Taylor K McKenzie

Location: Sandia National Laboratory (NM) 823/1050

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Skills

- Development and implementation of simulation models from theory and discussions with subject matter experts.
- Mathematical analysis of models investigating dynamics, relations, and other key properties.
- Combining simulation and mathematical models with data for statistical estimation, inference, and prediction using classical, Bayesian (MCMC), and machine learning methods.
- Strength in R, Python, Matlab, and Stata.
- Significant experience working with diverse teams and developing models that synthesize theories and results from a multitude of disciplines.
- Communicating methods, results, and findings to both specialized and broad audiences.

Education

Ph.D., M.S. Economics *June 2017*

– Emphasis in Statistics, Simulation, and Quantitative Systems Analysis

University of Oregon, Eugene, OR

Advisor: Dr. Wesley W. Wilson

B.A. Mathematics and Economics *May 2012*

Willamette University, Salem, OR *Summa Cum Laude*

Advisors: Dr. Peter Otto and Dr. Raechelle Mascarenhas

Work Experience

Pacific Northwest National Laboratory *Dates: Summers 2010 - 2014*

National Security Intern, Knowledge Discovery and Informatics Group *902 Battelle Blvd*

Mentors: Dr. Courtney Corley and Dr. Satish Chikkagoudar *Richland, WA 99354*

- Developed a game-theoretic model of inter-organization email traffic and estimated the model and produced simulations using Bayesian methods. Simulations were used to identify resiliency against cybersecurity threats and develop strategies to mitigate the damage of cyberattacks.
- Developed methods to predict and interpret trends in social media and implemented those methods in Python and R on PNNL's supercomputing cluster. Also co-authored "SociAL Sensor Analytics: Measuring Phenomenology at Scale."
- Developed a predictive disease model describing spread of SARS and cholera worldwide and prototyped both models in Python. Also developed estimates for air travel between countries and the effects of various intervention techniques such as airport screening and quarantine.
- Developed metrics to analyze the effectiveness of biosurveillance systems and models and investigated economic indicators in nuclear proliferation pathway analysis. Also co-authored "Assessing the Continuum of Event-Based Biosurveillance Through an Operational Lens."

University of Oregon *Dates: 2012 - 2015*

Graduate Teaching Fellow *1585 E 13th Ave.*

Department of Economics *Eugene, OR 97403*

- Developed lesson plans and instructed both undergraduate and graduate students in topics in Economics.
- Independent instructor for Intermediate Microeconomics (2014W), Development Economics (2015F, 2016Sp), and Industrial Organization (2016F, 2017Sp).
- Offered instruction that was approachable and intuitive to general audiences not necessarily familiar with Economics while still providing rigor necessary to precisely analyze models and theories.