Emi Cervantes

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SUMMARY

Student at the University of California, Irvine pursuing a Bachelor of Science in Mathematics, Data Science emphasis; expected to graduate in Fall 2024 with Statistics minor and department honors. Results-driven and highly motivated student with over two years of experience in conducting both statistical and applied mathematical research. Able to collaborate effectively and closely with a group of diverse researchers. Wish to apply skills in both applied mathematics and statistics to create efficient and accessible tools for analyzing data to solve problems that arise in the real world.

EDUCATION

University of California, Irvine   Sep 2020 - Jun 2024

B.S. Mathematics - Data Science emphasis (Department Honors)
Minor in Statistics
Relevant Coursework: Calculus II, Multivariable Calculus I/II, Real Analysis, Linear Algebra, Numerical Analysis, Optimization, Statistics and Probability, Statistical Computing, Artificial Intelligence

RESEARCH EXPERIENCE

Greedy Approach to Kaczmarz Method with Oblique Projections   Sep 2022 - Present

Student Researcher - UCI Department of Mathematics
PI: Anna Ma, Ph.D.

- Developing and proving theorems for new *greedy algorithms for the Kaczmarz method with oblique projections* to solve a large-scale linear system.
- Using *Python* to run extensive numerical experiments of algorithms to ensure its functionality and writing manuscript for publication

Gender Differences in the Impact of Worked Examples on Math Anxiety   Jan 2023 - Present

Research Fellow - UCI School of Education
PI: Lindsey Richland Ph.D., June Ahn Ph.D., Fernando Rodriguez Ph.D.

- Employing a pre-post design experiment, *structural equation models (path analysis)* were implemented to evaluate the gender-specific effects of worked examples on math anxiety using *R* packages.
- Presenting research findings at lab meetings and conferences and writing research proposals for upcoming studies to investigate the math anxiety of college students.

Impact of Mediterranean and DASH Diets on MPN Symptoms   Jan 2022 - Aug 2022

Student Researcher - UCI School of Medicine
PI: Angela Fleischman Ph.D., M.D.

- Statistical analysis employed *linear mixed effect model* with *R* software to determine the effectiveness of Mediterranean diets in improving symptoms of patients with myeloproliferative neoplasms (MPN).
- Collaborated with a diverse group of researchers including biologists and computer scientists to find a solution to our research question using clinical trial data, and presented findings at conferences.

Cancer Treatment and Development of Resistance   Mar 2022 - Jun 2022

Student Researcher - UCI Department of Mathematics
PI: Anthony Zamora, Natalia Komarova Ph.D.

- Developed *population growth ODE models* to predict the population growth of both susceptible and resistant tumor cells, under different therapy conditions.
- Created simulation software using *Python* packages to test and optimize the model while adjusting the conditions of cancer therapy.

PROJECTS

Anime Genre Predictor and Recommendation Engine   Code

Data Science project using Python and Streamlit library to analyze trends in anime. Wrote and trained a model using Python's Scikit-learn LogisticRegression to predict anime genres from reviews and airing time. Anime recommendation was constructed with cosine similarity algorithm.

SELECTED TALKS AND PRESENTATIONS

Upcoming Talks

1. **Cervantes E** & Tran J. (2024, January). A Greedy Approach to Kaczmarz Method with Oblique Projections. Presenting at Joint Mathematics Meetings. San Francisco, CA.

Poster Presentations

1. **Cervantes E** & Ma S. (2023, June). Effectiveness of Worked Examples on Reducing Math Anxiety. Presented at Working Memory and Plasticity Lab Symposium. Irvine, CA.

2. **Cervantes E** & Ma S. (2023, May). Effectiveness of Worked Examples on Reducing Math Anxiety. Presented at Annual Undergraduate Research Symposium. Irvine, CA.

3. **Cervantes E**, Davityan M, Halabi A, Truong J, Wu M. (2022, August). Impact of Mediterranean and DASH Diets on MPN Symptoms. Presented at Project RAISE Summer Research Symposium. Fullerton, CA.

4. **Cervantes E**, Davityan M, Halabi A, Truong J, Wu M. (2022, August). Impact of Mediterranean and DASH Diets on MPN Symptoms. Presented at SoCal Data Science Fellowship Symposium. Irvine, CA.

INVOLVEMENTS

Data @ UCI — UC Irvine   Feb 2022 - Present

Executive Vice President   *Jun 2023 - Present*
- Growing UC Irvine's first organization of data enthusiasts to 600+ members in three quarters
- Facilitating meetings with corporate and university executives to discuss potential partnerships and collaborations
- Gave technical workshops on building data visualizations with R

Vice President of Logistics   *Feb 2022 - Jun 2023*
- Coordinated all aspects of event logistics including venue selection and vendor management
- Planned UC Irvine's first inaugural Datathon: reached out to sponsors to establish partnerships and managed all logistics aspects for smooth operation
- Gave technical workshops on building data visualizations with R

Undergraduate Mathematics Committee — UC Irvine   Jun 2023 - Present

Co-founder, President
- Co-founded the organization to create expand and foster a welcoming community for undergraduate math majors at UC Irvine
- Overseeing all activities and discussions that occur in the executive board, and ensuring effective decision-making

Faces in Mathematics — UC Irvine   Feb 2022 - Present

External Vice President   *Jun 2023 - Present*
- Coordinated and directed the planning of the Faces in Mathematics Industry Conference
- Managed study room for members and hosted workshops to support lower-division students in mathematics construct their four-year college plan

Director of Professional Development   *Feb 2022 - Jun 2023*
- Initiated and executed the first inaugural Faces in Mathematics conference at UC Irvine
- Established and maintained connections with industry and graduate school speakers, inviting them to conferences and general meetings

Teaching Experience

Classroom Leader, Mentor — Math CEO   Jun 2022 - Present
- Instructing math topics and classroom activities for Math CEO sessions, an after-school math tutoring program for underserved communities in Orange County, CA
- Developing and implementing weekly lesson plans, incorporating math concepts and their relevance to social justice issues, and facilitating active discussion in the classroom

Learning Assistant — UC Irvine   Jun 2022 - Present
- Mentoring undergraduate student mentors on curriculum planning and pedagogical tactics for Math 192 (Studies in the Learning and Teaching of Secondary Mathematics)
- Maintaining regular communication with program directors and co-learning assistants, providing detailed reports on each lesson, and offering recommendations for future activities

Awards and Fellowships

Sep 2020 - Present	Dean's Honor List (9 quarters)
Dec 2022 - Present	Department of Mathematics Honors Program
Dec 2020 - Present	Hispanic Scholarship Fund (HSF) Scholar
Jun 2023	6th Annual Working Memory and Plasticity Symposium Best Presentation
Jun 2023 - Dec 2023	Career Pathways for Research in Learning, Education, Analytics, and Data Science (CP-LEADS) Fellowship
Jan 2022 - Aug 2022	SoCal Data Science Fellowship (REU)

Skills

Computer	R: dplyr, tidyr, ggplot2, lme4, laavan
	Python: NumPy, pandas, Matplotlib, scikit-learn, PyTorch, TensorFlow
	MATLAB: Scientific computing, scripting, data visualization
	LaTeX: document preparation, beamer, bibliography, mathematical notation
Language	English (fluent), Japanese (native speaker)

Certifications

Certified Learning Assistant Program (CLAP), UC Irvine	Mar 2023
SQL - MySQL for Data Analytics and Business Intelligence, Udemy	Sep 2021