

# Mayleen Cortez-Rodriguez

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## Education

### Cornell University

Ph.D. Candidate, Applied Mathematics

Masters of Science (Awarded August 2023)

August 2020 - Present

### California State University, Channel Islands

Bachelors of Science, Mathematics

Minor in Computer Science

August 2015 - May 2020

*summa cum laude*

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## Papers

- “Combining Rollout Designs and Clustering for Causal Inference under Low-order Interference.” *arXiv preprint* (2024) [Paper Link](#).
  - “Exploiting Neighborhood Interference with Low Order Interactions under Unit Randomized Design.” *Journal of Causal Inference*, (2023) [Paper Link](#).
  - “Staggered Rollout Designs Enable Causal Inference Under Interference Without Network Knowledge”, In *NeurIPS* (2022) [Paper Link](#).
  - “Combating Tuberculosis: Using Time-Dependent Sensitivity Analysis to Develop Strategies for Treatment and Prevention”, *Spora: A Journal of Biomathematics* (2019) [Paper Link](#).
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## Selected Conference Presentations

- “Combining Rollout Designs and Clustering for Causal Inference under Low-order Interference”, *Joint Statistical Meetings*, Portland, OR, August 2024
  - “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.
  - “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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## Teaching and Tutoring Experience

**Statistics and Data Science Department**, Cornell University Fall 2024

*Lecturer for STSCI/INFO/ILRST 3900: Causal Inference*

- In charge of designing and preparing lectures for 50% of the semester for an interdisciplinary class of 160 students
- Helped to design assignments and rubrics to meet learning goals/outcomes
- Managed extension and make-up requests from students
- Communicated with teaching assistants about grading and course logistics

**Statistics and Data Science Department**, Cornell University Fall 2023

*Teaching Assistant for STSCI/INFO/ILRST 3900: Causal Inference*

- Led three discussion sections (20 students per section), including helping to design and prepare material for those discussions
- Assisted in grading, managing Ed Discussion, and updating course website

**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

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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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## Language and Technical Skills

- Spanish, conversational
- Proficiency in LaTeX, Python, Microsoft Office, Windows OS, and Mac OS
- Knowledge of version control, Git, and GitHub
- Experience with Visual Studio Code, Jupyter Notebook, Google Colab, R Studio
- Familiarity with Java, R, Julia, MatLab, and SQL

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## University Involvement, Service, and Community Contributions

### Cornell University

- *Center for Applied Math Mentoring Program*: Mentor Present
- *Center for Applied Math Mentoring Program*: Coordinator Fall 2021 - Summer 2024
- *ECE 7930: Succeeding in the Graduate Environment*: Panelist Fall 2023
- *Boyce Thompson Institute Social Mentoring Program*: Mentor Summer 2023
- *Cornell McNair Grad Panel Luncheon*: Panelist Summer 2023
- *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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## Awards, Fellowships, and Recognition

- CASE Fellowship**, American Mathematical Society Awarded March 2024
  - The Robert Mozia Graduate Student Distinguished Service Award**, Cornell Diversity Programs in Engineering Awarded Spring 2023
  - Graduate Research Fellowship**, National Science Foundation Awarded Spring 2020
  - Sloan Graduate Diversity Fellowship**, Cornell University Awarded Spring 2020
  - Outstanding Poster Presentation**, CSU Channel Islands Spring 2019
  - Outstanding Oral Presentation**, CSU Channel Islands Spring 2019
  - Outstanding Poster**, Mathematical Association of America (MAA) Spring 2019
  - Outstanding Oral Presentation**, CSU Channel Islands Fall 2018
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