Rachel Longjohn

Website: rlongjohn.github.io
Email: rlongjoh@gmail.com

RESEARCH INTERESTS

I am broadly interested in problems at the intersection of statistics and machine learning, particularly in testing and evaluation for scientific applications. I am also passionate about issues in ethics and data curation, provenance, and documentation.

EDUCATION

Ph.D. in Statistics Sep 2019 - Present
University of California, Irvine
Advisor: Padhraic Smyth

M.S. in Statistics Sep 2019 - Jun 2021
University of California, Irvine GPA: 4.00

B.S. in Applied and Computational Mathematics Aug 2015 - May 2019
University of Southern California GPA: 3.96
Specialization in Computer Programming

PUBLICATIONS

Peer-Reviewed

- Longjohn*, R., Kelly*, M., Singh, S., & Smyth, P. (2024). Benchmark data repositories for better benchmarking. *NeurIPS*. https://arxiv.org/abs/2410.24100
- Longjohn, R., & Smyth, P. (2024). Likelihood ratios for changepoints in categorical event data with applications in digital forensics. *Journal of Forensic Sciences*. https://doi.org/10.1111/1556-4029.15512
- Longjohn, R., Smyth, P., & Stern, H. S. (2022). Likelihood ratios for categorical count data with applications in digital forensics. *Law, Probability and Risk*. https://doi.org/10.1093/lpr/mgac016

Preprints / Under Review

- Longjohn, R., & Smyth, P. (2025). Score-based likelihood ratios using stylometric text embeddings. (Under Review).
- Longjohn, R., Gopalan, G., & Casleton, E. (2025). Statistical uncertainty quantification for aggregate task-performance metrics in ML benchmarks. (Under Review).

PRESENTATIONS

- Longjohn*, R., Gopalan*, G., & Casleton, E. (2024). Statistical uncertainty quantification for aggregate task-performance metrics in ML benchmarks. *NeurIPS Workshop on Statistical Frontiers in LLMs and Foundation Models.*
- Gopalan, G., Casleton, E., Binette, O., & Longjohn, R. (2023). Statistical approaches for testing and evaluating foundation models. *Fall Technical Conference: Harmonizing Quality, Statistics, and Data Science.*

- Longjohn, R., & Smyth, P. (2023a). Bayes factors for the existence of changepoints in categorical sequences within digital forensics. *Joint Statistical Meetings.*
- Longjohn, R., & Smyth, P. (2023b). A likelihood ratio approach for detecting behavioral changes in device usage over time. *Annual Meeting of the American Academy of Forensic Sciences.*
- Longjohn, R., & Smyth, P. (2022). Likelihood ratios for categorical evidence with applications to digital forensics. *Joint Statistical Meetings.*
- Longjohn, R., Smyth, P., & Stern, H. (2022). Likelihood ratios for categorical evidence with applications in digital evidence. *Annual Meeting of the American Academy of Forensic Sciences.*

EXPERIENCE

Graduate Student Researcher Sep 2019 - Present
University of California, Irvine

Visiting Student in Statistical Sciences Jun 2023 - Present
Los Alamos National Laboratory

Machine Learning Intern May 2018 - Aug 2019
Obsidian Security

INSTITUTIONAL SERVICE AND TEACHING

Workshop Organizer Apr 2025
The Future of Machine Learning Data Practices and Repositories @ ICLR

Reviewer Jun 2022, 2023, 2024
NeurIPS, Datasets and Benchmarks

Data Repository Curator and Librarian Jan 2020 - Present
UCI Machine Learning Repository

Teaching Assistant Fall 2019, 2024
STATS 7 Basic inferential statistics, University of California, Irvine

Ph.D. Student Mentor Sep 2021 - Jun 2023
Statistics Department, University of California, Irvine

Editor-in-Chief, Viterbi Conversations in Ethics Jan 2018 - May 2019
Viterbi School of Engineering, University of Southern California

AWARDS

Rose Hill Foundation Science and Engineering Fellowship Oct 2024

Robert Newcomb Graduate Award in Statistics Honorable Mention Sep 2020

Summa Cum Laude May 2019

Phi Beta Kappa Aug 2017