Jessalyn Sebastian

Ph.D. Candidate at University of California, Irvine
Advisor: Volodymyr Minin

Research Interests: stochastic processes, Bayesian modeling, model robustness and prior sensitivity analysis, applications in infectious disease epidemiology, statistics education

Education

2024; M.S. Statistics, University of California, Irvine (UCI)
2021; B.S. Statistics and Data Science (*summa cum laude*), minor in Physics, University of California, Santa Barbara (UCSB)

Internships

2024; Centers for Disease Control and Prevention (CDC) Summer Internship in Forecasting and Outbreak Analytics, Nowcasting and Natural History team.

Publications

Peer-Reviewed

Li, H., Zhou, M., **Sebastian, J.**, Wu, J., & Gu, M. (2022). *Efficient Force Field and energy emulation through partition of permutationally equivalent atoms.* The Journal of Chemical Physics, 156(18), 184304. https://doi.org/10.1063/5.0088017

In Preparation

Sebastian, J., Minin, V. (2025). *Gaussian Process Priors with Markov Properties for Effective Reproduction Number Estimation*.

Němcová, B., Goldstein, I., **Sebastian, J.**, Minin, V., Bracher, J. (2025). *Unjustified Poisson assumptions lead to overconfident estimates of the effective reproductive number.* medRxiv preprint: https://doi.org/10.1101/2025.07.31.25332479

Presentations and Posters

Locally Adaptive Smoothing with Subordinated Integrated Brownian Motion (Presentation). Joint Statistical Meetings, Nashville, TN, August 2025.

Gaussian Process Priors with Markov Properties for Effective Reproduction Number Estimation
(Presentation) The Western North American Region (WNAR) of The International Biometric Society, Whistler, BC, June 2025.
(Poster) 14th International Conference on Bayesian Nonparametrics, Los Angeles, CA, June 2025.
(Presentation) Joint Statistical Meetings, Portland, OR, August 2024.

Takeaways from Readings Selected by the Dogucu Research Group (Flash Talk). Electronic Conference on Teaching Statistics: Regional Conference at UC Irvine**,** Irvine, CA, June 2024.

The Ornstein-Uhlenbeck Prior for Effective Reproduction Number Estimation (Poster). UCI Data Science Initiative: Statistical and Machine Learning Applications in Biomedical Sciences Workshop, Irvine, CA, February 2024.

Honors and Achievements

2025; Runner-up for the Most Outstanding Written Paper Award, WNAR of The International Biometric Society
2025; Summer Scholar, UCI Department of Teaching Excellence and Innovation
2020; Phi Beta Kappa Society
2017-2021; UCSB Regents Scholarship
2017-2021; UCSB Dean's Honors

Software

`epinowcast` Tools to enable flexible and efficient hierarchical nowcasting of epidemiological time-series using a semi-mechanistic Bayesian model with support for a range of reporting and generative processes. (*author: contributed issues, code review, PRs)* https://github.com/epinowcast/epinowcast

Teaching and Academic Mentoring

2025; Research Mentor, NIH Summer Institute for Biostatistics and Data Science (SIBS), UCI
2023; Instructor, STATS 67: Introduction to Probability and Statistics for Computer Science, UCI Statistics Department
2021-2022, 2025; Teaching Assistant, STATS 7: Basic Statistics, STATS 8: Introduction to Biological Statistics, STATS 230: Statistical Computing, STATS 270: Stochastic Processes, UCI Statistics Department
2020-2021; Learning Assistant, PSTAT 5A: Introduction to Statistics, UCSB Statistics and Applied Probability Department (PSTAT)
2020-2021; Probability and Statistics Tutor, PSTAT 109: Statistics for Economics, UCSB Campus Learning Assistive Services (CLAS)

Community Involvement

2024-2026; Graduate Student Representative, UCI Statistics Department
2024-2025; Pacific Alliance for Low-income Inclusion in Statistics and Data Science (PALiISaDS) Mentor
2023-2025; Diverse Educational Community and Doctoral Experience (DECADE) Student Representative, UCI Statistics Department
2023-2025; Brown Bag Seminar Organizer, UCI Statistics Department
2017-2020; Volunteer with UCSB Residential Housing Association (RHA) as a community council member and a Queer and Transgender Student Engagement Chair

Programming Languages: R, Python, Stan, C++