# Peter Wills, Ph.D.

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## EDUCATION

*Doctor of Philosophy*, Applied Mathematics — Sept. 2013 to May 2018
University of Colorado, Boulder, CO

*Bachelor of Science,* Physical Sciences — Aug. 2006 through May 2010
Reed College, Portland, OR

## TECHNICAL LANGUAGE SKILLS & SUBJECT EXPERTISE

Fluent in Python (TensorFlow, scikit-learn, pandas, numpy, etc), Scala, Java, Spark, SQL, MATLAB, git, shell scripting. Familiar with AWS (S3, EMR, Athena, Glue, etc). Experienced in both object-oriented and functional programming paradigms. Deep understanding of machine learning, statistics, predictive modeling, linear algebra, graph algorithms, and distributed/high-performance computing.

## PROFESSIONAL EXPERIENCE

**Data Science Engineer, FullContact** — June 2018 to Present

- Design & implement graph algorithms for identity resolution in custom NoSQL graph database built atop HBase
- Build data pipeline in Spark that processes TB of data in scalable fashion on the AWS Elastic MapReduce platform
- New approach to graph community hashing improves identifier stability from 98% to 99.95%

**Data Scientist, the Trade Desk** — Oct. 2017 to May 2018

- 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, Graph Algorithms, University of Colorado** — Jan. 2016 to May 2018

- Develop, analyze, & implement algorithms for anomaly detection in large graph data
- Method is effective on empirical social datasets such as the Enron emails and the Militarized Interstate Dispute record

**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 significantly more robust than the current most popular experimental approaches

## 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]