

Ryan M. Wilson

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Professional Summary

- Ph.D. physics professor specializing in numerical and statistical modeling of complex systems
- 10+ years experience with quantitative analysis and optimization tools pertinent for machine learning
- Managed many collaborative projects from conception to completion in a highly competitive environment
- Effective and experienced written and verbal communicator (25 invited research talks, 27 contributed)
- 25 articles published in leading peer-reviewed journals (717 citations, h -index=15, source: Google Scholar)

Education

Ph.D. Physics, University of Colorado–Boulder 2011
M.S. Physics, University of Colorado–Boulder 2010
B.S. Physics and Applied Mathematics, *Magna Cum Laude*, Saint Louis University 2006

Professional Experience

United States Naval Academy, *Assistant Professor* 2014–present

- Performed large-scale Monte-Carlo simulations of agent-based models, and regression on >10 GB datasets
- Extensive cluster and GPU utilization for high-performance parallel computing (>10⁶ CPU hours)
- Developed computational curriculum, led physics major recruitment and diversity efforts in record-setting years

National Institute of Standards and Technology (NIST), *NRC Postdoctoral Fellow* 2012–2014

- Prestigious, competitive postdoctoral fellowship awarded through the National Academy of Sciences
- Independent research in nonlinear quantum systems, 3 papers published in high impact Physical Review Letters
- Solved nonlinear PDEs, implemented large scale matrix diagonalization, and performed spatio-temporal modeling

Certificates

“Deep Learning” Specialization, by Stanford U. on Coursera, 100% score (“beta” tester, in progress) 2017
· Neural network design and optimization in Python; convolutional neural networks
“Applied Data Science with Python” Specialization, by U. of Michigan on Coursera, 100% score (in progress) 2017
· Data structures, visual data representation, and machine learning in Python
“Statistics with R” Specialization, by Duke U. on Coursera, 100% score 2017
· Exploratory data analysis, linear regression, inference, and Bayesian methods in R
“Machine Learning” by Stanford U. on Coursera, completed in 8 days with 100% score 2017

Relevant Skills

Programming: MATLAB (10+ years experience), Python (5+ years experience), and R; experienced with C++, Mathematica, Java, HTML, shell scripting, and git

Machine learning: Linear/logistic regression, binary and multiclass classification, clustering; neural networks, support vector machines, decision trees, principal component analysis, and model evaluation

Data tools: Scikit-learn and Pandas; experienced with TensorFlow, SQL, MapReduce (Hadoop), and Spark

Mathematics: Proficient with variational calculus, numerical optimization, Monte-Carlo methods, stochastic modeling, statistics (inference, Bayesian analysis, etc.), and functional programming

Computing: Cluster and GPU computing (CUDA); comfortable with Mac OS X, Linux/Unix, and Windows

Selected Honors and Awards

· National Science Foundation grant No. PHY/1516421 (co-PI, ~\$240k awarded in total) 2015
· Selected as a “KITP Scholar” at the Kavli Institute for Theoretical Physics at UCSB 2015
· Awarded Director’s Postdoctoral Fellowship at Los Alamos National Laboratory (declined) 2014
· Saint Louis University James D. Collins Award for Academic Excellence 2006
· Saint Louis University Award for Excellence in Mathematics 2006