J.R. POWERS-LUHN

201 W Red Bud Rd ⋄ Knoxville, TN 37920
jpowersl@vols.utk.edu ⋄ (757) · 286 · 9023

EDUCATION

Ph.D.	**University of Tennessee–Knoxville** Nuclear Engineering, with a certificate in Nuclear Security	est. 2020
M.E.M.	**Old Dominion University** Engineering Management	2017
B.S.	**University of Virginia** Physics	2004

PROFESSIONAL EXPERIENCE

University of Tennessee–Knoxville Aug. 2016 - Present
Graduate Research Assistant / NNSC Fellow *Knoxville, TN*

- Developing neural network model to correct misalignment in associated particle imager
- Developing portable, miniaturized associated particle imager for nuclear security

Lawrence Livermore National Laboratory May 2019 - Present
Data Science Summer Intern *Livermore, CA*

- Used long short-term memory neural networks to categorize operations for nuclear facilities
- Used machine learning and natural language processing tools to predict properties for new molecules

United States Navy Reserves May 2011 - Present
Lieutenant Commander *Washington, DC — Indianapolis, IN — Louisville, KY*

- Officer in charge of 160-sailor unit with 10 direct reports and 150 indirect
- Served as on-watch representative and operations manager for Military Sealift Command ships

Intercap Energy Systems May 2011 - Aug. 2016
Data Scientist *Baltimore, MD and Brighton, TN*

- Developed regression models to predict commercial building load curves
- Developed and deployed Apache Tomcat based product to manage building operations strategies

Commander, Submarine Group Seven Aug. 2008 - May 2011
Executive Assistant *Yokosuka, Kanagawa, Japan*

- Served as executive assistant to admiral in charge of submarine operations in the Western Pacific, Indian Ocean, and Persian Gulf
- Managed communications between emergency nuclear response cell and US-based experts during Fukushima-daiichi meltdown

USS CHARLOTTE Nov. 2005 - Aug. 2008
Assistant Engineer Officer *Norfolk, VA and Pearl Harbor, HI*

- Completed two missions vital to national security
- Qualified Senior Reactor Operator (equivalent)
- Supervised major upgrade of instrumentation and control system

TEACHING EXPERIENCE

University of Tennessee–Knoxville Aug. 2016 - Present
Graduate Research Assistant in Nuclear Engineering *Knoxville, TN*

- NE 530, Nuclear Security (graduate-level)

SELECTED COURSEWORK

- Machine Learning (COSC 528): Derivation and implementation of machine learning algorithms for classification and regression
- Emprical Modeling and Diagnostics (NE 579): Parametric and non-parametric regression techniques, model regularization, and fault detection
- Operations Research (ENMA 603): Deterministic and stochastic models for decision making

COMPUTER SKILLS

Languages	Python, C++
Versioning and Testing	git, PyTest
Tools	Pandas, Keras, TensorFlow, Flask, LaTeX, Matlab, Jupyter, MPI
Nuclear Software	MCNP

SECURITY CLEARANCE

DoD: Top Secret, SCI eligible
DoE: Q

HONORS AND AWARDS

Navy Achievement Medal	2007, 2008, 2014
Navy Commendation Medal	2008, 2011
Alpha Nu Sigma Honor Society	2016
NSSC Fellow	2016-2020

PRESENTATIONS AND POSTERS

J.R. Powers-Luhn. "Neutron array alignment determination in an associated particle imaging system." Pacific Northwest National Laboratory, Richland, WA, April 2020.

J.R. Powers-Luhn, G. Konjevod. "Long short-term memory networks for diversion detection." (poster) Lawrence Livermore National Laboratory, Livermore, CA, August 2019.

J.R. Powers-Luhn, J. Auxier, D. Miller, D. Penchoff, H.L. Hall. "Cavity ring-down spectroscopy for isotopic measurements." (poster) 2017 University Program Review, Walnut Creek, CA, June, 2017.

J.R. Powers-Luhn. "Re-tuning buildings: Using predictive analytics to control building demand." Sandia National Laboratory, Livermore, CA, October, 2014.