Eric Lybrand

✉ lybrand.eric@gmail.com   •   🌐 elybrand.github.io.   •   https://github.com/elybrand

Education

University of California, San Diego	**San Diego, CA**
Ph.D. in Mathematics	*2015–Present*
University of Georgia	**Athens, GA**
B.Sc. in Mathematics (Summa Cum Laude)	*2011–2015*

Previous Employment

University of California, San Diego	**San Diego, CA**
Academic Student Employee	*October 2015–Present*

   Voytek Lab Research Assistant — *Summer 2020*
- · Performed technical audit and added aperiodic simulations to python package NeuroDSP.

   Senior Teaching Assistant — *2017-20*
- · Restructured department TA training with Graduate Vice Chair and senior faculty.
- · First Senior TA to serve for two consecutive years. Trained largest incoming TA class in department's history.
- · See my TA evaluations here.

   CURE Graduate Research Assistant — *Summer 2017*
- · Mentored 6 UCSD undergraduates from under-represented backgrounds on a NSF funded project.

Brex	**San Francisco, CA**
Data Science Intern	*Summer 2019*

- · Engineered first generation of machine learning infrastructure for fraud model from scratch.
- · Built and productionized Brex's first ever transaction level fraud detection model.
- · Model had average precision that was 3x higher than Mastercard's model for transactions from last 30 days.

IPAM & NEC Corporation	**Sendai, Japan**
Graduate Student Researcher	*Summer 2018*

- · Worked for the telecommunications corporation NEC on a project that focused on indoor localization using wireless networks.
- · Led a team of 6 Japanese and American researchers in designing a new path loss model for indoor localization using wireless received signal strength - resulted in improved localization error by 1m in several cases.

Publications

[1] E. Lybrand, A. Ma, and R. Saab. "On the Number of Faces and Radii of Cells Induced by Gaussian Spherical Tessellations". In: *preprint* (2020).

[2] E. Lybrand and R. Saab. "A Greedy Algorithm for Quantizing Neural Networks". In: *preprint* (2020).

[3] M. Iwen, E. Lybrand, A. Nelson, and R. Saab. "New Algorithms and Improved Guarantees for One-Bit Compressed Sensing on Manifolds". In: *Sampling Theory and Applications* (2019).

[4] H. Huang, T. Kemp, Y. Ling, X. Luo, E. Lybrand, R. Smith, and J. Wang. "Random Matrices with Independent Diagonals". In: *preprint* (2018).

[5] E. Lybrand and R. Saab. "Quantization for Low-Rank Matrix Recovery". In: *Information and Inference* (2018).

Selected Talks

One-Bit Compressed Sensing on Manifolds TRIPODS Summer Conference - Tucson, Arizona	*May 2019*
Quantization for Low Rank Matrix Recovery BIRS - Banff, Alberta, Canada	*October 2018*

Selected Awards and Honors

Oceanids Memorial Fellowship	*2019*
UCSD Math Department Annual TA Award	*2018*
James B. Ax Graduate Fellowship	*2015-2016*
Eagle Scout	*2008*

Technical Skills

Programming Languages: Python, SQL, MATLAB, Mathematica, C++ (prior experience), R (prior experience)
Tools/Packages: pandas, Keras, numpy, scikit-learn, Git, Docker, Airflow, S3