JOHN WILMES

Algorithms Engineer

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SUMMARY

- Experienced **algorithms researcher** with Deep Learning and Markov Chain Monte Carlo expertise, published in top computer science venues (STOC, FOCS, NeurIPS, COLT)
- **Project management** skills demonstrated by leading team of researchers producing two Ph.D. theses and an NSF grant

EXPERIENCE

Assistant Professor of Mathematics

Brandeis University

July 2018 – June 2021 | Waltham, MA

- Awarded $175k NSF grant requlting in two PhD theses, "Guarantees for Training Neural Networks." Proved first guarantees for semi-supervised Graph Convolutional Network training
- Designed new fastest algorithm for permanent approximation via Markov Chain Monte Carlo
- Designed and led implementation of new Applied Mathematics major, including courses on Optimization and Big Data methods

Research Scientist

Georgia Institute of Technology

September 2016 – June 2018 | Atlanta, GA

- Outstanding Post-Doctoral Research Award for advances in machine learning and Markov chain Monte Carlo algorithms
- NeurIPS "spotlight" talk on provable guarantees for training neural networks

Ph.D. Researcher

University of Chicago

September 2010 – August 2016 | Chicago, IL

- Algorithms research published in top CS theory venues (STOC and FOCS) led to most significant breakthroughs in decades on infamous Graph Isomorphism problem
- NSF Graduate Research Fellowship. Invited talks at Shanghai Jiao Tong, Max Planck Institut für Informatik, etc.

SKILLS

Communication

- Over 40 research talks around the world
- Taught over a dozen university courses

Collaboration

- Collaborated with over a dozen researchers on co-authored papers; led team of five student research assistants
- Built cross-departmental relationships to implement new Applied Mathematics major attracting

Machine Learning

PyTorch, Tensorflow

- As ML consultant, developed deep learning methods for categorizing human activities from motion sensor data
- Led research on deep learning guarantees, including graph neural networks, published in ICLR, NeurIPS, COLT

Programming

C, Python, R, Lua, SQL

- 15 years experience writing Python scripts for research and teaching, including machine learning experiments
- Refactored user interface for Vim text editor, *keyfactor.nvim*; wrote keyboard firmware in C for efficient chording. *(See Github link above)*

EDUCATION

Ph.D. and M.S. in Mathematics

University of Chicago

September 2010 – August 2016

B.A. in Mathematics

Reed College

September 2006 – June 2010