Niemeyer, K., Smith, A., Barba, L., Githinji, G., Gymrek, M., **Huff, K.**, Katz, D., Madan, C., Cabunoc, A. “Introducing JOSS: The Journal of Open Source Software” **Scientific Computing with Python Conference (SciPy 2017)**, Austin, TX. July 2017.
- [14] **Huff, K.**, Bae, J., Mummah, K., Flanagan, R., Scopatz, A. “Current Status of Predictive Transition Capability in Fuel Cycle Simulation” **GLOBAL 2017 International Nuclear Fuel Cycle Conference**, Seoul, South Korea. September 2017.
- [15] Bae, J., Roy, W., **Huff, K.** “Benefits of Siting a Borehole Repository on Non-Operating Nuclear Facility” Paper 19727. **International High-Level Radioactive Waste Management Conference (IHLRWM 2017)**, Charlotte, NC. April 2017.
- [16] Wang, X., **Huff, K.**, Aufiero, M., Peterson, P., Fratoni, M. “Coupled reactor kinetics and heat transfer model for nuclear reactor transient analysis.” Paper 60728. **24th International Conference on Nuclear Engineering (ICONE24)**, Charlotte, NC. June 2016.
- [17] Wang, X., **Huff, K.**, Aufiero, M., Peterson, P., Fratoni, M. “A sensitivity study of a coupled kinetics and thermal-hydraulics model for Fluoride-salt-cooled, High-temperature Reactor (FHR) transient analysis.” **The International Congress on Advances in Nuclear Power Plants (ICAPP)**, San Francisco, CA. April 2016.
- [18] Greenberg, H., Fratoni, M., Djokic, D., **Huff, K.**, Nibbelink, R., Scopatz, A. “The Application of CYCLUS to Fuel Cycle Transition Modeling” Paper 5061. **Proceedings of Global**, Paris, France. September 2015.
- [19] **Huff, K.**, “PyRK: Python for Reactor Kinetics.” **Proceedings of the 14th Python in Science Conference**, Austin, TX. July 2015.
- [20] Krumwiede, D.L., Andreades, C., Choi, J.K., Cisneros, A.T., Huddar, L., **Huff, K.**, Laufer, M.D., Munk, M., Scarlat, R.O., Seifried, J.E., Zweibaum, N., Greenspan, E., Peterson, P.F. “Design of the Mark-I Pebble-Bed, Fluoride-Salt-Cooled, High-Temperature Reactor Commercial Power Plant,” Paper 14231. **Proceedings of ICAPP**, Charlotte, NC. April 2014.
- [21] **Huff, K.** “CYCLUS Fuel Cycle Simulation Capabilities with the Cyder Disposal System Model,” Paper 7730. **Proceedings of Global**, Salt Lake City, UT. October 2013.

- [22] Gidden, M., Wilson, P., **Huff, K.**, Carlsen, R. “An Agent-Based Framework for Fuel Cycle Simulation with Recycling,” Paper 7737. **Proceedings of Global**, Salt Lake City, UT. October 2013.
- [23] **Huff, K.**, Nutt, M. “Hydrologic Nuclide Transport Models in Cyder, a Geologic Disposal Software Library,” Paper 13328. **Proceedings of the Waste Management Symposium**, Phoenix, AZ. February 2013.
- [24] Oliver, K.M., Wilson, P.P.H., Reveillere, A., **Huff, K.** “Studying international fuel cycle robustness with the GENIUSv2 discrete facilities/materials fuel cycle systems analysis tool ”, Paper 9166. **Proceedings of Global**, Paris, France. 2009.
- [25] Rochman, D., Haight, R. C., Wender, S. A., O’Donnell, J. M., Michaudon, A., **Huff, K.**, Vieira, D. J., Bond, E., Rundberg, R.S., Kronenberg, A., Wilhelmy, J., Bredeweg, T. A., Schwantes, J., Ethvignot, T., Granier, T., Petit, M., Danon, Y. “First Measurements with a Lead Slowing-Down Spectrometer at LANSCE,” **AIP Conference Proceedings, International Conference on Nuclear Data for Science and Technology**. Volume 769. 2005.
- REFEREED
CONFERENCE
ABSTRACTS [26] Bae, J. W., **Huff, K.**, Singer, C. “Synergistic Spent Nuclear Fuel Dynamics Within the European Union” **Transactions of the American Nuclear Society Winter Conference**. Washington, DC, 2017.
- [27] Rykhlevskii, A., Lindsay, A., **Huff, K.** “Full-core analysis of thorium-fueled Molten Salt Breeder Reactor using the SERPENT 2 Monte Carlo code” **Transactions of the American Nuclear Society Winter Conference**. Washington, DC, United States, 2017.
- [28] Rykhlevskii, A., Lindsay, A., **Huff, K.** “Online reprocessing simulation for thorium-fueled molten salt breeder reactor,” **Transactions of the American Nuclear Society Winter Conference**. Washington, DC, United States, 2017.
- [29] **Huff, K.**, Scopatz, A. “Modernizing Computational Nuclear Engineering Education – In the Open” **Transactions of the American Nuclear Society Winter Conference**. Washington, DC. November 2015.
- [30] **Huff, K.**, Fratoni, M., Greenberg, H. “Extensions to the CYCLUS Ecosystem in Support of Market-Driven Transition Capability” **Transactions of the American Nuclear Society Winter Conference**. Anaheim, CA. November 2014.
- [31] Bates, C., Biondo, E., **Huff, K.**, Kiesling, K., Scopatz, A. “PyNE Progress Report” **Transactions of the American Nuclear Society Winter Conference**. Anaheim, CA. November 2014.
- [32] **Huff, K.**, Bara, A. “Dynamic Determination of Thermal Repository Capacity For Fuel Cycle Analysis.” **Transactions of the American Nuclear Society Annual Conference**. Atlanta, GA. June 2013.
- [33] **Huff, K.**, Nutt, M. “Key Processes and Parameters in a Generic Clay Disposal System Model.” **Transactions of the American Nuclear Society Winter Conference**. San Diego, CA. November 2012.
- [34] Scopatz, A.M., Romano, P.K., Wilson, P.P.H., **Huff, K.** “PyNE: Python For Nuclear Engineering.” **Transactions of the American Nuclear Society Winter Conference**. San Diego, CA. November 2012.
- [35] **Huff, K.**, Bauer, T. “Numerical Calibration of an Analytical Generic Nuclear Repository Heat Transfer Model.” **Transactions of the American Nuclear Society Annual Conference**. Chicago, IL. June 2012.
- [36] **Huff, K.**, Gidden, M., Wilson, P.P.H. “Open architecture and modular paradigm of CYCLUS, a fuel cycle simulation code.” **Transactions of the American Nuclear Society Annual Conference**. Hollywood, FL. June 2011.
- [37] **Huff, K.**, Scopatz, A., Preston, N., Wilson, P.P.H. “Rapid Peer Education of a Computational Nuclear Engineering Skill Suite.” **Transactions of the American Nuclear Society Annual Conference**. Hollywood, FL. June 2011.

- [38] **Huff, K.** “CYCLUS: An Open, Modular, Next Generation Fuel Cycle Simulator Platform. ” (poster) **Waste Management Symposium.** Phoenix, AZ. March 2011.
- [39] **Huff, K.**, “MOX Fuel Recipe Approximation Tests in GENIUSv2. ” **Proceedings of the American Nuclear Society Student Conference.** Ypsilanti, MI. April 2010.
- [40] **Huff, K.**, Oliver, K., Wilson, P.P.H. “GENIUSv2 Discrete Facilities/Materials Modeling of International Fuel Cycle Robustness. ” **Transactions of the American Nuclear Society Winter Conference.** Washington D.C. November 2009.
- [41] **Huff, K.**, Wilson, P.P.H., Oliver, K. “GENIUS Version 2: Modelling the Worldwide Nuclear Fuel Cycle.” (poster) **eHub Conference.** University of Wisconsin - Madison. November 2009.
- TECHNICAL
REPORTS
- [42] J.W. Bae, **K. Huff**, “Non-algorithmic Capability Gaps for Cyclus and Cycamore Transition Analyses,” **Advanced Reactors and Fuel Cycles Report Series**, Nuclear Plasma and Radiological Engineering, University of Illinois. Report UIUC-ARFC-2017-02, <https://arfc.npre.illinois.edu/research/reports/uiuc-arfc-2017-02.pdf> Nov. 2017.
- [43] G. Ridley, A. Lindsay, M. Turk, **K. Huff**, “ Multiphysics Analysis of Molten Salt Reactor Transients,” **Advanced Reactors and Fuel Cycles Report Series**, Nuclear Plasma and Radiological Engineering, University of Illinois. Report UIUC-ARFC-2017-01, <https://arfc.npre.illinois.edu/research/reports/uiuc-arfc-2017-01.pdf> Aug. 2017.
- [44] C. Andreades, A. T. Cisneros, J.K. Choi, A.Y.K. Chong, D. L. Krumwiede, L.R. Huddar, **K. Huff**, M. R. Laufer, M.O. Munk, R.O. Scarlat, J. Seifried, N. Zweibaum, E. Greenspan, and P. F. Peterson, “Technical Description of the Mark 1 Pebble-Bed Fluoride-Salt-Cooled High-Temperature Reactor (PB-FHR) Power Plant,” **U.C. Berkeley Nuclear Engineering**, Report UCBTH-14-002, 2014.
- [45] **Huff, K.**, Nutt, W.M. “FY12 Sensitivity Studies Using the UFD Clay Generic Disposal System Model.” **Argonne National Laboratory.** July 2012.
- [46] **Huff, K.**, Bauer, T.H. “Benchmarking a New Closed-Form Thermal Analysis Technique Against a Traditional Lumped Parameter, Finite-Difference Method” **Argonne National Laboratory.** (FCRD-UFD-2012-000142). July 2012.
- [47] **Huff, K.**, Dixon, B., Braase, L. “Next Generation Fuel Cycle Simulator Functions and Requirements Document.” **Idaho National Laboratory** (FCRD-SYSA-2010-000110). July 2010.
- [48] **Huff, K.** “Digital Filtering Application to the Lead Slowing Down Spectrometer.” Los Alamos Neutron Science Center. August 2004. (**awarded los alamos distinguished student award.**)
- [49] **Huff, K.** “Excess Single Event Effects in the Second Chip of a Series.” Los Alamos Neutron Science Center. August 2003.
- OTHER
PUBLICATIONS
- [50] **Huff, K.** An Integrated Used Fuel Disposition and Generic Repository Model for Fuel Cycle Analysis. Ph.D. Dissertation—Nuclear Engineering and Engineering Physics. University of Wisconsin – Madison. August 2013.
- [51] **Huff, K.** “Celestial Calibrations of the Quiet Telescope.” Undergraduate Honors Thesis. University of Chicago. June 2008.
- [52] Biris, O., Gracey, K., **Huff, K.**, Ng, W.K. “An Analysis of the Consolidated Fuel Treatment Center Nuclear Reprocessing Initiative.” **Big Problems Energy Seminar. University of Chicago.** June 2008.
- SOFTWARE
PRODUCTS
- [53] Carlsen, R., Flanagan, R., Gidden, M., **Huff, K.**, Littell, J., McGarry, M., Mougnot, B., Opotowsky, A., Scopatz, A., Skutnik, S., and Wilson, P.. Cycamore v1.5.0. **figshare**, Nov 2016. <https://dx.doi.org/10.6084/m9.figshare.4312661.v1>.
- [54] **Huff, K.** “PyRK v0.1” **figshare.** <http://dx.doi.org/10.6084/m9.figshare.1540727>. September 2015.
- [55] Carlsen, R., Flanagan, R., Gidden, M., **Huff, K.**, McGarry, M., Opotowsky, A., Scopatz, A., Wilson, P., and Xia, J.. Cyclus v1.3.0. **figshare**, July 2015. <http://dx.doi.org/10.6084/m9.figshare.1427429>.

- [56] Bates, C., Biondo, E., Brachem, C., Carlsen, R., Cary, J., Davis, A., Dembia, C., Elfring, M., Flanagan, R., Gidden, M., Haines, T., Howland, J., Huff, B., **Huff, K.**, Jackson, S., Kiesling, K., Klebenow, M., Kuett, M., Manalo, K., M. McCormick, A. Opotowsky, C., Pavlovsky, R., Rabbani, M., Relson, E., Romano, P., Scopatz, A., Shriwise, P., Slaybaugh, R., Wilson, P., Xia, J., J. Zachman, C., and Zweig, M. “PyNE v0.5.” **github**. github.com/pyne/pyne/releases/tag/0.5.0. April 2015.
- [57] Carlsen, R., Gidden, M., **Huff, K.**, Opotowsky, A., Rakhimov, O., Scopatz, A., and Wilson, P. Cycamore v1.1.0. **figshare**, September 2014. <http://dx.doi.org/10.6084/m9.figshare.1174604>.
- [58] Carlsen, R., Gidden, M., **Huff, K.**, Rakhimov, O., and Scopatz, A. Cycus v1.1.0. **figshare**, September 2014. <http://dx.doi.org/10.6084/m9.figshare.1174603>.
- [59] Carlsen, R., Gidden, M., **Huff, K.**, Arrielle C. Opotowsky, Rakhimov, O., Scopatz, A., Zach Welch, and Wilson, P. Cycus v1.0.0. **figshare**, June 2014. <http://dx.doi.org/10.6084/m9.figshare.1041745>.
- [60] Carlsen, R., Gidden, M., **Huff, K.**, Arrielle C. Opotowsky, Rakhimov, O., Scopatz, A., and Wilson, P. Cycamore v1.0.0. **figshare**, June 2014. <http://dx.doi.org/10.6084/m9.figshare.1041829>.

INVITED
TALKS

U. Michigan, Nuclear Engineering and Radiological Sciences <i>Seminar</i> .	Feb 9, 2018
PyData, Meetup, Ann Arbor, MI <i>Invited Tech. Talk</i> .	Feb 8, 2018
Olin College of Engineering, <i>Seminar</i> .	Oct 31, 2017
Argonne National Laboratory, NNSA Nuclear Nonproliferation, <i>Seminar</i> .	Sep 21, 2017
SciPy 2017, Scientific Python Conference, Austin, TX, <i>Keynote</i> .	Jul 12, 2017
ANS Annual, Young Members Group, Workforce Transition, <i>Panel</i> .	Jun 13, 2017
ANS Annual, Mathematics and Computation Division, Current Issues, <i>Panel</i> .	Jun 12, 2017
Oak Ridge National Laboratory, RPNSD, <i>Seminar</i> .	Jun 29, 2017
PyCon 2017, Portland, OR. <i>Keynote</i> .	May 19, 2017
U. California, Davis, Mechanical and Aerospace Engineering, <i>Seminar</i> .	April 20, 2017
U. Illinois, Computational Science and Engineering, <i>Seminar</i> .	Feb 2, 2017
U. Illinois, AE3 Lightning Symposium, <i>Lightning Talk</i> .	Mar 2, 2017
U. Illinois, Nuclear, Plasma, & Radiological Engineering, <i>Undergraduate Seminar</i> .	Feb 14, 2017
U. California, Berkeley, Berkeley Institute for Data Science, <i>Symposium</i> .	Jan 27, 2017
U. Illinois, Informatics, <i>Seminar</i> .	Oct 13, 2016
PyData 2016, Chicago, IL. <i>Keynote</i> .	Aug 27, 2016
Oak Ridge National Laboratory, RPNSD, <i>Seminar</i> .	Mar 3, 2016
U. Tennessee, Knoxville, Nuclear Engineering, <i>Seminar</i> .	Mar 2, 2016
Michigan State, Computational, Mathematics, Science, and Engineering, <i>Seminar</i> .	Dec 15, 2015
U. Illinois, Nuclear, Plasma, & Radiological Engineering, <i>Seminar</i> .	Dec 8, 2015
SC15, Austin TX, Python in High Performance Computing workshop, <i>Keynote</i> .	Nov 15, 2015
U. Illinois, National Center for Supercomputing Applications, <i>Colloquium</i> .	Nov 6, 2015
North Carolina State University, Nuclear Engineering, <i>Colloquium</i> .	Oct 15, 2015
Texas A&M University, Nuclear Engineering, <i>Colloquium</i> .	Sep 29, 2015
Rensselaer Polytechnic Inst, Mechanical and Nuclear Engineering, <i>Colloquium</i> .	Sep 21, 2015
U. Washington, What Can Academia Learn from Open Source?, <i>Panel</i> .	Feb 2, 2015

ENGINEERING
TEACHING

University of Illinois at Urbana-Champaign, DEPT. OF NUCLEAR, PLASMA, AND RADIOLOGICAL ENGINEERING NPRES 412, Nuclear Power Economics and Fuel Management	Fall 2016
University of California, Berkeley, DEPT. OF NUCLEAR ENGINEERING NE 155, Introduction to Numerical Simulations in Radiation Transport Point Reactor Kinetics, Monte Carlo Methods	Apr 1,3,22, 2015
University of California, Berkeley, DEPT. OF NUCLEAR ENGINEERING NE 255, Numerical Simulation in Radiation Transport Best Practices in Computational Nuclear Engineering	Sep 11, 2014
University of Wisconsin - Madison, DEPT. OF NUCLEAR ENGINEERING NE 571, Economic and Environmental Aspects of Nuclear Energy Nuclear Waste Repository Technology, Policy, and History	Apr 1&3, 2013

University of Wisconsin - Madison, DEPT. OF NUCLEAR ENGINEERING **Sep 9&11, 2009**
NE 406, Nuclear Reactor Analysis
 UNIX Shell, Basic Scripting, Environment Variables, Permissions, Regular Expressions, Makefiles

University of Wisconsin - Madison, DEPT. OF NUCLEAR ENGINEERING **Feb 10, 2010**
NE 506, Practicum in Monte Carlo Radiation Transport
 UNIX Shell, Basic Scripting, Environment Variables, Permissions, Regular Expressions, Makefiles

INVITED
 SCIENTIFIC
 COMPUTING
 TEACHING

SciPy Conference, Austin, TX **Jul 6–7, 2015**
 Introductory Python For Scientific Software

University of Split, Split, Croatia **Sep 8–13, 2014**
 G-Node Advanced Scientific Programming in Python Summer School

SciPy Conference, Austin, TX **Jun 25, 2013**
 Version Control and Unit Testing For Scientific Software

University of Chicago, Graduate School, Chicago, IL **Jan 12–13, 2013**
 Computational Literacy Workshop

University of California, Berkeley, Berkeley, CA **Oct 20–21, 2012**
 Department of Statistics Scientific Computing Workshop

Lawrence Berkeley National Laboratory, Berkeley, CA **Oct 17–18, 2012**
 Software Carpentry Python Workshop

International Center for Theoretical Physics, Trieste, Italy **Feb 20–Mar 2, 2012**
 UNESCO/IAEA Advanced School on Scientific Software Development

University of Toronto, Toronto, ON, Canada **Nov 7–8, 2011**
 SciNet Consortium For High Performance Computing Software Carpentry Bootcamp

American Nuclear Society Winter Meeting, Washington, D.C. **Nov 1, 2011**
 Young Professionals Congress Hacker Within Scientific Computing Tutorial

Michigan State University, East Lansing, MI **Jun 4–5, 2011**
 Institute for Cyber Enabled Research (iCER) and BEACON Center THW Bootcamp

SCIENTIFIC
 COMPUTING
 TEACHING

Berkeley Institute for Data Science, Berkeley, CA **Jan 14–15, 2015**
 Managing Databases in SQL

Berkeley Institute for Data Science, Berkeley, CA **Jun 4–5, 2015**
 Testing for Scientific Software

Lawrence Berkeley National Laboratory, Berkeley, CA **Apr 14–15, 2014**
 Women in Science and Engineering Bootcamp

The University of Chicago, Chicago, IL **Apr 2–3, 2012**
 Software Carpentry Scientific Computing Workshop

The University of Wisconsin, Madison, WI **Jan 12–14, 2011**
 The Hacker Within Software Carpentry Bootcamp

The University of Wisconsin, Madison, WI **Jan 12–14, 2010**
 The Hacker Within Python Bootcamp

The University of Wisconsin, Madison, WI **Mar 24–31, 2009**
 The Hacker Within C++ Bootcamp

The University of Wisconsin, Madison, WI **Jan 12–15, 2009**
 University of Wisconsin, Hacker Within UNIX Bootcamp

POSTDOCTORAL
 RESEARCHERS

<u>NAME</u>	<u>DATES</u>	<u>ROLE</u>
Alexander Lindsay	2016–2017	Advisor

GRADUATE RESEARCHERS	<u>NAME</u>	<u>DEGREE - YEAR</u>	<u>ROLE</u>
	Michael Cheng	MS - 2017	MS Second Reader
	Mark Kamuda	MS - 2017	MS Second Reader
	Mark Kamuda	PhD - (est. 2019)	PhD Advisor
	Andrei Rykhlevskii	PhD - (est. 2021)	PhD Advisor
	Jin Whan Bae	PhD - (est. 2022)	PhD Advisor
	Sun Myung Park	PhD - (est. 2022)	PhD Advisor
	Anshuman Chaube	PhD - (est. 2022)	PhD Advisor
	Gwendolyn Chee	MS - (est. 2020)	MS Advisor

UNDERGRADUATE RESEARCHERS	<u>NAME</u>	<u>DEGREE - YEAR</u>	<u>SCHOLARSHIPS</u>
	Jin Whan Bae	BS - 2017	NPRE Outstanding Undergrad Research ANS Best Student Fuel Cycle Presentation
	Kathryn Mummah	BS - 2017	Roy G. Post Foundation Scholarship ANS FCWMD Randall Scholar
	Eric Riewski	BS - 2017	
	GyuTae Park	BS - (est. 2018)	
	Yukun Tan	BS - (est. 2018)	Students Pushing Innovation
	Louis Kissinger	BS - (est. 2019)	
	Xin Wen	BS - (est. 2018)	Students Pushing Innovation

VISITING RESEARCHERS	<u>NAME</u>	<u>DATES</u>	<u>LEVEL - INSTITUTION</u>
	Gavin Ridey	2017	BS–University of Tennessee, Knoxville
	Aditya Bhosale	2017	BS - IIT, Bombay
	Snehal Chandan	2017	BS - IIT, Bombay

SCIENTIFIC COMPUTING SKILLS	<u>LANGUAGES</u>	bash/csh, C++, FORTRAN, Perl, Python, XML
	<u>BUILD SYSTEMS</u>	make, CMake, automake
	<u>DATABASES</u>	HDF5, SQL
	<u>TEST FRAMEWORKS</u>	CTest, GoogleTest, nose
	<u>VERSION CONTROL</u>	cvs, git, hg, svn
	<u>OTHER TOOLS</u>	Doxygen, Sphinx, GoldSim, L ^A T _E X, Mathematica, MatLab, MCNP, MOOSE

EDITING AND REVIEWING	<u>EDITOR</u>	<i>Journal of Open Source Software</i> 2016 – present <i>Proceedings of the SciPy Scientific Python Conference</i> 2013, 2015, & 2017
	<u>MANUSCRIPT REFEREE</u>	<i>Annals of Nuclear Energy</i> <i>Journal of Nuclear Energy Science and Power Generation Technology</i> <i>Nuclear Engineering and Design</i> <i>Nuclear Science and Engineering</i> <i>Nuclear Technology</i> <i>Progress in Nuclear Energy</i>
	<u>GRANT PROPOSAL REFEREE</u>	<i>Dept. of Energy Nuclear Energy University Programs</i> <i>Dept. of Energy Technology Commercialization Fund</i> <i>Blue Waters Fellows Program</i> <i>Alfred P. Sloan Foundation</i>
	<u>BOOK PROPOSAL REFEREE</u>	<i>O'Reilly Media</i> <i>Elsevier</i>

PROFESSIONAL SERVICE	<u>CO-ORGANIZER, TECHNICAL WORKSHOP ON FUEL CYCLE SIMULATION</u>	2017
	<u>TECHNICAL PROGRAM COMMITTEE, IHLRWM CONFERENCE</u>	2017

Chair , Fuel Cycle & Waste Management Division, ANS	2016–2017
Vice Chair , Fuel Cycle & Waste Management Division, ANS	2015–2016
Chair , Steering Committee, Software Carpentry Foundation	2014–2015
Secretary–Treasurer , Fuel Cycle & Waste Management Division, ANS	2013–2015
Secretary , Young Members Group, ANS	2013–2014
Technical Program Co-Chair , SciPy, Scientific Python Conference	2013–2014
Member , Next Generation Leadership Committee, Waste Management Symposium	2013–2014
Moderator, Organizer, Panelist , inSCIght Scientific Computing Podcast	2011–2013
Co-Founder , Nuclear Pride, LGBTQA Organization	2011–2013
Co-Founder, Treasurer, President , Hacker Within Scientific Computing Group	2008–2011
Governor, Treasurer , University of Wisconsin ANS student section	2008–2010

DEPARTMENTAL
SERVICE

Graduate Committee , Admissions Sub-Committee	2017
Faculty Advisor , UIUC ANS Student Section	2016–2017

OTHER
UNIVERSITY
SERVICE

Faculty Advisor , UIUC CSE The Hacker Within Scientific Computing Group	2016–2017
Hack Mentor , Hack Illinois	2017