Jake S. M. Beattie

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Columbus, OH

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Education

The Ohio State University, Columbus, OH *2024 - Present*

PhD in Computer Science and Engineering

Advisor: Tanya Berger-Wolf

Research Vision

My research focuses on using interpretability methods such as sparse autoencoders to extract knowledge from large, pretrained models. I am interested in how representation structure can inform new interpretability methods, and how both can be leveraged to improve scientific discovery.

Presentations and Preprints

Towards Open-Ended Visual Scientific Discover with Sparse Autoencoders - Samuel Stevens, **Jacob Beattie**, Tanya Berger-Wolf, Yu Su

arXiv Preprint, November 2025

ChatGPT augmented clinical trial screening - **Jacob Beattie**, Dylan Owens, Ann Marie Navar, Luiza Giuliani Schmitt, Kimberly Taing, Sarah Neufeld1, Daniel Yang,Christian Chukwuma1, Ahmed Gul, Dong Soo Lee, Neil Desai, Dominic Moon, Jing Wang, Steve Jiang, and Michael Dohopolski

Machine Learning: Health, July 2025

Habitat-Driven Vocal Variation in Hawai'ian Birds - Namrata Banerji, Ekaterina Nepovinnykh, **Jacob Beattie**, Hikaru Keebler, Leonardo Teixeira Viotti, Amanda Navine, Patrick Hart, Mike Long, Shea Uehana, Eissas Ouk, Evan Donoso, Avery Dean, Ann Carey, Tanya Berger-Wolf, Kaiya L Provost

CVPR CV4Animals Workshop Poster, June 2025

Utilizing Large-Language Models for Enhanced Clinical Trial Matching - **Jacob Beattie, B.Sc**., Billal Homayoun, B.Sc., Daniel Yang, M.D., Sarah Neufeld, M.Sc., MBA, Christian Chukwuma, B.Sc., Ahmed Gul, B.Sc., Dan Nguyen, Ph.D., Neil Desai, M.D., Steve Jiang, Ph.D., Michael Dohopolski, M.D.

UT Southwestern AI Colloquium Oral Presentation, November 2023

Enhancing Patient Comprehension: The LLM Approach to Demystifying Clinical Trial Consent Forms - **Jacob Beattie, B.Sc.**, Daniel Yang, M.D., Billal Homayoun, B.Sc., Sarah Neufeld, M.Sc., MBA, Christian Chukwuma, B.Sc., Ahmed Gul, B.Sc., Neil Desai, M.D., Steve Jiang, Ph.D., Michael Dohopolski, M.D.

UT Southwestern AI Colloquium Poster, November 2023

Bridging Information Gaps for Patients in Glioblastoma Understanding through a Large Language Model Powered Medical Chatbot Leveraging NCCN Guidelines and PubMed Insights - Michael Dohopolski, M.D., **Jacob Beattie, B.Sc.**, Daniel Yang, M.D., Sarah Neufeld, M.Sc., MBA, Christian Chukwuma, B.Sc., Ahmed Gul, B.Sc., Neil Desai, M.D., Steve Jiang, Ph.D., Dan Nguyen, Ph.D.

UT Southwestern AI Colloquium Poster, November 2023

Research Experience

Graduate Research Assistant, The Ohio State University *August 2024 – Present*

Research Technician II, UT Southwestern Medical Center, Dallas, TX *August 2023 – August 2024*

PI: Steve Jiang, Ph.D.

Projects: Utilizing GPT-3.5/4 for patient matching and summarizing clinical trial consent forms.

Utilizing LLMs to create applications for use in clinical settings, aiming to increase efficiency, patient outcomes, and patient understanding.

Undergraduate Research Assistant, Iowa State University, Ames, IA *January 2021 – August 2021*

PI: Jue Yan, Ph.D.

Project: Cell-average based neural network methods for higher-order partial differential equations

Implemented modifications to residual, convolutional, and recurrent neural network architectures in Python and MATLAB to test novel applications to PDEs. Analyzed training speed, performance, and stability of networks.

Work Experience

Advanced Software Development Intern, Kingland Systems, Ames, IA *May 2023 – August 2023*

- Maintained and improved a proprietary application with rigorous development standards.
- Learned new technologies at a fast pace while still completing required work.
- Demonstrated clear communication, efficient time management, and decisive planning skills while working in a collaborative environment.

Software Development Intern, Collins Aerospace, Annapolis, MD *May 2022 – August 2022*

- Assisted in frontend and backend development of a new proprietary application.
- Collaborated as a team to complete several development springs, successfully meeting milestones and prior goals.

Teaching & Mentoring Experience

Physics Tutor, Iowa State University, Ames, IA *August 2021 – December 2021*

- Tutored students in introductory physics concepts in both individual and group settings.
- Assisted students in learning and utilizing mathematical techniques for solving physics problems.
- Prepared and presented example problems, aiding in the learning of a wide range of phenomena.
- Addressed questions and confusion over topics presented in classroom lectures, furthering the understanding of tutees.

Undergraduate TA, Iowa State University, Ames, IA *Fall 2020 – Spring 2021*

- Assisted in the administration of an introductory computer science course for non-majors.
- Created exams, quizzes, and lesson guides for use in the course.
- Graded assignments, quizzes, and exams, providing feedback to students on submitted work.
- Held office hours to provide students with assistance in completing their assignments and gaining an understanding of the material.

Honors and Awards

Phi Beta Kappa Honors Society Member *2022*

Dean's High Impact Research Award *2022*

Cardinal Key Honors Society Member *2021*

Dean's List *2019 - 2023*