

Joshua S. Rehak

CONTACT INFORMATION	phone: (401) 573-7417 · email: jsrehak@gmail.com · github: https://github.com/jsrehak	
OBJECTIVE	Seeking research and practical opportunities in nuclear engineering and scientific computation.	
PHD	University of California, Berkeley , NUCLEAR ENGINEERING Using Tools for the Analysis and Assessment of Accelerating Solves of the Transport Equation Advisor: Professor Rachel N. Slaybaugh	Expected Spring 2020
MS	University of California, Berkeley , NUCLEAR ENGINEERING Implementation of Weighted Delta-tracking with scattering in Serpent 2	Spring 2017
MEM	Old Dominion University – Norfolk VA , ENGINEERING MANAGEMENT	Fall 2015
BS	University of Maryland, College Park , PHYSICS, ASTRONOMY	Spring 2007
WORK & RESEARCH EXPERIENCE	University of California, Berkeley , Berkeley, CA <i>Graduate Student Researcher</i> Fall 2015 – Present Advisor: Professor Rachel N. Slaybaugh – slaybaugh@berkeley.edu Developing a novel finite-element-based code for the implementation and assessment of acceleration methods for deterministic solves of the transport equation. Implementing and analyzing novel methods in Monte Carlo codes. The Idaho National Laboratory , Idaho Falls, ID <i>Student Intern - Reactor physics group</i> Summer 2016 Advisor: Dr. Mark DeHart – mark.dehart@inl.gov Implemented a novel Monte Carlo algorithm for Nuclear Engineering applications. United States Navy <i>Submarine Officer – Honorably discharged as a lieutenant (O-3)</i> 2008 – Fall 2015 <ul style="list-style-type: none">Coordinated submarine operations and international participation for the Rim of the Pacific 2014 naval exercise involving 23 nations, 46 ships and six submarines.Supported two six-month deployments while qualified Officer of the Deck and Engineering Officer of the Watch on Los Angeles class submarines.Certified for assignment as Engineer Officer in charge of a Naval Nuclear Propulsion Plant.Led divisions responsible for the maintenance and operation of reactor plant instrumentation, radiological controls, and water chemical analysis.TS/SCI security clearance (single scope background investigation).	
PUBLICATIONS & PROCEEDINGS	Rehak, J.S. , Slaybaugh, R.N. “Assessing the Effectiveness of Acceleration Methods for Deterministic Neutron Transport Solvers” Transactions of the American Nuclear Society Volume 122. https://doi.org/10.13182/T122-32383 June 2020. Rehak, J.S. , Kerby, L.M., DeHart, M.D., Slaybaugh, R.N. “Weighted delta-tracking in scattering media” Nuclear Engineering and Design Volume 342. https://doi.org/10.1016/j.nucengdes.2018.12.006 . December 2018. Rehak, J.S. , Kerby, L.M., DeHart, M.D., Slaybaugh, R.N., Leppänen, J. “Implementation of Weighted Delta-Tracking with Scattering in the Serpent 2 Monte Carlo Code” Transactions of the American Nuclear Society Volume 116. https://escholarship.org/uc/item/6bg1s71k June 2017.	
HONORS AND AWARDS	Department of Nuclear Engineering Graduate Fellowship Navy and Marine Corps Commendation Medal For exceptional service as Submarine Force Exercise Officer and Submarine Watch Officer at Commander Submarine Forces Pacific	2015 – 2018 August 2015

Navy and Marine Corps Achievement Medal	August 2015
For coordination and execution of submarine operations for the Rim of the Pacific 2014 exercise	
Navy and Marine Corps Achievement Medal	June 2013
For service as a division officer on USS JACKSONVILLE (SSN-699) and successful completion of two six-month deployments and an extended dry-dock maintenance period.	
Navy and Marine Corps Achievement Medal	April 2013
For service as Chemistry/Radiological Assistant during an eight month dry-dock period.	
Navy and Marine Corps Achievement Medal	January 2011
For service as Reactor Control Assistant during a six-month deployment and Operational Reactor Safeguards Exam	

CODE	Bay Area Radiation Transport (BART)	https://github.com/SlaybaughLab/BART
DEVELOPMENT	A finite-element-based transport solver that supports 1/2/3D and MPI, based on the deal.II finite element library.	
	<ul style="list-style-type: none"> • Designed for developer end-users for maximum modification and support of methods analysis and implementation. • Designed to support reproducibility, portability, and testing in codes. utilizes continuous integration, code coverage, and Docker containers. • Uses a novel protocol-buffer format for materials. 	

SCIENTIFIC	Languages	C++, bash, python
COMPUTING	Build Systems	make, CMake
SKILLS	Testing	GoogleTest, GoogleMock, continuous integration, code coverage
	Version Control	git
	Other	Doxygen, L ^A T _E X, MatLab, Protocol Buffers, Jupyter, Docker