

Eric Lybrand

✉ elybrand@ucsd.edu • 🌐 elybrand.github.io • https://github.com/elybrand

Education

University of California, San Diego

Ph.D. Candidate in Mathematics - Advised by [Rayan Saab](#)

San Diego, CA

2015–2020

University of Georgia

B.Sc. Mathematics

Athens, GA

2011–2015

Previous Employment

University of California, San Diego

Academic Student Employee

San Diego, CA

2015–Present

Senior Teaching Assistant

2018–2020

- Restructured department TA training with Graduate Vice Chair and senior faculty.
- Led department TA training for 73 math TAs.
- First Senior TA to serve for two consecutive years.

Graduate Teaching Assistant

2015–2018

- Integral Calculus, Differential Calculus, Honors Multivariable Mathematics with Manifolds, Linear Algebra, Vector Calculus.

Junior Teaching Assistant

2017–2018

[CURE](#) Graduate Research Assistant

Summer 2017

- Served as research mentor for 6 UCSD undergraduates on a NSF funded random matrix theory project. Researched empirical spectral distributions of matrices with independent diagonals.

Graduate Student Researcher

Summer 2016

- NSF funded research in compressed sensing and free spectrahedra with Bill Helton.

[Brex](#)

Data Science Intern

San Francisco, CA

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.

[IPAM](#) & NEC Corporation

Graduate Student Researcher

Sendai, Japan

Summer 2018

- Project manager for a team of 6 American and Japanese researchers.
- Designed a new path-loss model for indoor localization using wireless received signal strength. Improved localization error by 1m in some cases. See [blog post](#).

Selected Presentations

[One-Bit Compressed Sensing on Manifolds](#) TRIPODS Summer Conference

May 2019

[Quantization and Low Rank Matrix Recovery](#) BIRS - Banff, Alberta, Canada

October 2018

Compressed Sensing and Blind Deconvolution. IPAM GRIPS - Sendai, Japan

June 2018

Deterministic Models for Topoisomerase II. UCSD Graduate Student Seminar

February 2017

Awards and Honors

Oceanids Memorial Fellowship	2019
UCSD Math Department Annual TA Award	2018
UCSD Senate Research Grant	2017
James B. Ax Graduate Fellowship	2015-2016
Presidential Scholar	2014-2015
Eagle Scout	2008

Technical Skills

Programming Languages: Python, SQL, MATLAB, Mathematica, R, C++, C

Tools/Packages: pandas, numpy, scikit-learn, TensorFlow, Keras, Git, Docker, Airflow, S3

Professional Activities

UCSD Graduate Student Association	2017-2018
Finance Committee	
Reviewer	
SampTA	2019
Advances in Computational Mathematics	2018
IEEE Statistical Signal Processing Workshop	2018

Publications

- [1] M. Iwen, E. Lybrand, A. Nelson, and R. Saab. [New Algorithms and Improved Guarantees for One-Bit Compressed Sensing on Manifolds](#). *Sampling Theory and Applications*, 2019.
- [2] E. Lybrand and R. Saab. [Quantization for Low-Rank Matrix Recovery](#). *Information and Inference*, 2018.