

# Chengyu (Cathy) Fan

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## Education

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**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

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**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 – Aug 2024

*Davis Institute of Artificial Intelligence (Davis AI), Colby College*

**Advisors:** Dr. Michael Yankoski

- 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

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### 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

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### 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

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\* 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

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- **Honorable Mention**, CRA Outstanding Undergraduate Researcher Award (Computing Research Association), 2025–2026
- 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

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### Colby Robotics (Co-President)

Fall 2023 – Present

Organize and lead workshops on soldering, 3D printing, CircuitPython, Git/GitHub, and Micromouse.