Nicholas D. Haynes

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Summary
PhD candidate with a deep mathematical background. Experience generating, storing, analyzing, and explaining large datasets. Passionate about finding order in complex systems.

Education

PhD, physics   Expected May 2018
Duke University

MS, applied mathematics   May 2013
University of Dayton

BS, *magna cum laude*   August 2011
University of Dayton
Majors: physics, philosophy

Experience

Graduate research assistant, Duke University   May 2013 – Present
- Studying the fundamental dynamics of networks built with programmable digital hardware and applications for high-speed machine learning
- Successful in building proof-of-principle recurrent neural networks in hardware
- High-throughput analysis of ~100s GB experimental data using Open Science Grid
- Results presented in 2 peer-previewed publications and 6 conference posters

Contractor, U.S. Air Force Research Laboratory   October 2009 – May 2013
- Characterized novel optical materials being developed for next-generation laser platforms
- Employed a mix of experimental, theoretical, and computational techniques
- Presented results in 3 peer-reviewed journals and at 2 international conferences

Instructor, Introductory Calculus, University of Dayton   August 2012 – December 2012
- Sole instructor responsible for a section of MTH 148 (Calculus I for bio-science students)
- Developed lectures, designed and graded assessments, and assigned final grades

Technical Skills

Programming and development
Python (+ numpy, scipy, scikit-learn, pandas), C++, SQL and relational databases, Verilog, git, Bash and *nix environment, Amazon Web Services, Docker

Data analysis and machine learning
Classification, regression, clustering, time series analysis, feature selection and engineering, parallelization and high-throughput computing

Selected Coursework

Math and statistics
Mathematical statistics I, II; Linear algebra; Numerical analysis I, II; Random processes; Mathematical finance and stochastic calculus; Real analysis

Computer science
Algorithms and data structures; Artificial intelligence; Data-intensive computing systems

Awards and Fellowships
- Lindau meeting of Nobel laureates, young scientist participant (2015)
- Wireless Intelligent Sensor Networks fellowship (2013 – 2015)
- Rocco M. Donatelli Award to the Senior with the Strongest Record in the Humanities and the Sciences (2011)
- Sigma Pi Sigma Award of Merit to Senior in Physics (2011)
- Award of Excellence to the First Outstanding Senior in Philosophy (2011)
- Eagle Scout Award (2003)