

Chase Mathis

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Faculty Reference: David Banks (dlbanks@duke.edu)

EDUCATION

- **Duke University** Durham, NC
Intended Bachelor's of Science in Statistics, Computer Science, Minor in Math; GPA: 3.86 *August 2021 - May 2025*
 - **Courses:**
Data Structures and Algorithms, Statistical Machine Learning, Modern Bayesian, Computer Vision
- **St. Catherine's College Oxford** Oxford, UK
Visiting Student for the Michaelmas Term *Fall 2023*
 - **Studies:**
Statistical Lifetime Models & Statistical Genetics

RESEARCH

- **InSpire Lab** Duke University
Mentor: Dr. Pardis Emami-Naeini *Fall 2022 - Present*
 - Research assistant, focusing broadly on security and privacy.
 - Currently involved on a paper regarding the new decentralized social network Mastadon.
- **Predicting Particle Clusters** Duke University
Data Mining & Machine Learning *Fall 2022*
 - Developed multiple models to predict the first four central moments of a particle cluster.
 - Created highly powerful predictive models that can serve as a substitute for computationally inefficient numeric solvers and explored relationships between particle starting conditions and turbulence density to help physicists at Duke.
- **Investigating Controllable Factors of Life Expectancy** Duke University
Data Mining & Machine Learning *Fall 2022*
 - Applied various different Statistical Models to analyze life expectancy on a large dataset collected by the WHO.
 - Models included: Bayesian Regression, Trees, and GAMs.
- **Google CS Research Mentorship** Virtual
Mentorship *Spring 2023*
 - Selected to a mentorship program regarding CS research to explore different pathways in Industry and Academic Research.
 - Learned from my mentors how to create a research pathway as a young CS researcher.

WORK EXPERIENCE

- **Summer Institute in Biomedical Informatics** Harvard Medical School
Research Assistant under Dr. Tianxi Cai *Summer 2023*
 - Involved in an application of OpenAI's CLIP, where we attempt to have good performance of zero-shot transfer on medical images.
 - Extensively used PyTorch/NumPy to contribute to the data manipulation phase and modeling phase of the research project.
- **Duke Field Hockey** Durham, NC
Data Analyst *Fall 2022 - Present*
 - Utilizing quite verbose RegEx, I wrangle messy historical game data with Python and R, then model and visualize the insights to help the team understand their/their opponents weaknesses and strengths.
 - Created and upkeep a website that allows the team to privately access data reports.
- **Teaching Assistant** Duke University
Courses *Fall 2022 - Present*
 - STA 199: Introduction to Data Science

SKILLS SUMMARY

- **Languages:** Python, R, SQL, Java, C, Proficient in Mandarin
- **Libraries/Tools:** NumPy, PyTorch, Pandas, Tidiverse, Tidymodels, Keras, GIT, Matlab, Tableau, Regex, Webpage HTML/CSS