

AARON BEVILL

April 2, 2012

PROFESSIONAL EXPERIENCE

Oak Ridge National Laboratory July 2011 - present
Radiation Transport, Reactor and Nuclear Systems Division, Oak Ridge, TN (Post-Masters Research Associate)

- Updated the ADVANTG code package in preparation for RSICC release. Moved computationally-intensive calculations into Python-accessible C++ modules via SWIG. Developed a new method for generating biased sources for MCNP5.
- Applied ADVANTG to a wide range of source/detector problems of interest to national security.

Oregon State University September 2009 - June 2011
Nuclear Engineering and Radiation Health Physics, Corvallis, OR (Graduate Research Assistant)

- Wrote 3D neutral particle source-detector Monte Carlo engine, including tracking on a tetrahedral mesh.
- Incorporated packages from collaborating institutions to facilitate data input/output.

Pacific Northwest National Laboratory June - September 2010
Radiation Detection & Nuclear Science, Richland, WA (National Security Intern)

- Applied Monte Carlo variance reduction techniques (weight windows, source biasing) to source-detector problems of interest to national security.
- Took Safeguards Internship course adapted from ESARDA course on Nonproliferation.

Lawrence Livermore National Laboratory May - August 2009
AX Division, Livermore, CA

- Implemented neutrino opacities in COSMOS++.
- Redesigned data-handling architecture to quickly estimate complex functions.
- Encoded simulations to verify opacity accuracy.

Texas A&M University January - May 2009
College Station, TX

- Modified the CEPXS package to provide cross-sections in new data format.
- Gained experience working with FORTRAN 66.

Idaho National Laboratory May - August 2008
Idaho Falls, ID

- Responsible for early-development statistical simulations of nuclear facility process monitoring equipment.

EDUCATION

Master of Science, Nuclear Engineering
Oregon State University, Corvallis, OR GPA 3.97 May 2011
THESIS - Performance of Hybrid Methods for Representative Nonproliferation Problems

Bachelor of Science, Nuclear Engineering
Texas A&M University, College Station, TX GPA 3.91 December 2009
Graduated *summa cum laude*; minored in Mathematics.

PROGRAMMING & SOFTWARE SKILLS

- Experienced with C++, Python, MatLab
- Additional work with Fortran 90, Java, MCNP5 source code, SWIG, CMake
- Experience in MCNP5, VisIt, VisEd, MatPlotLib, Solidworks, Attila (by Transpire, Inc.), Maple, L^AT_EX

PUBLICATIONS

- "Safeguards Envelope Progress FY09," Report INL/EXT-08-14915, available through DOE Information Bridge. 2008.
- "Safeguards Envelope: Previous Work and Examples," Report INL/EXT-08-14405, available through DOE Information Bridge. 2008.
- "Scatter in Carlo Radiography," Applied Radiation and Isotopes, available through ScienceDirect.com. 2010.
- "Performance of Hybrid Methods for a Representative Non-Proliferation Source/Detector Problem," Transactions of the American Nuclear Society. 2011.
- "A New Source Biasing Approach in ADVANTG," accepted for Transactions of the American Nuclear Society. 2012.

AWARDS & MEMBERSHIPS

Alpha Nu Sigma (2007-2011)
Eagle Scout (2006)
National Merit Scholar (2005)

VOLUNTEER EXPERIENCE

ASPIRE Honors Mentorship Program (2007-2008)
Boy Scout Assistant Scoutmaster (2006-2008)
St. Pauls Early Childhood / LifeTeen Ministry (2003-2009)
FIRST High School Robotics Mentor (2012)
Tennessee Science Bowl Moderator (2012)

REFERENCES

Available upon request.