Chase Mathis

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Education

University of California, Berkeley
PhD Student in Statistics - Supported by Chancellor's Fellowship *Expected 2030*

- **Research Interests**
  Causal Methodology, Survival Analysis, Translating Methods to Code

Duke University
BS in Mathematical Statistics & Mathematics, Minor in Computer Science; GPA: 3.786 *August 2021 - May 2025*

- **Graduation with High Distinction in Statistics**
  A New Method to Adjust for Ordinal Variables With a Pre-Diabetes Case Study
  Advisor: Prof. Alexander Volfovsky & Prof. Robin Evans
- **Teaching Assistant**
  COMPSCI 527: Computer Vision (Master's Level); STA 199: Introduction to Data Science
- **Awards**
  Faculty Scholars Award Semi-Finalist, Early Honors Thesis Track

St. Catherine's College, Oxford University
Fall Term; Courses: Graphical Models & Statistical Genetics *October 2023 - December 2023*

Deerfield Academy
Cum Laude *September 2017 - May 2021*

Preprints or In Preparation

Lin, Xi, Manela, Daniel de Vassimon, **Mathis, Chase**, Tarp, Jens Magelund, Evans, Robin J. (2025). "Simulating Longitudinal Data from Marginal Structural Models". In: *arXiv preprint arXiv:2502.07991.*

Mathis, Chase, Evans, Robin J. (2025+). "Exactly Simulating (Longitudinal) Data From (Marginal) Structural Models in survivl & causl". In: Manuscript in preparation.

Mathis, Chase, Wang, Lola, Lu, Junwei, Cai, Tianxi, et al. (2025+). "Predicting Renal Cell Carcinoma Recurrence Using Residual Regression-Augmented Language Models for Radiomic Interpretation". In: Manuscript in preparation.

Publications

Cao, Jiaxun, Laabadli, Hiba, **Mathis, Chase**, Stern, Rebecca, Emami-Naeini, Pardis (2024). ""I Deleted It After the Overturn of Roe v. Wade": Understanding Women's Privacy Concerns Toward Period-Tracking Apps in the Post Roe v. Wade Era". In: *Proceedings of the 2024 ACM Conference on Human Factors in Computing Systems.*

Research Experience

Deans' Summer Research Fellow & Honors Thesis
Research Lead *May 2024-May 2025*

- Developed methods for ordinal confounders generated by latent normal random variables.
- Simulation study demonstrated
- Jointly supervised by Prof. Alexander Volfovsky and Prof. Robin Evans.

Duke University Statistics
Thesis Proposal Workshop *May 2024*

- One of four rising seniors selected to begin thesis work.
- Spoke about my own research journey to junior students in the program.

Summer Institute in Biomedical Informatics, Harvard Medical School
Research Assistant in the CELEHS Lab *June 2023-July 2025*

- Performed comprehensive research on the integration of joint embedding models (CLIP by OpenAI) to augment established statistical models.
- Jointly supervised by Prof. Tianxi Cai & Prof. Junwei Lu.
- Developed a radiology report LLM that outperforms LLM's on chest x-ray classifications such as MedFlamingo.

- Currently collaborating with Merck for automatic feature extraction using residual embeddings.

InSpire Lab
Research Assistant *October 2022 - December 2023*

- Led quantitative analysis analyzing perceptions of various period tracking apps after *Roe Vs. Wade*.
- Used CLMM regression techniques to discover that many women are aware of privacy issues, but do not take action.
- Paper featured in [Duke Today newsletter].

Work & Volunteering

Duke Field Hockey
Data Analyst *Fall 2022 - Fall 2023*

- Collected, cleaned, and visualized unstructured game data in R/Python with NLP methods.
- Created reports that highlight the team's strengths, which are sent to the team, coaches, and boosters.

Prisoner Math Project & Duke Justice Project
Volunteer Teacher *Spring 2024 - Spring 2025*

- Helped lead a group of undergraduates that organize events and foster connections between Duke and Durham incarcerated community.
- Volunteer for in-person GRE tutoring to male inmates at Raleigh's Central Prison.
- Assist collaboration between Duke and StepUp Durham, a non-profit focused on re-entry.
- Exchange email correspondence with prisoners that are interested in learning mathematics, statistics, and economics.