Eric Lybrand

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Personal Website:
https://elybrand.github.io.
Github:
https://github.com/elybrand

Education

- **University of California, San Diego** — San Diego, CA
  Ph.D. Mathematics — *2015 - 2020*
- **University of Georgia** — Athens, GA
  B.Sc. Mathematics — *2011 - 2015*

Teaching & Research Experience

- **Teaching Assistant** — University of California, San Diego
  Graduate Teaching Assistant — *Fall 2015-Present*
  - Linear Algebra (MATH 18) . . . . . Winter 2018
  - Honors Multivariable Calculus (MATH 31BH) . . . . . Winter 2018
  - Honors Linear Algebra (MATH 31AH) . . . . . Fall 2017
  - Honors Vector Calculus (MATH 31CH) . . . . . Spring 2017
  - Honors Multivariable Calculus (MATH 31BH) . . . . . Winter 2017
  - Honors Linear Algebra (MATH 31AH) . . . . . Fall 2016
  - Calculus for Science and Engineering (MATH 20A) . . . . . Spring 2016
  - Vector Calculus (MATH 20E) . . . . . Winter 2016
  - Calculus for Science and Engineering (MATH 20B) . . . . . Fall 2015
- **CURE Graduate Assistant** — University of California, San Diego
  Graduate Research Assistant — *Summer 2017*
  - Supervised and worked alongside a group of 6 UCSD undergraduates on studying the empirical spectral distribution of banded random matrices. Faculty guidance and funding provided by Dr. Todd Kemp.
- **Research Assistant** — University of California, San Diego
  Graduate Assistant — *Summer 2016*
  - Formulated and investigated conditions under which the kernel of a random Gaussian linear pencil misses a conical subset of a unit ball, thus generalizing the main result of Y. Gordon's "Escape Through the Mesh" result.
- **Undergraduate Research** — University of Georgia
  Research Assistant — *Summer 2014 - Fall 2015*
  - Proposed deterministic topological models for topoisomerase II that minimized knotting and average absolute linking number. Implemented detection algorithms for generalized Reidemeister moves. Modified planar diagram embedding and drawing algorithms that preserved canonical labelings

Manuscripts in Preparation and Preprints

1. H. Huang and T. Kemp and Y. Ling and X. Luo and E. Lybrand and R. Smith and J. Wang. "Random Matrices with Independent Diagonals." preprint, 2018.
2. E. Lybrand and R. Saab. "Quantization for Low-Rank Matrix Recovery", Submitted, September 2017. arXiv.

Presentations

1. Graduate Student Seminar, UCSD. "Compressed Sensing and Random Matrices." January 2018.
2. Graduate Student Seminar, UCSD. "Deterministic Models for Topoisomerase II." February 2017
3. Undergraduate Student Seminar, UGA. "An Introduction to the Calculus of Variations." April 2014.
4. Undergraduate Student Seminar, UGA. "Understanding Topology via Differential Forms." January 2014.

Awards, Grants & Honors

UCSD Senate Research Grant Award . . . . . Spring 2017
James B. Ax Graduate Fellowship 2015-16
Coursera Machine Learning Statement of Accomplishment . . . . . Spring 2015
Presidential Scholar 2014-2015
Eagle Scout . . . . . June 2008

Skills

- Programming and Software
  - C++, Python, C, Mathematica, MATLAB, Java
- Other
  - Proficient Spanish-speaker