Chengyu (Cathy) Fan

Google Scholar: scholar.google.com/citations?user=ijsIo2wAAAAJ | **LinkedIn**: linkedin.com/in/cathyfan | **Website**: chengyu-cathy-fan.github.io | **Email**: cfan26@colby.edu

Education

Colby College, Waterville, ME, USA — Expected May 2026
Bachelor of Arts
Double Major: Computer Science (AI Concentration) and Mathematical Sciences
Minor: Statistics

Skills: Programming(Python, Java, C++, SQL, R); Machine Learning(Tensorflow, Pytorch, Sklearn); Data Analysis & Visualization(Pandas, Numpy, Matplotlib, Seaborn); Agile Development

Research Experience

Research Assistant – Reliability in Multimodal Interaction — Dec 2024 – Present
Human, Machine, and Environment (HUMANE) Lab, Colby College
Advisor: Prof. Tahiya Chowdhury

- Developing *PoseDoc*, an interactive tool that aims to help users inspect, refine, and customize human pose annotations more efficiently [P1]
- Classified common occlusion sources into four types and proposed the *Occlusion Index (OI)* for quantifying occlusion in human pose estimation [P2]

Independent Study – Accessible Art Tool — Sep 2025 – Present
INSITE Lab, Colby College
Advisor: Prof. Stacy Doore

- Developing a multimodal database tool for accessible artwork descriptions for people with visual impairments.

Research Assistant – Conversation Analysis — May 2024 – Dec 2024
Department of Computer Science and Psychology, Colby College
Advisors: Prof. Tahiya Chowdhury, Prof. Veronica Romero

- Quantified movement coordination in dyadic conversations [P3]

Research Assistant – LLM Agent Simulation — Jan 2024 – Oct 2024
Davis Institute of Artificial Intelligence (Davis AI), Colby College
Advisors: Dr. Michael Yankoski, Prof. Trenton Ford

- Developed *Comp-HuSim*, a generative multi-agent simulation platform modeling complex human-like behaviors with 60+ AI agents [P4]

Volunteer Research Assistant – Computer Vision — Feb 2023 – May 2023
Davis AI, Colby College
Advisor: Prof. Tahiya Chowdhury

- Created and annotated a 1,000-image drone dataset for coastal litter detection, and developed a classification model.

Teaching Experience

Teaching Assistant Feb 2023 – Present
Departments of Computer Science & Mathematics, Colby College

Provided academic support through grading and TA hours for a range of foundational and advanced courses, including: MA262 Vector Calculus, CS343 Neural Networks, CS333 Programming Languages, CS231 Data Structures & Algorithms, CS154 Natural Language Processing.

Work Experience

Software Development Intern Dec 2023 - Jan 2024
STE Transmission (Subsidiary of Sany Heavy Industry Co., Ltd), Changshu, China
Developed an online platform to monitor and analyze power consumption of high-energy industrial machines.

Machine Learning Intern May 2023 - Aug 2023
Co-hosted by SureStart and Davis AI, Colby College
Supervised by Dr. Amanda Stent. Collaborated on the design and evaluation of a text-to-3D generative AI model using Neural Radiance Fields and Diffusion Models.

Peer-Reviewed Publications

* indicates equal contribution.

[P1] **Fan, C.** & Chowdhury, T.(2025). **PoseDoc: An Interactive Tool for Efficient Keypoint Annotation in Human Pose Estimation.** In *Proceedings of the 27th International Conference on Multimodal Interaction (ICMI '25).*

[P2] **Fan, C.** & Chowdhury, T.(2025). **When Pose Estimation Fails: Measuring Occlusion for Reliable Multimodal Interaction.** In *Companion Proceedings of the 27th International Conference on Multimodal Interaction (ICMI Companion '25).*

[P3] **Fan, C.**, Romero, V., Paxton, A., & Chowdhury, T. (2024). **Towards Multimodality: Comparing Quantifications of Movement Coordination.** In *Companion Proceedings of the International Conference on Multimodal Interaction (ICMI Companion '24).*

[P4] **Fan, C.***, Tariq, Z.*, Bhuiyan, N. S., Yankoski, M. G., & Ford, T. W. (2024). **Comp-HuSim: Persistent Digital Personality Simulation Platform.** In *Adjunct Proceedings of the 32nd ACM Conference on User Modeling, Adaptation and Personalization (UMAP Adjunct '24).*

Selected Grants and Awards

- Compagna-Sennett Iterate and Expand Grant ($4,000), Halloran Lab for Entrepreneurship, Colby College — awarded for the startup *InclusiM* with two co-founders (2025)
- Iteris Hackathon (Award-Winning Team, 2024); Davis AI / Dataiku Datathon (Creativity in Presentation Award, 2023), Colby College

Extracurricular Activities

Colby Robotics (Co-President) Fall 2023 – Present
Organize and lead workshops on soldering, 3D printing, CircuitPython, Git/GitHub, and Micromouse.