Kathleen Medriano

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Summary

PhD Student in Cognitive Sciences at University of California, Irvine. Specializing in the intersection of cognitive science, statistics, machine learning, and computational modeling with expertise in time series analysis, Bayesian methods, and statistical modeling.

Education

Cognitive Sciences, PhD
University of California, Irvine

September 2022 - Present

Statistics, Master of Science
University of California, Irvine

September 2022 - December 2024

Mathematics, Graduate Diploma
University of the Philippines, Diliman

August 2017 - July 2019

Psychology, Bachelor of Science
University of Santo Tomas

June 2012 - June 2016

Publications

Manuscripts in Preparation / Under Review

Bayesian Ornstein-Uhlenbeck Models for Mobile Health Intervention Design
Kathleen Medriano, Joachim Vandekerckhove

In preparation, Expected submission: 2025

Developing Bayesian hierarchical Ornstein-Uhlenbeck models for optimizing intervention timing and effectiveness in mobile health applications.

Statistical Tests for Diffusion Process Sufficiency in Time Series Modeling
Kathleen Medriano, Joachim Vandekerckhove

Under review, Expected submission: 2024

Novel statistical framework for assessing whether diffusion processes adequately capture temporal dynamics in time series data.

Peer-Reviewed Journal Articles

Experiences of COVID-19-recovered healthcare workers in a tertiary hospital in the Philippines: a mixed-method inquiry

MB Carascal, PE Capistrano, MDL Figueras, OLAC Cataylo, SMS Zuñiga, K Medriano

INQUIRY: The Journal of Health Care Organization, Provision, and Financing (2022)

Mixed-methods study examining the experiences and challenges faced by healthcare workers who recovered from COVID-19 in a Philippine tertiary hospital setting.

The HDI+ ROPE decision rule is logically incoherent but we can fix it

Alexander Etz, Andrés F. Chávez de la Peña, Luis Baroja, Kathleen Medriano, Joachim Vandekerckhove

Psychological Methods (2024)

Critical analysis and proposed solution for a commonly used Bayesian decision rule in psychological research.

Research Experience

PhD Research Student

University of California, Irvine - Cognitive Sciences Department

Supervisor: Joachim Vandekerckhove

September 2022 - Present

Developing Bayesian hierarchical models for intervention designs in mobile health applications. Creating statistical tests for diffusion processes and data-driven algorithms for model discovery in cognitive science.

Research Intern (CacTüS Program)

Max Planck Institute for Biological Cybernetics

Supervisor: Peter Dayan, Philip Schwartenbeck, Mihaly Banyai

July 2022 - September 2022

Selected for the highly competitive CacTüS Internship program (acceptance rate: < 2%). Conducted research on generalization of learned structural knowledge across cognitive tasks using graph similarity in Dr. Peter Dayan's lab in Tübingen, Germany.

Talks and Presentations

Data-driven model discovery for coupled time series

Conference Talk, MathPsych / ICCM 2025

July 2025, The Ohio State University, Ohio Union and Blackwell Inn

Introduced a data-driven framework for discovery of parsimonious stochastic differential equation models from coupled time series data. Demonstrated applications to core affect dynamics from daily life studies. 20-minute presentation (15 min + 5 min Q&A;).

Amortized stochastic time series models for intervention designs

Poster Presentation, MathPsych @Psychonomics Satellite Meeting 2024

November 2024, New York Marriott Marquis

Applied Ornstein-Uhlenbeck diffusion models to mobile health intervention data for psychological well-being in college students. Evaluated BayesFlow for simulation-based inference in hierarchical models.

Amortized stochastic time series models for intervention designs

Poster Presentation, MathPsych / ICCM 2024

July 2024, Tilburg University, Cube building

Hierarchical Bayesian interrupted Ornstein-Uhlenbeck model applied to mobile health data. Examined intervention effectiveness across four study phases and explored BayesFlow implementation strategies.

Bayesian hierarchical Ornstein-Uhlenbeck models for intervention designs

Poster Presentation, SIDIC (Psychonomics-related meeting)

November 2023, Grand Ballroom, Hilton San Francisco Union Square

Extended OU model analysis with BayesFlow implementation for simulation-based inference. Explored intervention effectiveness through Bayes factors on linear contrasts, revealing habituation patterns in attractor and elasticity parameters. Investigated BayesFlow applicability for covariates, multidimensional variates, and response artifacts.

Bayesian hierarchical Ornstein-Uhlenbeck models for intervention designs

Poster Presentation, MathPsych/ICCM/EMPG 2023

July 2023, University of Amsterdam, Roeterseiland campus

Applied hierarchical Bayesian OU models to mobile health intervention data for psychological well-being. Demonstrated estimation of intervention effectiveness, persistence effects, and individual-level response features.

Honors and Awards

Tarow and Minako Indow Fellowship

University of California, Irvine - Department of Cognitive Sciences

2025

$7,000 fellowship awarded annually to two graduate students in recognition of exceptional research skills and productivity, as demonstrated during advancement to PhD candidacy. Awarded for research on 'Methods for Time Series Data in Cognitive and Psychological Sciences' under advisor Joachim Vandekerckhove.

Best Poster Award

MathPsych / ICCM 2024

July 2024

Awarded for poster 'Amortized stochastic time series models for intervention designs' by Medriano, K., Oravecz, Z., & Vandekerckhove, J. Recognition for outstanding research presentation on Bayesian hierarchical models and BayesFlow implementation.

Best Poster Award

MathPsych/ICCM/EMPG 2023

July 2023

Awarded for poster 'Bayesian hierarchical Ornstein-Uhlenbeck models for intervention designs' by Medriano, K., Oravecz, Z., & Vandekerckhove, J. Recognition for exceptional research on mobile health intervention modeling.

Magna Cum Laude

College of Science, University of Santo Tomas, Philippines

Jun 2016

Academic distinction for graduating with honor from undergraduate studies.

Academic Excellence Award in Psychology

College of Science, University of Santo Tomas, Philippines

June 2016

Awarded for graduating as the top student in the Psychology academic program.

Academic Program Award

UST Psychological Alumni Association, Philippines

June 2016

Awarded for exhibiting exemplary academic performance throughout undergraduate studies.

Santo Tomas Academic Award Scholarship
University of Santo Tomas, Philippines

June 2012 – June 2016

Full scholarship award for academic excellence; 100% tuition waived throughout entire undergraduate study (4 years).

Professional Experience

Graduate Research Assistant
University of California, Irvine, Irvine, CA

September 2022 - Present

- Conduct independent research on Bayesian hierarchical models and time series analysis
- Develop novel statistical methods for cognitive science applications
- Collaborate on mobile health intervention design projects
- Present research findings at academic conferences

Independent Researcher
Research Collaborations, Manila, Philippines

April 2021 - February 2022

- Conducted statistical analyses (ANOVA, t-tests, etc.) using R for a study on Filipino attitudes towards LGBTQ+ individuals, focusing on homonegativity and sexual prejudice
- Collaborated with researchers from The Medical City (a tertiary hospital) to investigate the experiences of COVID-19-recovered healthcare workers
- Performed statistical analyses to assess the impact on healthcare worker well-being and work performance

Benchmark and Portfolio Database Associate
MSCI, Manila, Philippines

January 2021 - April 2021

- Investigated and resolved data quality issues, identifying root causes (e.g., input errors, methodology issues)
- Improved data accuracy using DML and TCL
- Provided client support, addressing inquiries on data accuracy, methodology, and index computations

Benchmark and Portfolio Database Analyst
MSCI, Manila, Philippines

April 2019 - January 2021

- Optimized Perl and Python codes for more efficient data processing and improved readability
- Developed an automated data processing script integrated with the Jira API
- Led and mentored the Philippine team, organizing meetings, overseeing projects, and training new hires
- Spearheaded a key project to adapt financial data pipelines for a new industry classification standard
- Coordinated code development, testing, deployment, and client communication to ensure seamless implementation

Teaching Assistant
University of California, Irvine, Irvine, CA

[Start Date] - [End Date]

- Assist in teaching statistics and research methods courses

- Provide statistical consulting to graduate students
- Grade assignments and provide feedback on statistical analyses

Skills

Programming Languages
R, Python, MATLAB, Stan, JAGS

Statistical Methods
Bayesian Methods, Time Series Analysis, Hierarchical Modeling, Machine Learning, Statistical Inference, Diffusion Processes

Software & Tools
RStudio, Jupyter, Git, LaTeX, Stan, BUGS/JAGS, SPSS, Markdown

Research Areas
Cognitive Sciences, Computational Modeling, Mobile Health, Model Discovery, Ornstein-Uhlenbeck Processes, Intervention Design

Languages
English (Native)

References

[Advisor Name]
Professor, University of California, Irvine - Cognitive Sciences

Email: [advisor.email@uci.edu], Phone: [Phone Number]

Relationship: PhD Advisor

[Committee Member Name]
Professor, University of California, Irvine

Email: [committee.email@uci.edu], Phone: [Phone Number]

Relationship: Dissertation Committee Member

[Collaborator Name]
[Position], [Institution]

Email: [collaborator.email@institution.edu], Phone: [Phone Number]

Relationship: Research Collaborator

Online Profiles

Google Scholar: https://scholar.google.com/citations?user=6WX16d8AAAAJ

ORCID: https://orcid.org/0000-0001-6562-439X

GitHub: https://github.com/Kathleen-Medriano