Peter Wills, Ph.D.

peter@pwills.com | (585) 739-3895

pwills.com | github.com/peterewills | linkedin.com/in/peterewills

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%

Research 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]