

# Kathryn D. Huff

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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: <a href="mailto:katyhuff@gmail.com">katyhuff@gmail.com</a> website: <a href="http://katyhuff.github.com">katyhuff.github.com</a>
RESEARCH INTERESTS	Advanced nuclear reactors and fuel cycles, multi-physics simulation, nuclear fuel cycle analysis, scientific computation.	
PHD	<b>University of Wisconsin - Madison, NUCLEAR ENGINEERING</b> • An Integrated Used Fuel Disposition and Generic Repository Model for Fuel Cycle Analysis • Advisor: Professor Paul P.H. Wilson	<b>Aug 2008 – Aug 2013</b>
BA	<b>University of Chicago, PHYSICS</b> • Celestial Gain Calibrations of QUIET Telescope Polarimeters	<b>Aug 2004 – Jun 2008</b>
RESEARCH EXPERIENCE	<b>University of Illinois at Urbana-Champaign, Urbana, IL</b> <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.	<b>Aug 2016 – Present</b> <b>Aug 2016 – Present</b>
	<b>University of California - Berkeley, NE Dept., Berkeley, CA</b> <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.	<b>Sep 2013 – Jul 2016</b> <b>Aug 2014 – Jul 2016</b>
	<b>Argonne National Laboratory, Argonne, IL</b> <i>Laboratory Graduate Research Appointee, Used Fuel Disposition Campaign</i> Developed a used fuel disposition and generic repository computational model.	<b>Jun 2011 – Aug 2013</b>
	<b>University of Wisconsin - Madison, NEEP Dept., Madison, WI</b> <i>Graduate Research Assistant, Computational Nuclear Engineering Research Group</i> Developed and applied CYCLUS, a nuclear fuel cycle systems analysis tool.	<b>Jun 2008 – Aug 2013</b>
	<b>Idaho National Laboratory, Idaho Falls, ID</b> <i>Graduate Research Assistant, Systems Analysis Campaign</i> Developed software functions and requirements for the Fuel Cycle Simulator concept.	<b>Jun – Aug 2010</b>
	<b>Kavli Institute For Cosmological Physics, Chicago, IL</b> <i>Research Assistant, Laboratory for Astrophysics and Space Research</i> Programmed & machined instrumentation. Planned protocol for QUIET polarimeter calibration.	<b>Jan 2005 – Jun 2008</b>
	<b>Universidad de Chile, Physics Dept., Santiago, Chile</b> <i>Research Assistant, Chicago-Chile Research Exchange Program</i> Constructed and operated a far-from-equilibrium granular materials experiment.	<b>Jun – Sep 2006</b>
	<b>Los Alamos Neutron Science Center, Los Alamos, NM</b> <i>Research Assistant, LANSCE-3</i> Applied digital filtration algorithms and MCNPX models to experimental data.	<b>Jun – Sep 2004</b> <b>May – Aug 2003</b>
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	<b>2017</b> <b>2017</b> <b>2017</b> <b>Fall 2016</b> <b>2016</b> <b>2015–2016</b>

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

<b>Investigation of Agricultural Uses of Nuclear Waste Heat</b>	Period: 2017–2018
Source: Exelon	Award Total: \$151,257
Role: Co-PI	Huff Allocation: <b>\$10,000</b>
<b>Consortium for Verification Technology</b>	Period: 2015–2020
Source: NNSA Office of DNN R&D	Award Total: \$25,000,000
Role: UIUC PI, CVT Investigator	Huff Allocation: <b>\$347,000</b>
<b>Consortium for Nonproliferation Enabling Capabilities</b>	Period: 2014–2019
Source: NNSA Office of DNN R&D	Award Total: \$25,000,000
Role: UIUC PI, Thrust Area Lead	Huff Allocation: <b>\$648,000</b>
<b>Collaborative, Open-Source Curriculum Development</b>	Period: 2017–2018
Source: UIUC Strategic Instructional Innovations Program	Award Total: \$19,347
Role: PI	Huff Allocation: <b>\$13,000</b>
<b>REU Site: INCLUSION at U. Illinois</b>	Period: 2017–2020
Source: NSF - ACI	Award Total: \$380,036
Role: Senior Investigator	Huff Allocation: <b>N/A</b>
<b>Demand-Driven Cycamore Archetypes</b>	Period: 2016–2019
Source: DOE, NEUP R&D	Award Total: \$800,000
Role: Co-PI	Huff Allocation: <b>\$395,066</b>

BOOKS

- [1] Scopatz, A., **Huff, K.**. “Effective Computation in Physics: Field Guide to Research in Python” O’Reilly Media. 2015. [shop.oreilly.com/product/0636920033424.do](http://shop.oreilly.com/product/0636920033424.do).

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. 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. 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] 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. 2017. doi:10.4230/DagMan.6.1.1
- [6] **Huff, K.** “Rapid Methods for Radionuclide Contaminant Transport in Nuclear Fuel Cycle Simulation”, **Advances in Engineering Software**, 2017. <https://doi.org/10.1016/j.advengsoft.2017.07.006>
- [7] 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, Sep. 2016.

- [8] **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, Apr. 2016.
- [9] 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, 2014. [dx.doi.org/10.1371/journal.pbio.1001745](https://doi.org/10.1371/journal.pbio.1001745)
- [10] 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, 2008.
- SUBMITTED [11] Lindsay, A., Ridley, G., **Huff, K.** "Introduction to Moltres: an Application for Simulation of Molten Salt Reactors", 2017 (*submitted*).
- REFEREED [12] 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.
- CONFERENCE [13] **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.
- PROCEEDINGS [14] 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.
- [15] 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.
- [16] 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.
- [17] 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.
- [18] **Huff, K.**, "PyRK: Python for Reactor Kinetics." **Proceedings of the 14th Python in Science Conference**, Austin, TX. July 2015.
- [19] 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.
- [20] **Huff, K.** "CYCLUS Fuel Cycle Simulation Capabilities with the Cyder Disposal System Model," Paper 7730. **Proceedings of Global**, Salt Lake City, UT. October 2013.
- [21] 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.
- [22] **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.
- [23] 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.

- [24] 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.
- [25] 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.
- [26] 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.
- [27] 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.
- [28] **Huff, K.**, Scopatz, A. "Modernizing Computational Nuclear Engineering Education – In the Open" **Transactions of the American Nuclear Society Winter Conference**. Washington, DC. November 2015.
- [29] **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.
- [30] 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.
- [31] **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.
- [32] **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.
- [33] 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.
- [34] **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.
- [35] **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.
- [36] **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.
- [37] **Huff, K.** "CYCLUS: An Open, Modular, Next Generation Fuel Cycle Simulator Platform. " (poster) **Waste Management Symposium**. Phoenix, AZ. March 2011.
- [38] **Huff, K.**, "MOX Fuel Recipe Approximation Tests in GENIUSv2. " **Proceedings of the American Nuclear Society Student Conference**. Ypsilanti, MI. April 2010.
- [39] **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.
- [40] **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
- [41] 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.
  - [42] **Huff, K.**, Nutt, W.M. “FY12 Sensitivity Studies Using the UFD Clay Generic Disposal System Model.” **Argonne National Laboratory**. July 2012.
  - [43] **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.
  - [44] **Huff, K.**, Dixon, B., Braase, L. “Next Generation Fuel Cycle Simulator Functions and Requirements Document.” **Idaho National Laboratory** (FCRD-SYSA-2010-000110). July 2010.
  - [45] **Huff, K.** “Digital Filtering Application to the Lead Slowing Down Spectrometer.” Los Alamos Neutron Science Center. August 2004. (**awarded los alamos distinguished student award.**)
  - [46] **Huff, K.** “Excess Single Event Effects in the Second Chip of a Series.” Los Alamos Neutron Science Center. August 2003.
- OTHER PUBLICATIONS
- [47] **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.
  - [48] **Huff, K.** “Celestial Calibrations of the Quiet Telescope.” Undergraduate Honors Thesis. University of Chicago. June 2008.
  - [49] 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
- [50] Carlsen, R., Flanagan, R., Gidden, M., **Huff, K.**, Littell, J., McGarry, M., Mougnot, B., Opotowsky, A., Scopatz, A., Skutnik, S., and Wilson, P.. Cynamore v1.5.0. **figshare**, Nov 2016. <https://dx.doi.org/10.6084/m9.figshare.4312661.v1>.
  - [51] **Huff, K.** “PyRK v0.1” **figshare**. <http://dx.doi.org/10.6084/m9.figshare.1540727>. September 2015.
  - [52] 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>.
  - [53] 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](https://github.com/pyne/pyne/releases/tag/0.5.0). April 2015.
  - [54] Carlsen, R., Gidden, M., **Huff, K.**, Opotowsky, A., Rakhimov, O., Scopatz, A., and Wilson, P.. Cynamore v1.1.0. **figshare**, September 2014. <http://dx.doi.org/10.6084/m9.figshare.1174604>.
  - [55] Carlsen, R., Gidden, M., **Huff, K.**, Rakhimov, O., and Scopatz, A.. Cyclus v1.1.0. **figshare**, September 2014. <http://dx.doi.org/10.6084/m9.figshare.1174603>.
  - [56] Carlsen, R., Gidden, M., **Huff, K.**, Arrielle C. Opotowsky, Rakhimov, O., Scopatz, A., Zach Welch, and Wilson, P.. Cyclus v1.0.0. **figshare**, June 2014. <http://dx.doi.org/10.6084/m9.figshare.1041745>.
  - [57] Carlsen, R., Gidden, M., **Huff, K.**, Arrielle C. Opotowsky, Rakhimov, O., Scopatz, A., and Wilson, P.. Cynamore 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, RPNDS, <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, RPNDS, <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 NPRE 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 NE 406, Nuclear Reactor Analysis UNIX Shell, Basic Scripting, Environment Variables, Permissions, Regular Expressions, Makefiles	Sep 9&11, 2009
University of Wisconsin - Madison, DEPT. OF NUCLEAR ENGINEERING NE 506, Practicum in Monte Carlo Radiation Transport UNIX Shell, Basic Scripting, Environment Variables, Permissions, Regular Expressions, Makefiles	Feb 10, 2010

INVITED  
SCIENTIFIC  
COMPUTING  
TEACHING

SciPy Conference, Austin, TX Introductory Python For Scientific Software	Jul 6-7, 2015
University of Split, Split, Croatia G-Node Advanced Scientific Programming in Python Summer School	Sep 8-13, 2014
SciPy Conference, Austin, TX Version Control and Unit Testing For Scientific Software	Jun 25, 2013
University of Chicago, Graduate School, Chicago, IL Computational Literacy Workshop	Jan 12-13, 2013

**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>
<b>Alexander Lindsay</b>	2016–2017	Advisor

GRADUATE  
RESEARCHERS

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

UNDERGRADUATE  
RESEARCHERS

<u>NAME</u>	<u>DEGREE - YEAR</u>	<u>SCHOLARSHIPS</u>
<b>Jin Whan Bae</b>	BS - 2017	NPPE Outstanding Undergrad Research ANS Best Student Fuel Cycle Presentation
<b>Kathryn Mummah</b>	BS - 2017	Roy G. Post Foundation Scholarship
<b>Eric Riewski</b>	BS - 2017	ANS FCWMD Randall Scholar

<b>GyuTae Park</b>	BS - (est. 2018)	
<b>Yukun Tan</b>	BS - (est. 2018)	Students Pushing Innovation
<b>Louis Kissinger</b>	BS - (est. 2019)	
<b>Xin Wen</b>	BS - (est. 2018)	Students Pushing Innovation

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

SCIENTIFIC COMPUTING SKILLS	<b>Languages</b>	bash/csh, C++, FORTRAN, Perl, Python, XML
	<b>Build Systems</b>	make, CMake, automake
	<b>Databases</b>	HDF5, SQL
	<b>Test Frameworks</b>	CTest, GoogleTest, nose
	<b>Version Control</b>	cvs, git, hg, svn
	<b>Other Tools</b>	Doxygen, Sphinx, GoldSim, L <sup>A</sup> T <sub>E</sub> X, Mathematica, MatLab, MCNP, MOOSE

EDITING AND REVIEWING	<b>Editor</b>	<i>Journal of Open Source Software</i> <b>2016</b> <i>Proceedings of the SciPy Scientific Python Conference</i> <b>2013, 2015, &amp; 2017</b>
	<b>Manuscript Referee</b>	<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>
	<b>Grant Proposal Referee</b>	<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>
	<b>Book Proposal Referee</b>	<i>O'Reilly Media</i> <i>Elsevier</i>

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

DEPARTMENTAL SERVICE	<b>Graduate Committee</b> , Admissions Sub-Committee	<b>2017</b>
	<b>Faculty Advisor</b> , UIUC ANS Student Section	<b>2016–2017</b>



OTHER  
UNIVERSITY  
SERVICE

**Faculty Advisor, UIUC CSE The Hacker Within Scientific Computing Group**  
**Hack Mentor, Hack Illinois**

**2016–2017**  
**2017**