

Patrick C. Shriwise, Ph.D.

CONTACT INFORMATION	Rm. 428 Engineering Research Bld. 1500 Engineering Dr Madison, WI 53706	Mobile: +1 608 446 8173 E-mail: pshriwise@gmail.com Website: pshriwise.github.io Github/Bitbucket: pshriwise
CITIZENSHIP	USA	
RESEARCH INTERESTS	Nuclear systems analysis, Monte Carlo radiation transport, nuclear energy, scientific computation, software engineering, visualization, ray tracing	
EDUCATION	PhD, <i>Nuclear Engineering</i> , University of Wisconsin - Madison July 2018 <ul style="list-style-type: none">Geometry Query Optimizations in CAD-based Tessellations for Monte Carlo Radiation Transport MASTERS, <i>Nuclear Engineering</i> , University of Wisconsin - Madison Sept 2012 <ul style="list-style-type: none">Magnetic Topology Design for the Pegasus Spherical Tokamak Device B.S., <i>Mechanical Engineering</i> , Kansas State University May 2011 <ul style="list-style-type: none"><i>cum Laude</i>, with Nuclear Engineering Option	
RESEARCH EXPERIENCE	Argonne National Lab , Argonne, IL Sept 2018 - Present Postdoctoral Appointee Supervisor: Paul Romano Developing OpenMC capability enhancements in visualization and depletion.	
	University of Wisconsin - Madison, NE Dept. , Madison, WI April 2013 - June 2018 <i>Nuclear Regulatory Commission Research Fellow</i> Advisor: Professor Paul Wilson Conducted research in acceleration techniques for CAD-based Monte Carlo radiation transport in DAGMC.	
	University of Wisconsin - Madison, NE Dept. , Madison, WI Sept 2011 - April 2013 <i>Graduate Research Assistant</i> Advisor: Professor Raymond Fonck Developed new diagnostic tools and performed computational modeling for the Pegasus plasma physics experiment.	
	Kansas State University, NE Dept. , Madison, WI August 2010 - May 2011 <i>Undergraduate Research Assistant</i> Advisor: Professor John Schlup Oncology research on the viability of boron-neutron capture therapy using boron-loaded nanoparticles.	
HONORS & AWARDS	ANS Math & Computation Presentation Award, UW - Madison	2016

Nuclear Regulatory Commission Research Fellowship, UW - Madison	2013
Johnson Cancer Center Research Scholarship, Kansas State University	2010
Putnam Scholarship, Kansas State University	2006-2010

PROFESSIONAL ORGANIZATIONS & SERVICE	Software Carpentry , Certified Instructor	2016-present
	Tau Beta Pi , member	2008-present
	Alpha Nu Sigma , member	2009-present
	American Nuclear Society, UW - Madison Chapter , member	2013-present

TEACHING EXPERIENCE	University of Wisconsin Advanced Computing Initiative Software Carpentry: Instructor	June 6-7, 2018
	University of Wisconsin Advanced Computing Initiative Software Carpentry: Instructor	Jan 10-11, 2018
	University of Wisconsin NEEP 602 (Mesh Generation): Guest Lecturer	Nov 14, 16, 21, 2017
	University of Wisconsin Advanced Computing Initiative Software Carpentry: Instructor	Aug 30-31, 2017
	University of Wisconsin Advanced Computing Initiative Software Carpentry: Instructor	June 28-29, 2017
	University of Wisconsin Advanced Computing Initiative Software Carpentry: Helper	Jan 12-13, 2017
	American Nuclear Society Student Conference Python for Nuclear Engineering Tutorial Session	March 31 - April 3, 2016

LEADERSHIP EXPERIENCE	Madison Radicals Captain of Madison's professional ultimate frisbee team <u>Website: http://radicalsultimate.com/</u>	April 2013 - present
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COMPUTATIONAL SKILLS

I have a deep understanding and broad experience in software development skills. I have made significant contributions to and help manage several different scientific software packages. I also have some peripheral experience in mobile app development in iOS.

EXPERT (5+ YEARS EXPERIENCE)

Languages	C++, Obj-C, Python, Cython, Bash
Build Systems	CMake, Make, Autoconf/Automake, Xcode
Version Control	Git, Docker
Tools	Latex, Doxygen, Jekyll, Markdown, Docker
Database Formats	HDF5, MOAB, DynamoDB

Test Frameworks Nose, Travis CI, CTest
NE Applications MCNP5/6, FLUKA
Other Applications Jupyter Notebooks, iPython, Amazon ec2, CUBIT/Trelis, Embree

FAMILIAR

Languages SQL
Version Control Mercurial, Subversion
Tools Sphinx, XML
NE Applications SRIM, MCNP
Other Applications Matlab, Maple

REFEREED PROCEEDINGS

[1] **Shriwise, P.** Davis, A. Jacobson, LJ Wilson P., “Particle Tracking Acceleration via Signed Distance Fields in DAGMC,” in *Proceedings of M&C 2017 - International Conference on Mathematics & Computational Methods Applied to Nuclear Science & Engineering*, Jeju, Korea, April 16-20, 2017

CONFERENCE PUBLICATIONS

[2] **Shriwise, P.** Davis, A. Wilson, P., “A Mesh-based Slicing Tool for DAGMC Models,” in *American Nuclear Society Student Conference*, Madison, WI, Mar. 2016

[3] **Shriwise, P.** Davis A. Wilson, P., “Leveraging Intel’s Embree Ray Tracing in the DAGMC Toolkit,” in *Transactions of the American Nuclear Society*, vol. 113, Washington, D.C., Nov. 2015.

TECHNICAL REPORTS

[4] A. Davis, M. Sawan, P. Wilson, E. Biondo A. Ibrahim, **P. Shriwise**, E. Marriott, “Report on the ITER CLITE Shutdown Dose Rate Calculations”, Technical Report, US ITER, Oak Ridge, TN, 2016.

[5] Bates, C. Biondo, E. Huff, K. Kiesling, K. Scopatz, A. Carlsen, R. Davis, A. Gidden, M. Haines, T. Howland, J. Huff, B. Manalo, K. Opotowsky, A. Slaybaugh, R. Relson, E. Romano, P. **Shriwise**, P. Xia, J. D. Wilson, P. Zachman, E., “PyNE Progress Report,” in *Transactions of the American Nuclear Society*, vol. 111, Anaheim, CA, Nov. 2014, pp. 241-244. [Online]. Available: <http://dx.doi.org/10.6084/m9.figshare.1250143>

SOFTWARE PROJECTS

DAGMC (Direct Accelerated Geometry Monte Carlo)

Contributors: Biondo, E. Cary, J. Davis, A. Dunn, K. Grindeanu, I. Harb, M. Jackson, S. Jacobson, J. Kiesling, K. Mahadevan, V. Perry, C. Relson. E. Schlomer, N. **Shriwise**, P. Smith, B. Tautges, T. Welch, Z. Wilson, P. Wu, D. Xu, E.
Website: <https://svalinn.github.io/DAGMC/>
Repository: <https://github.com/svalinn/DAGMC>

MOAB (Mesh Oriented datABase)

Contributors: Navamita Ray, Xinglin Zhao, Andrew Davis, **Patrick Shriwise**, Anthony Scopatz,

Chelsea D'Angelo, Paul Wilson, Nico Schlömer, Guilherme Caminha, Evan VanderZee, Lukasz Kaczmarczyk, Lorenzo Botti
Website: <http://sigma.mcs.anl.gov/moab-library/>
Repository: <https://bitbucket.org/fathomteam/moab>

PyNE (Python Nuclear Engineering Toolkit)

Contributors: Bates, C. Biondo, E. Huff, K. Kiesling, K. Scopatz, A. Carlsen, R. Davis, A. Gidden, M. Haines, T. Howland, J. Huff, B. Manalo, K. Opotowsky, A. Slaybaugh, R. Relson, E. Romano, P. **Shriwise**, P. Xia, J. D. Wilson, P. Zachman, E.
Website: <http://pyne.io/>
Repository: <https://github.com/pyne/pyne>

yt-project

Contributors: Arraki, K. Crosby, B. Dong, B. Egan, H. Goldbaum, N. Hummels, C. Ji, S. Julian, A. Keller, B. Kowalik, K. Leitner, S. Lindsay, A. Malone, C. Myers, A. Naiman, J. O'Shea, B. Oishi, J. Rudd, D. Scopatz, **Shriwise**, P. A. Skillman, S. Skory, S. Smith, B. Stark, C. Turk, M. Wise, J. Zingale, M. ZuHone, J.
Website: <http://yt-project.org/>
Repository: <https://github.com/yt-project/yt>

AUDL-iOS (American Ultimate Disc League Mobile App)

Contributors: Rypel, E. **Shriwise**, P.
Website: <http://theaudl.com/>
Repository: <https://github.com/pshriwise/AUDL-ios>

REFERENCES

Available upon request

