

Edgar Jaramillo Rodriguez

Curriculum Vitae

University of California, Davis
Department of Mathematics
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Education

- In progress **Ph.D., Mathematics**, *University of California, Davis*, Advisor: Dr. Jesus De Loera.
2021 **M.A., Mathematics**, *University of California, Davis*.
2018 **B.A., Applied Mathematics**, *University of California, Berkeley*.

Publications

- Journal Articles [1] N. Benjamin, G. Fickes, E. Fiorini, **E. Jaramillo Rodriguez**, E. Jovinelly, and T.W.H. Wong, “Primes and Perfect Powers in the Catalan Triangle,” *Journal of Integer Sequences*, Vol. 22 (2019), Issue 7, Paper 6
- Pre-Prints [1] **E. Jaramillo Rodriguez** “Barcode Posets: Combinatorial Properties and Connections,” arXiv:2206.05613 (2022).
[2] J. De Loera, **E. Jaramillo Rodriguez**, D. Oliveros, and A. Torres Hernandez, “A Model for Birdwatching and other Chronological Sampling Activities,” arXiv:2205.05743 (2022). Scheduled to appear in *The American Mathematical Monthly*.
- Conference Papers [1] S. D. Han, **E. Jaramillo Rodriguez** and J. Yu, “SEAR: A Polynomial- Time Multi-Robot Path Planning Algorithm with Expected Constant-Factor Optimality Guarantee,” 2018 IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS), 2018, pp. 1-9.

Presentations

- 2022 **Applied Topology in Albany Seminar**, University of Albany (remote), October 2022. *Combinatorial Methods for Barcode Analysis*.
- Society for Industrial and Applied Math Conference on Discrete Mathematics 2022 (**SIAM-DM22**), Carnegie Mellon University, June 2022. *Barcode Posets: Combinatorial Properties and Connections*.
- Algebraic Statistics 2022**, University of Hawai'i at Manoa, May 2022. *A Model for Birdwatching and other Chronological Sampling Activities*.
- 2021 **AIM Latinx Mathematician Research Community Meeting** (virtual) December 2021. *New Methods for Mixture Model Analysis* with A. Chavez, J. De Loera, J. Simental Rodriguez, and A. Torres Hernandez.
- UC Davis Graduate Student Research Seminar**, University of California, Davis, April 2021. *Coupon Collecting, Bird Watching, and other Chronological Sampling Activities: A Random Interval Graph Model*.
- 2016 **Young Mathematicians Conference 2016**, The Ohio State University, August 2016. *Unique Integers on the Catalan Triangle* (poster presentation) .

Professional Experience

- 2022 **Graduate Student Intern in the Information Systems and Modeling Group (A-1)**, *Los Alamos National Lab*, Mentor: Dr. Sara Del Valle.
- 2020 **NSF Mathematical Sciences Graduate Research Internship**, *Lawrence Berkeley National Lab*, Mentor: Dr. Nicole Sanderson.
- 2017 **Research Experience for Undergraduates**, *Center for Discrete Math and Theoretical Computer Science at Rutgers University*, Mentor: Dr. Jingjin Yu.
- 2016 **Research Experience for Undergraduates**, *Muhlenberg College*, Mentor: Dr. Eugene Fiorini.

Fellowships, Awards, and Other Funding

- 2022 Yueh-Jing Lin Fund Award Recipient, UC Davis.
- 2021-2022 NSF Alliances for Graduate Education and the Professoriate Graduate Research Supplement (AGEP-GRS), Project title: Two-Way Research Street: Geometric Algorithms in Optimization and Computer-Based Discrete Geometry.
- 2018-2020 Eugene Cota Robles Graduate Fellowship, UC Davis

Teaching Experience

- Teaching Assistant **Math 108: Introduction to Abstract Math**, Fall 2022, UC Davis. Lead Instructor: Orsola Capovilla-Searle.
- Math 21B: Integral Calculus**, Spring 2021, UC Davis. Lead Instructor: Dr. Ben Morris.
- Math 22A: Linear Algebra**, Winter 2021, UC Davis. Lead Instructor: Dr. David Marsico.
- Math 21A: Differential Calculus**, Fall 2020, UC Davis. Lead Instructor: Dr. Daniel Martin.
- Math 54: Linear Algebra**, Fall 2017, UC Berkeley. Lead Instructor: Dr. Michael Hutchings.
- Classroom Aid **Martin Luther King Jr Middle School**, Fall 2015, Berkeley, CA. Lead Instructor: Jay Cohen.

Mentoring Experience

- 2021 **Directed Reading Program Mentor**, *UC Davis*.
- **DRP Mentor**, *Led two undergraduate students in a directed reading program on mathematical optimization. I was responsible for creating the syllabus, compiling reading materials, producing exercises to guide readings, and facilitating discussions. Topics covered: Linear Regression/ Ordinary Least Squares, Ridge Regression, LASSO regression, Singular Value Decomposition/ Principle Component Analysis, and implementations of these methods in Python for real life data. In 2022 we are going to study recommender systems.*
- 2015-2017 **Bridging Berkeley Program Director**, *UC Berkeley Public Service Center*.

- **Program Director**, *Bridging Berkeley* is a math mentoring program that matches UC Berkeley work-study students and volunteers with Berkeley middle school youth, especially those who will be first-generation college students. As director, I oversaw a team of roughly 30 mentors and 100 mentees while also mentoring a number of students myself.

Service

Reviewer Boletín de la Sociedad Matemática Mexicana.

Workshops, Summer Schools, and Similar Activities

- 2021 Algorithmic Advances for Statistical Inference with Combinatorial Structure Workshop, Simons Institute for the Theory of Computing (Virtual). October 11-15, 2021
- VII Mexican Workshop in Geometric and Topological Data Analysis, Centro de Investigación en Matemáticas (Virtual). September 22-29, 2021
- School on Modern Directions in Discrete Optimization, Hausdorff Center for Mathematics (Virtual). September 13-17, 2021
- Geometric Methods in Optimization and Sampling Boot Camp, Simons Institute for the Theory of Computing (Virtual). August 30-September 3, 2021
- 2019 Mixed Integer Programming Workshop, Massachusetts Institute of Technology. July 15-18, 2019.

Skills

Computer Skills Expertise in Python, SQL, Git, Microsoft Office, LaTeX. Proficiency in Sage, Matlab.

Languages Fluency: English and Spanish. Proficiency: French.