Troy C. Haskin

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Education

Ph.D. Nuclear Engineering ..... September 2008 – Present
University of Wisconsin–Madison, Department of Engineering Physics

- Concurrently received B.S. and M.S. in Nuclear Engineering from UW–Madison in May 2011
- Graduate GPA: 3.68 / 4.0; Undergraduate GPA: 3.24 / 4.0
- Currently focused on modeling a UW–Madison experiment involving a low pressure, natural circulation water loop with radiant heating; investigating the stability of the system under various conditions.

M.S. Mechanical Engineering ..... September 2009 – May 2012
University of Wisconsin–Madison, Mechanical Engineering

- GPA: 3.80 / 4.0
- Acquired through course work with an emphasis on thermohydraulic theory.

Japanese Technical Communications Certificate ..... September 2006 – May 2008
University of Wisconsin–Madison, Department of Engineering Professional Development

- Four semesters of conversational Japanese
- Two semesters of technical Japanese vocabulary and translations for a variety of scientific fields.

Employment

Research Assistant ..... September 2008 – Present
University of Wisconsin–Madison, Department of Engineering Physics

- Researching the thermohydraulic behavior of air and water-cooled (single and two-phase) cooling systems for next generation reactors with an emphasis on system stability.
- System modeling with Melcor for the cooling systems and experimental setups at the university.
- Mentoring new students in modeling various problems in both Relap5 and Melcor.

Summer Intern ..... Summer 2011
Sandia National Laboratories, Severe Accident Modeling

- Coupled air-cooled and water-cooled Reactor Cavity Cooling System designs with a full-scale pebble bed Melcor model; updated a modular reactor Melcor model to reflect current, anticipated design.
- Performed several accident scenarios for both core models.

Summer Intern ..... Summer 2008
Argonne National Laboratory, Nuclear Engineering Division

- Performed documentation, verification, and validation for a Relap5 model of a General Atomics high temperature, prismatic reactor.
- Modeled several anticipated transients without SCRAM and analyzed results.

Class Lecturer ..... Fall 2013
University of Wisconsin–Madison, Department of Engineering Physics

- Senior level class that aims to utilize all previous student experience for analysis and understanding of various reactor systems and components under a wide range of operation conditions.
- Topics covered: defense-in-depth, thermomechanical stress analysis, LWR thermohydraulics, two-phase flow fundamentals, LWR accident scenarios, power cycle analysis, core thermal design, and introduction to advanced reactors designs.

Undergraudate Tutor ..... January 2007 – Present
University of Wisconsin–Madison, Undergraduate Learning Center

- Helping students understand concepts more deeply and develop problem solving strategies for the introductory and intermediate engineering classes.
- Classes covered include: Thermohydraulics, Heat Transfer, Calculus, Linear Algebra, and others.

Notable classes

- Computational Fluid Dynamics (wrote 2D, incompressible solver in MATLAB)
- Monte Carlo (Theory and MCNP5)
- Uncertainty and error propagation
- Two-phase and turbulent momentum/heat transfer
- Numerical methods for hyperbolic and elliptic systems (e.g., Godunov methods, Continuous and Discontinuous Galerkin methods)

Computer experience

- GitHub Repositories
- Programming: Fortran 90/95, MATLAB, JavaScript / ECMAScript
- System Analysis Programs: RELAP5, MELCOR
- Operating systems: Windows and Unix-like/Linux
- Productivity Suites: Microsoft Word, OpenOffice.org, Google Docs
- Miscellaneous: LaTeX, Git/GitHub, Mathematica, EES, PHP, HTML/CSS, XML,C, C++, XSLT

Involvement

- Membership: ANS National
- Communications officer: ANS-UW Student Section (2008–2009), WIN-UW Student Section (2008–2009), SIAM-UW Student Section (2010–2011)
- Webmaster: ANS-UW Student Section (2008–2010), WIN-UW Student Section (2008–2010), SIAM-UW Student Section (2010–2011), Oak Ridge/Knoxville ANS Local Section (2011)

Publications

- Lisowski, D. D., T. C. Haskin, A. Tokuhiro, M. H. Anderson, and M. L. Corradini. "Study on the Behavior of an Asymmetrically Heated Reactor Cavity Cooling System with Water in Single Phase." *Nuclear Technology* 183, no. 1 (2013): 75-87.
- Wang, Jun, Michael L. Corradini, Wen Fu, Troy Haskin, Wenxi Tian, Yapei Zhang, Guanghui Su, and Suizheng Qiu. "Comparison of CORA MELCOR Core Degradation Simulation and the MELCOR Oxidation Model." *Nuclear Engineering and Design* 276 (September 2014): 191-201. doi:10.1016/j.nucengdes.2014.05.041.