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. Skilled communicator.

EDUCATION

PhD, Physics — **Expected Graduation: May 2018**
Duke University

MS, Applied mathematics — **Graduated: May 2013**
University of Dayton

BS, Magna Cum Laude — **Graduated: August 2011**
University of Dayton
Majors: Physics, Philosophy
Minor: Mathematics

EXPERIENCE

Graduate research assistant — **May 2013 – Present**

- Studied the fundamental dynamics of networks built with programmable digital logic hardware and applications for information processing
- Used field-programmable gate arrays extensively for high-speed data processing and communication
- Successful in building proof-of-principle recurrent neural networks in hardware
- High-throughput analysis using Open Science Grid on 100 GB experimental datasets

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

TECHNICAL SKILLS

Programming and development
C/C++, Java, Python (+ numpy, scipy, scikit-learn, pandas), MATLAB, Verilog, git, Bash/Linux environment, Amazon Web Services, Docker

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

SELECTED COURSEWORK

Mathematical methods
Mathematical statistics I, II; Linear algebra; Numerical analysis I, II; Random processes; Stochastic calculus

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

AWARDS AND FELLOWSHIPS

- 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)