Daniel N. Hill

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

$25\ ^1/_2$ E. 61^{st} St. #5E, New York, NY 10065
www.danielnhill.com

Objective: Data scientist position in a research-focused group at a leading web company.

EDUCATION

Computational Neuroscience, PhD, 2009
Univiersity of California, San Diego

Electrical and Computer Engineering, MS, 2008
Specialization in Intelligent Systems, Robotics, and Control.
Univiersity of California, San Diego

Computer Science, BS, 2002
Concentration in Artificial Intelligence.
Rochester Institute of Technology

EXPERIENCE

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

Lead the "Causal Impact" project to estimate the ROI of digital ad campaigns using observational analysis when A/B tests are unavailable. Our solution involves a combination of user-modeling, survival analysis, and Bayesian nets. I managed 2 data scientists and a collaboration with a Berkeley professor. I presented the work at several conferences including the Conference on Digital Experimentation at MIT.

Developed metrics for the quality of websites for display advertising. Metrics are now reported to clients on billions of ad impressions per day.

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

Recorded and analyzed low signal, high framerate ($\sim$200 FPS) microscopy data to understand information processing within the dendrites of cortical neurons. Work was performed in collaboaration with Nobel laureate Bert Sakmann.

Lecturer, 2008-2012
Marine Biological Laboratory, Woods Hole, MA

Taught filtering, signal detection, clustering, and quality metrics for processing electrophysiological data at an annual neuroinformatics course for graduate and post-doctoral neuroscientists.

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

Recorded and analyzed large multi-channel electrophysiological and videographic data sets to investigate motor control in the rat whisker system.

Built a biomechanical simulator of the whisking apparatus based on my data.

Developed a MATLAB toolbox called **UltraMegaSort2000** which is used for analyzing electrophysiological data by dozens of research labs worldwide.

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

Implemented and parallelized clustering algorithms that I applied to DNA sequences, genome expression patterns, and lightning classification.

Coded neural network model of retina to test hypothesis about Benham's Top illusion.

FELLOWSHIPS

NRSA, National Institutes of Health, 2006-2008

IGERT, National Science Foundation, 2002-2005

SPECIAL SKILLS

Programming

Proficient: MATLAB, SQL, Python, BASH, Pig, Hadoop, Hbase, Git, API-scraping
Experienced: R, Spark, HTML, PHP, C, Java, JavaScript, OOP

Statistical Analysis and Machine Learning

GLMs, logistic regression, random forests, GBMs, Bayesian nets, digital signal processing, filter design, hypothesis testing, confidence intervals, non-parametric statistics, survival analysis, causal analysis, clustering, dimensionality reduction, experimental design, visualization, state-space modeling

Communication

Ability to translate work to both product and technically-oriented colleagues as well as clients. I have written for non-scholarly publications such as AdExchanger. In addition to my teaching experience, I have presented at numerous conferences in 7 countries.

SELECTED PUBLICATIONS

Contributed to 10 scholarly publications with over 500 citations.

Hill DN, Moakler R, Hubbard A, Tsemekhman K. It's about time: A longitudinal causal model of the impact of display advertising. In preparation. (2014)

Hill DN, Varga Z, Jia H, Sakmann B, Konnerth A. Multibranch activity in basal and tuft dendrites during firing of layer 5 cortical neurons in vivo. PNAS. 110(33):13618-13623 (2013)

Hill DN, Mehta SB, Kleinfeld D. Quality metrics to accompany spike sorting of extracellular signals. J. Neurosci. 31:8699-8705 (2011)

Hill DN, Curtis J, Moore JD, Kleinfeld D. Primary motor cortex reports efferent control of vibrissa position on multiple timescales. Neuron. 72(2):344-56 (2011).

Hill DN, Kleinfeld D, Mehta SB. Spike Sorting. In Observed Brain Dynamics by P. P.Mitra and H. Bokil, Oxford Press. (2007)

Eads D, **Hill D**, Davis S, Perkins S, Ma J, Porter R, Theiler J. Zeus: Genetic algorithms and support vector machines for time series classification. Proc. SPIE. 4787:74-85 (2002).