Daniel N. Hill

716-771-8224   daniel.n.hill@gmail.com

EDUCATION

Computational Neuroscience, PhD, 2009, University of California, San Diego
Electrical and Computer Engineering, MS, 2008, University of California, San Diego
Computer Science, BS, 2002, Rochester Institute of Technology

EXPERIENCE

Machine Learning Scientist, 2015-present
Amazon.com, Inc., Palo Alto, CA

Developed ranking algorithms for Interesting Finds using multi-armed bandit methods, diversification, and personalization. Collaborated with Prof. SVN Vishwanathan of UCSC.

Created a multivariate testing system in which experiments with over 100 treatments converged 10 times faster than traditional A/B testing.

Senior Data Scientist, 2013-2015
Integral Ad Science, New York, NY

Led "Causal Impact" project to estimate ROI of digital ad campaigns using observational analysis when A/B tests are unavailable.

Post-doctoral Researcher, 2010-2012
Technical University of Munich, Germany

Recorded and analyzed high frame rate video of calcium activity in neuronal dendrites. Worked in collaboration with Nobel Laureate Bert Sakmann.

Doctoral Student, 2003-2009
UCSD Neurophysics Lab, San Diego, CA

Recorded neural-muscular data to build models of how rats explore their environments using their whiskers. Created an open source MATLAB toolbox called **UltraMegaSort2000** for performing clustering on electrophysiological data.

Research Assistant, 2001-2002
Los Alamos National Laboratory, New Mexico

Implemented and parallelized clustering algorithms for genome data. Coded neural network model of retina to simualte Benham's Top illusion.

SKILLS

Programming: Python, Java, Scala, MATLAB, SQL, BASH, awk, Pig, Hadoop, HBase, Git, LaTeX, R, Spark, HTML, C, JavaScript, API-scraping

Statistics and Machine Learning: Multi-armbed bandits, learning to rank, GLM, random forest, GBM, DSP, filter design, non-parametric statistics, survival analysis, causality, clustering

SELECTED PUBLICATIONS

Hill DN, Nassif H, Liu Y, Iyer A, Vishwanathan SVN. An efficient bandit algorithm for realtime multivariate optimization. In Proceedings of the 23rd ACM SIGKDD International Conference on Knowledge Discovery and Data Mining. (2017)

Teo CH, Nassif H, **Hill D**, Srinivasan S, Goodman M, Mohan V, Vishwanathan SVN. Adaptive, Personalized Diversity for Visual Discovery. In Proceedings of the 10th ACM Conference on Recommender Systems, pp. 35-38. (2016) **Oral presentation. Winner of best paper award.**

Hill DN, Moakler R, Hubbard AE, Tsemekhman V, Provost F, Tsemekhman K. Measuring causal impact of online actions via natural experiments: application to display advertising. In Proceedings of the 21th ACM SIGKDD International Conference on Knowledge Discovery and Data Mining, pp. 1839-1847. (2015) **Oral presentation.**