

JENNIFER BRENNAN

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RESEARCH INTERESTS

Learning better models with less data through experimental design, active learning and multi-armed bandits
Enabling scientific discovery with automated high-throughput experiments and multiple hypothesis testing
Supporting robust inference with false discovery rate control and confidence interval reporting

EDUCATION AND SKILLS

University of Washington

Autumn 2017 - Present

PhD Student, Computer Science & Engineering, advised by Kevin Jamieson

- Research focuses on using methods from machine learning to improve scientific experimentation, including active experimental design for high-throughput experiments and pilot study analysis for multiple hypothesis testing
- Coursework in Statistical Learning, Adaptive Machine Learning, Probability Theory, Reinforcement Learning
- Supported by a National Science Foundation Graduate Research Fellowship

Harvey Mudd College

May 2016

B.S. in Mathematics & Computer Science

Received the CS Department Service Award (2016) and the Math Department's Alvin White Prize (2014)

Technical Skills

Proficient in Python, R, SQL and Git. Familiar with Mathematica, C++, C# and JavaScript.

PUBLICATIONS

Nassar, J., **Brennan, J.**, Evans, B., Lowrey, K., BAM: Bayes with Adaptive Memory. *International Conference on Learning Representations (ICLR)*, 2022.

Kirisame, M., Lyubomirsky, S., Haan, A., **Brennan, J.**, He, M., Roesch, J., Chen, T., Tatlock, Z., Dynamic Tensor Rematerialization. *International Conference on Learning Representations (ICLR)*, 2021.

Brennan, J., Korlakai Vinayak, R., Jamieson, K., Estimating the number and effect sizes of non-null hypotheses. *International Conference on Machine Learning (ICML)*, 2020.

Rogers, J., Fishberg, A., Youngs, N., Wu, Y. C., Reconciliation feasibility in the presence of gene duplication, loss, and coalescence with multiple individuals per species. *BMC Bioinformatics*, 2017. 18:292.

PREPRINTS

Brennan, J., Jain, L., Garman, S., Donnelly, A., Wright, E., Jamieson, K., Sample-Efficient Identification of High-Dimensional Antibiotic Synergy with the Normalized Diagonal Sampling Design. *Under Review*, 2022.

Brennan, J., Bannick, M., Kassebaum, N., Wilner, L., Thomson, A., Aravkin, A., Zheng, P., Analysis and Methods to Mitigate Effects of Under-reporting in Count Data. *ArXiv Preprint*, 2021.

WORK EXPERIENCE

Google

September 2021 - December 2021

Research Intern

New York, NY (Remote)

- Develop methods for identifying heterogeneous treatment effects in A/B tests while retaining statistical power
- Identify and mitigate sources of bias in estimates of treatment effects for Display Ads experiments

Institute for Health Metrics and Evaluation

June 2020 - September 2020

Graduate Research Assistant

Seattle, WA (Remote)

- Developed and analyzed new methods for inference on count data in the presence of under-reporting
- Worked closely with the Maternal and Neonatal Health team to ensure methods were relevant for the global health context, such as under-reporting in birth defect registries

Microsoft – Bing Ads Marketplace and Serving

August 2016 - September 2017

*Data Scientist**Bellevue, WA*

- Mined system logs using SQL and C# to answer business questions, often in the presence of significant ambiguity
- Designed, executed, and presented studies to provide insight into the Marketplace and Serving stack
- Created machine learning models to provide recommendations for how advertisers should write ad copy

Bloomberg LP

Summer 2015

*Software Engineering Intern**London, UK*

- Developed a Bloomberg terminal function to visualize the results of daily software tests – wrote front end of the feature from scratch, extended existing back end service, and contributed to database design
- Took second place in internal hackathon; prototyped and developed tool to visualize internal service calls

Harvey Mudd College, Department of Chemistry

Summer 2013

*Researcher**Claremont, CA*

- Using NMR, LC-MS, UV-vis spectroscopy, and air-sensitive techniques, synthesized and developed a metallation procedure for a Methyl Coenzyme M Reductase model compound
- Performed geometry optimizations for 12 model compounds using the San Diego Supercomputer

SERVICE AND OUTREACH

Outreach

- Working as a team, designed and presented an activity to teach high school students about developing machine learning classifiers at UW Upward Bound summer school (2021)
- Led an activity at the UW CSE open house to introduce high school students to importance sampling via an interactive capture-recapture experiment (2019)
- As an invited speaker at the UW math club, gave a presentation on internships to 12 undergraduates (2021)
- Participated as a panelist for Karsh STEM scholars at Howard University (2019, '20 and '21)
- Participated in Math Day at Lockwood Elementary, engaging students with math activities (2018)

Reviewing

- NeurIPS 2021

Department Service

- Reviewed 30 PhD applications for the Machine Learning group (2019 and 2020)
- Member of the graduate student committee, coordinating department social activities