

# Mayleen Cortez-Rodriguez

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mayleencortez.com

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## EDUCATION

### Cornell University

August 2020 - Present

Ph.D. Student, Applied Mathematics

### California State University, Channel Islands

August 2015 - May 2020

Bachelors of Science, Mathematics

*summa cum laude*

Minor in Computer Science

### Selected Coursework

Numerical Analysis, Abstract Algebra, Measure Theory, Applied Stochastic Processes, Theoretical Statistics, Object-Oriented Programming, Data Structures, Matrix Computations

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## PUBLICATIONS

- **Cortez-Rodriguez, M.**, Eichhorn, M., and Yu., C. L., “Exploiting Neighborhood Interference with Low Order Interactions under Unit Randomized Design.” *Journal of Causal Inference*, vol. 11, no. 1, 2023.
  - **Cortez-Rodriguez, M.**, Eichhorn, M., and Yu., C. L., “Staggered Rollout Designs Enable Causal Inference Under Interference Without Network Knowledge”, In Proceedings of Thirty-sixth Conference on Neural Information Processing Systems (NeurIPS), 2022.
  - Clark, K. B., **Cortez, M.**, Hernandez, C., Thomas, B. E., and Lewis, A. L. “Combating Tuberculosis: Using Time-Dependent Sensitivity Analysis to Develop Strategies for Treatment and Prevention”, *Spora: A Journal of Biomathematics*, 2019: Vol 5.1. 14-23.
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## SELECTED CONFERENCE PRESENTATIONS

- “Exploiting Neighborhood Interference with Low Order Interactions under Unit Randomized Design”, *American Causal Inference Conference (ACIC)*, Austin, TX, May 2023.
  - “Staggered Rollout Designs Enable Causal Inference without Graph Knowledge”, *Neural Information Processing Systems Conference (NeurIPS)*, New Orleans, LA, November 2022.
  - “Exploiting Neighborhood Interference and Low-Order Interactions for Causal Inference”, *Neural Information Processing Systems, Causal Machine Learning for Real-World Impact Workshop*, New Orleans, LA, November 2022.
  - “Finding Waldo: An Investigation into Machine Learning for Object Detection”, *Mathematical Association of America Southern California Regional Conference*. Camarillo, CA, April 2019.
  - “Combating Tuberculosis: Using Time-Dependent Sensitivity Analysis to Develop Strategies for Treatment and Prevention”, *Joint Math Meetings (JMM)*. Baltimore, MD, January 2019.
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## UNDERGRADUATE RESEARCH EXPERIENCE

**Undergraduate Program**, Mathematical Sciences Research Institute Summer 2019

- Collaborated on an applied combinatorics research project on peaks in parking functions
- Utilized SageMath and Python to advance the research

**Mathematics Department**, California State University, Channel Islands Spring 2019

- Created a machine learning model to detect the Waldo character from the *Where's Waldo* series
- Utilized Amazon Web Services to train and implement machine learning models

**Mathematics Department**, California State University, Channel Islands Fall 2018

- Worked on developing a collection of Python scripts that assist in real-time detection of hot-spots on solar panels via unmanned aerial vehicles
- Explored the Python library OpenCV, concepts in digital image processing and others' work in computer vision to create original code

**Emerging Scholars Program**, St. Mary's College of Maryland Summer 2018

- Developed a compartment model for the spread of tuberculosis in different types of regions
- Created scripts in R to run simulations and obtain experimental results
- Delivered weekly oral presentations on research progress

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## UNIVERSITY INVOLVEMENT AND SERVICE

### Cornell University

- *Center for Applied Math Mentoring Program*: Coordinator Fall 2021 - Present
- *ZigZag Mentoring Program, Association for Women in Math*: Mentor Spring 2022
- *K-12 Education and Outreach, Math Department*: JRMF Volunteer Spring 2021, Spring 2022
- *The Enhancing Diversity in Graduate Education Program*: Panelist Summer 2021
- *Expanding Your Horizons Virtual Conference*: Volunteer Spring 2021
- *ZigZag Mentoring Program, Association for Women in Math*: Mentor Fall 2020 - Spring 2021
- *CURB Grad School Demystified*: Panelist Fall 2020, Fall 2021

### California State University, Channel Islands

- *Data Science Club*: Founding President Fall 2019 - Spring 2020
  - *Math Club*: Treasurer Fall 2019 - Spring 2020
  - *Louis Stokes Alliance for Minority Participation*: Scholar Fall 2018 - Spring 2020
  - *College for a Day (Middle School Outreach Program)*: Volunteer March 2018
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## EMPLOYMENT EXPERIENCE

**Mathematics Department**, California State University, Channel Islands    Fall 2019 - Spring 2020  
*Instructional Student Assistant*

- Tutored students in calculus and statistics
- Put together study guides with practice problems and step-by-step solutions

**Project PROMESAS**, California State University, Channel Islands    Spring 2018 - Spring 2019  
*Instructional Student Assistant*

- Tutored students in mathematics and computer science
  - Helped students develop good study habits and strategies
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## LANGUAGE AND TECHNICAL SKILLS

- English and Spanish, fluent, both written and verbal
  - Proficiency in LaTeX, Python, MatLab, Microsoft Office, Windows OS, and Mac OS
  - Familiarity with Java, C, R, and Julia programming languages
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## AWARDS AND RECOGNITION

<b>The Robert Mozia Graduate Student Distinguished Service Award</b> , Cornell Diversity Programs in Engineering	Awarded Spring 2023
<b>Graduate Research Fellowship</b> , National Science Foundation	Awarded Spring 2020
<b>Sloan Graduate Diversity Fellowship</b> , Cornell University	Awarded Spring 2020
<b>Outstanding Poster Presentation</b> , CSU Channel Islands	Spring 2019
<b>Outstanding Oral Presentation</b> , CSU Channel Islands	Spring 2019
<b>Outstanding Poster</b> , Mathematical Association of America (MAA)	Spring 2019
<b>Scored on the Putnam Exam</b> , MAA Putnam Competition	Fall 2018
<b>Outstanding Oral Presentation</b> , CSU Channel Islands	Fall 2018
<b>Semester Honors</b> , CSU Channel Islands	Fall 2015 - Spring 2017, Spring 2018 - Spring 2020

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