

# Eric Lybrand

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## 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](#)

San Francisco, CA

*Data Science Intern*

Summer 2019

- Engineered machine learning infrastructure for feature construction and model building from scratch.
- Built Brex's first ever transaction level fraud detection model.

### [IPAM](#) & NEC Corporation

Sendai, Japan

*Graduate Student Researcher*

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

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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

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### Programming Languages/Software

**Proficient:** SQL, Python, pandas, Matlab, Mathematica

**Some Experience:** C++, C, Java

## Professional Activities

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

## Publications

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- [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.