Edric (Ed) Tam

CONTACT INFORMATION

Stanford University
Department of Biomedical Data Science
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Google Scholar: Link
Github: Link
LinkedIn: Link

CITIZENSHIP

USA (born in Los Angeles, California)

RESEARCH INTERESTS

Bayesian inference, computation and decision-making aided by neural networks and synthetic data, motivated by biomedicine.

- Bayes: Robust Bayes, Generalized Bayes, Synthetic/Simulated Data (e.g. from AI systems and scientific simulators), Bayesian Computation, (Markov Chain) Monte Carlo
- AI: Embeddings, Deep Generative Models, AI Evaluation
- Biomedical Applications: Medical Imaging, Pharmacology, Neuroscience etc

EDUCATION AND TRAINING

Stanford University, Stanford, CA

- Postdoctoral Fellow in Biomedical Data Science
- Croucher Foundation Postdoctoral Fellowship in AI and Statistics (2025-2027)
- Warren Alpert Postdoctoral Fellowship in AI and Computational Biology (2024-2025)
- Advisor: Barbara E. Engelhardt

Duke University, Durham, NC

- Ph.D in Statistical Science, 2024
- Thesis: *Graphical and Isoperimetric Perspectives on Sampling and Regularization*
- Advisor: David B. Dunson
- Committee: Amy Herring, Peter D. Hoff, Jason Xu

University of Chicago, Chicago, IL

- M.S. in Computer Science, 2018

Yale University, New Haven, CT

- M.S. in Biomedical Engineering, 2017

Johns Hopkins University, Baltimore, MD

- B.S. in Biomedical Engineering, 2016
- Additional Majors: Neuroscience, Applied Mathematics and Statistics
- Graduated with General Honors and Departmental Honors
- Minor: Computational Medicine

Published and Accepted Work

[1] **E. Tam** and D. B. Dunson, "On the Statistical Capacity of Deep Generative Models," arXiv preprint arXiv:2501.07763 **(Accepted pending Minor Revision at Biometrika)**, 2025.

[2] **E. Tam**, D. B. Dunson, and L. L. Duan, "Exact Sampling of Spanning Trees via Fast-Forwarded Random Walks," **Biometrika**, asaf031, 2025.

[3] **E. Tam** and D. Dunson, "Fiedler Regularization: Learning Neural Networks with Graph Sparsity," in **International Conference on Machine Learning (ICML)**, vol. 119, Proceedings of Machine Learning Research, 2020, pp. 9346–9355.

[4] R. M. Joseph, J. S. Sun, **E. Tam**, and J. R. Carlson, "A Receptor and Neuron That Activate a Circuit Limiting Sucrose Consumption," **eLife**, vol. 6, e24992, 2017.

- Responsible for computational/statistical modeling in this wet-lab collaboration.

[5] R. A. Hand, S. Khalid, **E. Tam**, and A. L. Kolodkin, "Axon Dynamics During Neocortical Laminar Innervation," **Cell Reports**, vol. 12, no. 2, pp. 172–182, 2015.

- Responsible for computational/statistical modeling in this wet-lab collaboration.

[6] S. I. Khalid, R. Kelly, O. Adogwa, A. Carlton, **E. Tam**, *et al.*, "Pediatric Brainstem Gliomas: A Retrospective Study of 180 Patients from the SEER Database," **Pediatric Neurosurgery**, pp. 1–14, 2019.

[7] K. Tang, W. Sharpe, A. Schulz, **E. Tam**, I. Grosse, J. Tis, and D. Cullinane, "Determining Bruise Etiology in Muscle Tissue Using Finite Element Analysis," **Journal of Forensic Sciences**, vol. 59, no. 2, pp. 371–374, 2014.

[8] J. T. Ratnanather, R. Bhattacharya, M. B. Heston, J. Song, L. R. Fernandez, *et al.*, "An mHealth App (Speech Banana) for Auditory Training: App Design and Development Study," **JMIR mHealth and uHealth**, vol. 9, no. 3, e20890, 2021.

Work under Revision

[9] **E. Tam** and B. E. Engelhardt, "Assessing the Distributional Fidelity of Synthetic Chest X-Rays Using the Embedded Characteristic Score," arXiv preprint arXiv:2501.00744 **(Resubmission Invited at Annals of Applied Statistics)**, 2026.

[10] **E. Tam** and D. Dunson, "Spectral Gap Regularization of Neural Networks (Journal Extension of Fiedler Regularization ICML Paper)," arXiv preprint arXiv:2304.03096 **(Revision submitted at Journal of Machine Learning Research)**, 2023.

[11] S. Gan, J. Woo, A. Kushwaha, **E. Tam**, M. Ummadi, *et al.*, "Proteomic Stratification of Fontan Patients: Linking Plasma Proteins to Multisystem Complications," **In Revision at Canadian Journal of Cardiology**, 2026.

Preprints and Submitted Manuscripts

[12] S. Palta-Hill, B. Engelhardt, and **E. Tam**, "Compartment-Driven Gaussian Processes for Uncertainty Quantification of Pharmacokinetic Exposures," **Submitted to Journal of the American Statistical Association (Applications and Case Studies)**, 2026.

- First author is my MS mentee. I am corresponding author.

[13] **E. Tam**, "Directional Distributional Evaluation of Language Models Along Semantic Axes," **Under ARR Review for NAACL**, 2026.

[14] **E. Tam** and D. Dunson, "Multiscale Graph Comparison via the Embedded Laplacian Discrepancy," arXiv preprint arXiv:2201.12064, 2022.

[15] **E. Tam**, "Metropolis Matching for Normalizing Flows," **Under Review at AISTATS**, 2026.

[16] **E. Tam**, Q. Liu, B. E. Engelhardt, and R. Bai, "Intrinsic Gradient Barriers in Pushforward Deep Generative Models," **Under Review**, 2026.

[17] E. Calvo-Roitberg, J. W. Lehman, **E. Tam**, S. Elhajjajy, B. E. Engelhardt, and A. A. Pai, "SPARK: In Silico Simulations for Benchmarking Nascent RNA Sequencing Experiments," bioRxiv **(Submitted to Nature Methods)**, 2025.

- Responsible for statistical modeling of edge effects in this wet-lab collaboration.

Patent Applications

[18] V. Rajan, M. V. Boland, R. Gaddipati, C. Jacobs, J. J. Kim, *et al.*, *Automated and Non-Mydriatic Fundus-Perimetry Camera for Irreversible Eye Diseases*, WO Patent Application WO2014182769A1, 2014.

Working Papers

- Randomization Posteriors
  - Edric Tam
- Blindspots of Posterior Predictive Checks
  - Edric Tam, Adway Wadekar
- Latent Monte Carlo Variance Reduction
  - Edric Tam

Honors and Awards

- **Croucher Foundation Postdoctoral Fellowship** 2025 - 2027
  - More than **180K USD** funding support over 2 years.
  - Fewer than 10 fellows selected each year.
- **Stanford Warren Alpert Fellowship in AI and Computational Biology** 2024 - 2025
  - More than **90K USD** funding support over 1 year.
  - 1 fellow selected each year.
- Stanford Emerson Consequential Scholar 2026
  - Fewer than 20 fellows selected across Stanford.
- **IMS New Researchers Award (Formerly the IMS Laha Award)** 2025
- Bayesian Nonparametrics (BNP) Conference Best Poster Award 2025
- G-Research PhD and Postdoctoral Fellow Grant Award 2024
- Duke Nominee for the Schmidt Science Fellowship 2024
- **Duke Statistics Outstanding Mentor of Undergraduate Researchers** 2024
- **Duke Statistics Teaching Assistant of the Year (Honorable Mention)** 2022, 2023
- Duke Nominee for the Microsoft Research PhD Fellowship 2020
- Johns Hopkins General Honors and Departmental Honors 2016
- Johns Hopkins Ralph O'Connor Award 2016
- Johns Hopkins Student Initiative Fund Award 2016

Travel Awards

- Bayesian Young Statisticians Meeting (BAYSM) Travel Award 2026
- ISBA BNP Satellite Meeting Junior Researcher Travel Award 2026
- ISBA Junior Researcher Travel Award 2026
- UCLA Lange Symposium Travel Award 2026
- JSM Early Career Travel Award 2025
- Objective Bayes Methodology Conference (O'Bayes) Travel Award 2025
- Bayesian Nonparametrics (BNP) Conference Travel Award 2025

Industry Research Experience

Pinterest Labs, Research — July - September 2022
- Graph neural networks and embeddings for recommendation systems.

Facebook, Research — July - September 2021
- Deep learning models for recommendation systems.

Apple AIML, Research — April - June 2021
- Natural language understanding for Siri using transformers.

Amazon, Research — May - August 2020
- Lift effect estimation from experimental data.

Google (Search Team), Data Science — May - August 2019
- Probabilistic models of Google Search retention.

Biomedical Research Experience

Laboratory of John R. Carlson, Yale University, Research Assistant — Sep 2016 - May 2017
- Conducted sensory neuroscience research in fruit flies.

Laboratory of Alex L. Kolodkin, JHU Medicine, Research Assistant — Sep 2013 - May 2016
- Conducted developmental neuroscience and axon guidance research in mouse models.

Research Group of Michael I. Miller, JHU, Research Assistant — Sep 2013 - May 2016
- Conducted research on novel computational methods for analysis of MRI images.

Teaching Experience

Duke University, Durham, NC

Primary Instructor

- STA199 Introduction to Data Science and Statistical Thinking — Summer 2023
- **MATH230 Probability** — Summer 2022
- Bootcamp for Duke MS in Statistics Students — August 2023

Teaching Assistant

- STA199 Introduction to Data Science (Head TA) — Spring 2023, Fall 2023
  - Instructor: Elijah Meyer
- DECISION618 Data Analytics for Business (Fuqua) — Fall 2022, Fall 2023
  - Instructor: Alex Belloni
- DECISION520Q Data Science for Business (Fuqua) — Fall 2022, Fall 2023
  - Instructor: Alex Belloni
- STA671/CS671 Algorithms for Machine Learning — Fall 2022, Fall 2021
  - Instructor: Cynthia Rudin
- STA561 Probabilistic Machine Learning — Spring 2021
  - Instructor: Eric Laber
- STA101 Data Analysis and Statistical Inference (Head TA) — Spring 2019
  - Instructor: Tavis Abrahamson
- MATH230/STA230 Probability — Fall 2018
  - Instructor: Robert Wolpert

University of Chicago, Chicago, IL

Teaching Assistant

- PPHA30550 Programming for Public Policy (Harris, Head TA) — Spring 2018

- Instructor: Eric Potash

Yale University, New Haven, CT

Teaching Fellow

- BENG 249 Introduction to Biomedical Computation — Spring 2017
  - Instructor: Michael Mak

Johns Hopkins University, Baltimore, MD

Teaching Assistant

- 020.670/020.370 Emerging Strategies in Biomedical Research — Spring 2016
  - Instructor: Samer Hattar
- 560.348 Probability and Statistics for Engineers — Spring 2016
  - Instructor: Sauleh Siddiqui
- 580.111 Biomedical Modeling and Design — Fall 2015
  - Instructor: Eileen Haase

Posters and Presentations

Talks

- **Invited Talk at Iain Carmichael's Group at the University of North Carolina Chapel Hill (Upcoming, Dec 2026)**
  Title: Randomization Posteriors and Generalized Bayesian Inference
  Location: Chapel Hill, North Carolina, USA
- **Invited Seminar at UC Santa Cruz Department of Statistics (Upcoming, Nov 2026)**
  Title: Randomization Posteriors and Generalized Bayesian Inference
  Location: Santa Cruz, California, USA
  Host: Yunyi Shen
- **Invited Talk at INFORMS (Job Market Showcase) (Upcoming, Nov 2026)**
  Title: Bayesian Inference, Deep Generative Models and Synthetic Data
  Location: San Francisco, California, USA
- **Contributed Talk at Bayesian Nonparametrics (BNP) Networking Workshop (2026)**
  Title: Randomization Posteriors
  Location: Seoul, Korea
- **Invited Talk at Information Geometry, Privacy and Monte Carlo ISBA Satellite Meeting (2026)**
  Title: Some Limitations and Promises of Neural Monte Carlo
  Location: Tachikawa, Japan
- **Invited Talk at Warren Alpert Symposium in Computational Biology and AI Research (2026)**
  Title: Statistical Tradeoffs in Deep Generative Models with Biomedical Applications
  Location: Stanford, California, USA
- **Invited Talk at the Statistical Society of Canada Annual Meeting (2026)**
  Title: On the Statistical Capacity of Deep Generative Models
  Location: Hamilton, Ontario, Canada
- **Contributed Talk at INFORMS (AI Performance and Evaluation Session) (2025)**
  Title: On the Statistical Capacity of Deep Generative Models
  Location: Atlanta, Georgia, USA

- **Invited Talk at the International Indian Statistical Association (IISA) Conference (2025)**
  Title: Approximating Distributions via Deep Generative Models: Theory, Limitations and Directions
  Location: Lincoln, Nebraska, USA
- **Invited Talk at Scott Linderman's Group at Stanford Department of Statistics (2025)**
  Title: Graphical and Isoperimetric Perspectives on Probabilistic and Bayesian Modeling
  Location: Stanford, California, USA
- **Invited Seminar Talk at University of Florida Department of Statistics (2024)**
  Title: Exact Sampling of Spanning Trees via Fast-Forwarded Random Walks
  Location: Gainesville, Florida, USA
  Host: Leo Duan
- **Invited Talk at Duke Department of Mechanical Engineering (2023)**
  Title: On the Statistical Capacity of Deep Generative Models
  Location: Durham, North Carolina, USA
  Host: Wilkins Aquino
- **Invited Talk at Pinterest Labs (2022)**
  Title: Understanding Bayesian Optimization
  Location: Virtual
- **Invited Panel at Electronic Conference On Teaching Statistics (eCOTS) (2022)**
  Title: Supporting Mentored Undergraduate Research in Statistics
  Location: Virtual
- **Oral Presentation at International Conference on Machine Learning (ICML 2020)**
  Title: Fiedler Regularization: Learning Neural Networks with Graph Sparsity
  Location: Virtual

Posters

- **Poster at International Society of Bayesian Analysis (ISBA) World meeting (2026)**
  Title: Randomization Posteriors
  Location: Nagoya, Japan
- **Poster at Bayesian Young Statisticians Meeting (BAYSM) (2026)**
  Title: Randomization Posteriors
  Location: Chiba, Japan
- **Poster at Stanford University Department of Biomedical Data Science Retreat (2025)**
  Title: On the Statistical Capacity of Deep Generative Models
  Location: Pacific Grove, California, USA
- **Poster at the Objective Bayes Methodology (O'Bayes) Conference (2025)**
  Title: On the Statistical Capacity of Deep Generative Models
  Location: Athens, Greece
- **Poster at the Bayesian Nonparametrics (BNP) Conference (2025)**
  Title: On the Statistical Capacity of Deep Generative Models (Best Poster Award)
  Location: Los Angeles, California, USA
- **Poster at Statistical and Applied Mathematical Sciences Institute (SAMSI) Meeting (2021)**
  Title: Multiscale Graph Comparison via Embedded Laplacian Distances
  Location: Durham, North Carolina, USA

Popular Outreach

- **Guest on ScienceStuff Podcast Hosted by Jorge Cham, Creator of PHD Comics (2026)**

- **Duke Undergraduate Statistics Science Majors Union (SSMU) Invited Talk (2026)**
  Title: Undergraduate Research Opportunities at the Intersection of Statistics and AI

ADVISING AND MENTORING

Master's Mentees

- **Sanjay Palta-Hill** (Stanford Biomedical Data Science) 2025-
  Initiated and directed a Bayesian Compartment Modeling research project and guided a Stanford BS/MS co-term student in Statistics on all aspects of research, coding and writing. Resulted in a submitted manuscript.

- **Priyanka Shrestha** (Stanford Computer Science) 2024-
  Initiated and directed a Spatial Genomics research project and guided a Stanford BS/MS co-term student in Computer Science on all aspects of research, coding and writing. Resulted in a manuscript in preparation.

Undergraduate Mentees

- **Richard Cui**, **Chris Kan** (Duke) 2023-2024
  Led a directed reading group on spectral methods via Duke's MUSER undergraduate research mentorship program

- **Zeping (Danny) Luo**, **Tony Wu**, **Rui Xin** (Duke) 2021-2022
  Led a directed reading group on deep learning via Duke's MUSER undergraduate research mentorship program

- **Arthi Kozhumam**, **Niisoja Torto**, **Shagun Vashisth** (Duke) 2019-2020
  Mentored 3 Duke undergraduate students who were working on public health honors theses under the direction of Professor Sumi Ariely. Provided mentorship on all aspects of statistical inference and data analysis.

Other Mentoring

- *Mentor in INFORMS Mentor Match Program* (2026)

PROFESSIONAL SERVICE

Chair

- *Assistant Program Chair, NeurIPS (Position Track)* (2025)

Reviewer (Statistics)

- *Annals of Applied Statistics* (2024–)
- *Journal of the Royal Statistical Society, Series B* (2025–)
- *Biometrika* (2026–)
- *Journal of the American Statistical Association* (2026–)

Reviewer (ML/AI)

- *ICML* (2020, 2021, 2022, 2023, 2024, 2025, 2026)
- *NeurIPS* (2021, 2022, 2023, 2024, 2025, 2026)
- *ICLR* (2021, 2022, 2023, 2024, 2025, 2026, 2027)

- *AISTATS* (2023, 2025, 2026, 2027)
- *KDD* (2023, 2024)
- *UAI* (2026)
- *SDM* (2024)
- *AAAI* (2026, 2027)
- *IEEE Transactions of Neural Networks and Learning Systems* (2023, 2024)
- *Transactions of Machine Learning Research* (2023, 2024, 2025, 2026)
- *Neurocomputing* (2024)
- *Epistemic Intelligence in Machine Learning (EIML) Workshop at ICML* (2026)

Professional Memberships

- Royal Statistical Society (RSS), Fellow
- American Statistical Association (ASA), Member
- Institute of Mathematical Statistics (IMS), Member
- International Society for Bayesian Analysis (ISBA), Member
- Sigma Xi, Member

Hobbies and Interests

- Basketball, Rowing, Hiking