

Peter Wills, Ph.D.

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EDUCATION

Doctor of Philosophy, Applied Mathematics
University of Colorado, Boulder, CO

Sept. 2013 to present
Graduating May 2018

Bachelor of Science, Physical Sciences
Reed College, Portland, OR

Aug. 2006 through May 2010

TECHNICAL LANGUAGE SKILLS

Fluent in Python (TensorFlow, keras, scikit-learn, pandas, matplotlib, seaborn, numpy, scipy, statsmodels), SQL, MATLAB, git, shell scripting & L^AT_EX . Experienced in object-oriented design & Agile development. Conversant in Markdown, HTML, CSS & Lisp.

PROFESSIONAL EXPERIENCE

Research Scientist, the Trade Desk

Oct. 2017 to Present

- ❖ Build DeskAI, machine learning platform for automated user targeting in online advertising
- ❖ Incorporate external data sources to augment user information and target advertisements more effectively
- ❖ In real-world testing, DeskAI doubles clicks through rate of advertisements at no additional cost

Data Scientist, Entelligent LLC

Nov. 2016 to Oct. 2017

- ❖ Conceptualize, design, and implement scalable portfolio optimization & risk analytics library
- ❖ Use library to construct index Smart Climate 500 (SCLMX) currently published by Bloomberg
- ❖ SCLMX shows higher returns and lower risk than S&P 500 over a ten-year backtest

Research Assistant, Statistics & Data Analysis, Natl. Inst. of Standards & Tech.

May 2014 to Aug. 2015

- ❖ Develop statistical techniques for analyzing data arising in experimental quantum mechanics
- ❖ Method is shown to be significantly more robust than the current most popular approach

SELECTED RESEARCH

Anomaly Detection in Large Graph Data

Jan. 2016 to Present

- ❖ Develop & analyze novel machine-learning algorithms to analyze dynamic network (graph) data
- ❖ Method is effective on empirical social datasets such as the Enron emails and the Militarized Interstate Dispute record

Hypothesis Testing in Streaming High-Volume Data

May 2014 to Aug. 2015

- ❖ Demonstrate optimality of novel statistical approach to hypothesis testing and confidence interval construction
- ❖ Approach yields strong results in recent experimental work in quantum tests of entanglement and locality

PUBLICATIONS

- ❖ P. Wills and F. Meyer. *Efficient Tools for Graph Comparison: A Practitioner's Guide*. In preparation.
- ❖ P. Wills and F. Meyer. *Detecting Topological Changes in Dynamic Community Networks*. arXiv preprint 1707.07362 [cs.SI]
- ❖ P. Wills, E. Iacocca, and M. Hoefer. *Stochastic Thermal Perturbations of Dissipative Droplet Solitons*, Phys. Rev. B 93 144408
- ❖ P. Wills, E. Knill, K. Coakley, and Y. Zhang. *Performance of Test Supermartingale Confidence Intervals for the Success Probability of Bernoulli Trials*. arXiv preprint 1709.04078 [math.ST]