

Eliot Wong-Toi

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Experience

DATA SCIENCE INTERN, Dexcom, Inc Jun 2025–Sep 2025

- Designed and implemented a continuous glucose monitoring (CGM) time-series clustering workflow, including preprocessing, feature learning, and model evaluation, using GCP tools (Vertex AI, BigQuery, Cloud Storage).
- Developed deep representation learning methods for irregular, variable-length time series, integrating patient-level features; early prototypes improved clustering quality (silhouette score 0.22 → 0.70) and validated for practical relevance by subject-matter experts.

GRADUATE STUDENT RESEARCHER, University of California, Irvine Sep 2019–Present

- Heteroskedastic Regression:** Investigated phase transitions in mean-variance regression models, developing an efficient hyperparameter search scheme from under- to overfitting regimes.
- Generative Modeling:** Introduced and formalized *generative uncertainty* in deep diffusion models, showing competitive performance for image-quality assessment.
- Conformal Prediction:** Developed novel multistep time-series conformal prediction method.
- Sports Analytics:** Clustered NBA players using Bayesian nonparametric models; managed and cleaned large-scale shot and player datasets.
- Micro-Randomized Trials Power Calculator:** Co-authored R package MRTSampleSizeBinary (>10,000 installations) and developed a Shiny app for trial design.
- Cancer Classification:** Applied Bayesian variable selection and model fitting on radiomic data, achieving predictive performance comparable to junior radiologists.

UNDERGRADUATE RESEARCH ASSISTANT, University of California, San Diego Jul 2018–Jun 2019

- Built CNN for image segmentation (Dice score: 0.96), demonstrating potential to reduce manual annotation effort by hundreds of hours; awarded AWS research credits.

Tools: Python, PyTorch, R, NumPy, Pandas, scikit-learn

Selected Publications

- M. Jazbec, **E. Wong-Toi**, G. Xia, D. Zhang, E. Nalisnick, and S. Mandt, 'Generative Uncertainty in Diffusion Models,' *UAI*, 2025.
Best Paper at *ICLR 2025 Workshop on "Uncertainty and Hallucination in Foundation Models"*
- E. Wong-Toi**, A. Boyd, V. Fortuin, and S. Mandt, 'Understanding Pathologies of Deep Heteroskedastic Regression,' *UAI*, 2024. (**Oral**, among top ~13% of papers)
- E. Wong-Toi**, H.-C. Yang, W. Shen, and G. Hu, 'A Joint Analysis for Field Goal Attempts and Percentages of Professional Basketball Players: Bayesian Nonparametric Resource,' *Journal of Data Science*, 2022.

Education

University of California, Irvine Irvine, CA
PhD in Statistics, Advisor: Stephan Mandt Dec 2025 (expected)
MS in Statistics Sep 2019–Mar 2022

University of California, San Diego La Jolla, CA
BS in Mathematics–Computer Science (cum laude) Sep 2015–Jun 2019
Minor: Economics

Service and Leadership

Committee Member, *What Matters to Me and Why Speakers Series* 2022–2025
Mentor, *LEAP Summer REU* and *Momentum Fellow Programs* 2024
Mentor, *Diverse Educational Community and Doctoral Experience 1st Year Program* 2022–2024
Reviewer for *NeurIPS*, *ICML*, *ICLR*, *AISTATS*, *TMLR*