# Chengyu "Cathy" Fan

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## Education

**Colby College**, Waterville, ME, USA                           *Expected May 2026*
*Bachelor of Arts*
Majors: Computer Science (AI Concentration), Mathematical Sciences
Minor: Statistics

## Peer-Reviewed Publications

\* indicates equal contribution.

[p1] **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)*

[p2] **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).*

## Presentations & Posters

1. **"Pose-idon: An Interactive Tool for Efficient Keypoint Annotation in Human Pose Estimation "** Presentation at the Colby Undergraduate Summer Research Retreat (CUSRR), The Forks, ME, USA, August 2025.

2. **"Towards Multimodality: Comparing Quantifications of Movement Coordination"** Poster presented at the International Conference on Multimodal Interaction (ICMI), San Jose, Costa Rica, November 2024.

3. **"Towards Multimodality: Comparing Quantifications of Movement Coordination"** Presentation at the Colby Undergraduate Summer Research Retreat (CUSRR), The Forks, ME, USA, August 2024.

4. **"A Study of Agent Decision Making and Inner Reflection"** Poster presented at the Colby Liberal Arts Symposium (CLAS), Colby College, May 2024.

## Research Experience

**Research Assistant – Pose Estimation**                           *Dec 2024 – Present*
Human, MachiNe, and Environment (HUMANE) Lab, Colby College
Advisor: Dr. Tahiya Chowdhury

- Developing PoseDoc/Pose-idon, an interactive tool that helps users inspect, refine, and customize pose annotations more efficiently.

- Proposing Occlusion Index (OI), a metric that quantifies the extent of occlusion in an image

- Focused on tools and metrics that enhance dataset quality and model robustness in pose estimation

**Research Assistant – Multimodal Alignment**                           *May 2024 – Dec 2024*
Department of Computer Science and Psychology, Colby College
Advisors: Dr. Tahiya Chowdhury, Dr. Veronica Romero

- Conducted research on three different multimodal alignment methods to quantify human movement coordination
- Built towards the larger goal of finding a multimodal analysis framework

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

- Contributed to development of a multi-agent simulation platform (Comp-Husim) powered by generative AI models
- Created 60+ agents with personalities, social status, and background stories and have them play games with each other for observing human-like behaviors

**Research Assistant – Computer Vision for Sustainability**　　　　　*Feb 2023 – May 2023*
Davis AI, Colby College

- Created and annotated a 1,000-image drone dataset for coastal litter detection in Maine
- Developed a classification model achieving 92% accuracy on litter detection

# Teaching Experience

**Mathematics Teaching Assistant**　　　　　　　　　　　　　　*Sep 2025 - Present*
Department of Mathematics, Colby College

- Assisted in homework grading and problem-solving:
  - **MA262: Vector Calculus** - TA, Fall 2025

**Computer Science Teaching Assistant**　　　　　　　　　　　　*Feb 2023 – May 2025*
Department of Computer Science, Colby College

- Assisted in labs, grading, and student support across multiple upper- and lower-level CS courses:
  - **CS343 Neural Networks** – TA, Spring 2025
  - **CS333 Programming Languages** – Quiz Grader, Fall 2024
  - **CS231 Data Structures and Algorithms** – TA, Spring 2023 & Spring 2024
  - **CS154 Natural Language Processing** – Lab TA, Fall 2023

# 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 power consumption of high-energy industrial machines. Utilized MySQL to filter and organize data extracted from API calls within the company's internal network.

**Machine Learning Intern**　　　　　　　　　　　　　　　　*May 2023 – Aug 2023*
Co-hosted by SureStart & Davis AI, Colby College
Supervised by Dr. Amanda Stent. Completed on-site orientation and intensive curriculum in machine learning. Collaborated on the design and evaluation of a text-to-3D generative AI model using Neural Radiance Fields and Diffusion Models.

# Grants and Awards

- LCA-Kim Miller Award ($200), Colby College, 2025 – awarded annually to a junior who exemplifies those qualities possessed by Kim Miller – devotion to family, loyalty to College and respect for country.

- Compagna-Sennett Iterate and Expand Grant ($4,000), Halloran Lab for Entrepreneurship, Colby College – awarded for the startup *InclusiM* with two other co-founders.

- Student Special Project Funding Award ($500), Provost Office, Colby College, September 2024 – funded for attending ACM ICMI'24

- The Fairchild Internship Fund ($3,200), Davis Connects, Colby College, January 2024