

# 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

2018–2019

- Co-organized math department orientation for incoming graduate students.
- Restructured and revitalized a mentor program for 43 new PhD students which paired senior graduate students with incoming students.
- Restructured department TA training from 6 voluntary meetings to 10 mandatory weekly meetings in the Fall quarter. Designed a new curriculum with Graduate Vice Chair and senior faculty.
- Co-taught department TA training with senior faculty for 73 math TAs, the largest incoming class of first time TAs.
- Observed discussion sections of 63 math TAs.
- Served on Graduate Affairs committee, a committee responsible for managing all matters related to graduate students in the math department.

Graduate Teaching Assistant

2015–2018

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

Junior Teaching Assistant

2017–2018

- Helped perform observations of 60 math TAs, the largest incoming class of first time TAs at the time.
- Served on Graduate Affairs committee.
- Organized math department open house for 40 prospective students.
- Helped launch a mentor program for 36 new PhD students.

[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 for extreme points of free spectrahedra under the guidance of Bill Helton.

### [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](#).

## Technical Skills

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### Programming Languages

**Proficient:** Matlab, Mathematica, LaTeX, Python

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

**Other:** Proficient Spanish speaker.

## Professional Activities

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UCSD Graduate Student Association	2017-2018
Finance Committee	
Reviewer	2018
IEEE Statistical Signal Processing Workshop	

## Awards and Honors

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UCSD Math Department Annual TA Award	2018
UCSD Senate Research Grant	Spring 2017
James B. Ax Graduate Fellowship	2015-2016
Coursera Machine Learning Statement of Accomplishment	2015
Presidential Scholar	2014-2015
Eagle Scout	2008

## Presentations

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<a href="#">Quantization and Low Rank Matrix Recovery</a> BIRS - Banff, Alberta, Canada	October 2018
<i>Compressed Sensing and Blind Deconvolution</i> . IPAM GRIPS - Sendai, Japan	June 2018
<i>Poster Presentation</i> . UCSD Mathematics Colloquium	May 2018
<i>Poster Presentation</i> . Seventh International Conference on Computational Harmonic Analysis	May 2018
<i>Compressed Sensing and Random Matrices</i> . UCSD Graduate Student Seminar	January 2018
<i>Deterministic Models for Topoisomerase II</i> . UCSD Graduate Student Seminar	February 2017
<i>An Introduction to the Calculus of Variations</i> . UGA Undergraduate Student Seminar	April 2014
<i>Understanding Topology via Differential Forms</i> . UGA Undergraduate Student Seminar	January 2014

## Publications

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- [1] H. Huang, T. Kemp, Y. Ling, X. Luo, E. Lybrand, R. Smith, and J. Wang. Random Matrices with Independent Diagonals. *preprint*.
- [2] E. Lybrand and R. Saab. Quantization for Low-Rank Matrix Recovery. *Information and Inference*, 2018.