

Daniel N. Hill

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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

Senior Applied Scientist, 2018-present

Amazon.com, Search, Berkeley, CA

I manage a machine learning team focused on bandit methods and session-awareness for autocomplete and product search. We productionized Deep Learning and Extreme Multilabel Ranking models.

Applied Scientist, 2015-2018

Amazon.com, Personalization, Palo Alto, CA

Developed ranking algorithms using multi-armed bandit methods, diversification, and personalization. Created the engine for a multivariate testing system in which experiments with over 100 treatments converge 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.

SKILLS

Programming: Python, PyTorch, Java, Spark, Git, L^AT_EX, bash, docker, HTML, AWS

Statistics and Machine Learning: Multi-armed bandits, recommender systems, NLP, XMC, RNN

SELECTED PUBLICATIONS

Sen R, Rakhlin A, Ying L, Kidambi R, Foster D, **Hill DN**, Dhillon IS. Top-k eXtreme Contextual Bandits with Arm Hierarchy. Submitted. (2021)

Yadav N, Sen R, **Hill DN**, Mazumdar A, Dhillon IS. Session-Aware Query Auto-completion using Extreme Multi-label Ranking. Submitted. (2021)

Ai Q, **Hill DN**, Vishwanathan SVN, Croft WB. A Zero Attention Model for Personalized Product Search. In Proceedings of the 28th ACM International Conference on Information and Knowledge Management. (2019)

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) **Winner of Audience Appreciation Award.**

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.**