Yunfan Jiang

✎ WEBSITE: yunfanj.com
✉ EMAIL: yunfanj@cs.stanford.edu
📍 ADDRESS: Gates 220, 353 Jane Stanford Way, Stanford, CA 94305

RESEARCH INTEREST

My primary research interests lie in **embodied**, **open-ended**, and **general-purpose** intelligence. Recently, I study building autonomous agents with foundation models towards the goal of generally capable intelligence.

EDUCATION

Stanford University, Stanford, CA   Sept. 2023 – Now
Ph.D. in Computer Science

Stanford University, Stanford, CA   June 2023
M.S. in Electrical Engineering

The University of Edinburgh, Edinburgh, UK   July 2020
B.Eng. in Electronics & Electrical Engineering with First-Class Honours

HONORS & AWARDS

- NeurIPS 2023 Scholar Award   2023
- **Stanford Engineering Exceptional Master's Student Award**   2023
- ICML Conference Travel Award   2023
- **NeurIPS 2022 Outstanding Paper Award**   2022
- Ewart Farvis Prize (Outstanding Bachelor Thesis)   2020
- The University of Edinburgh School of Engineering Scholarship   2018, 2019

EXPERIENCE

Stanford Vision and Learning Lab   Stanford, CA
Graduate Research Assistant   Sept. 2023 – Now
- First-year rotation hosted by Prof. Fei-Fei Li and Prof. Jiajun Wu.

Boston Dynamics AI Institute   Cambridge, MA
Research Intern   June 2023 – Aug. 2023
- Developed *VIMA+*, an extension of VIMA [2] to a real UR5e robot.
- Investigated video prediction models for robotic manipulation at scale.

NVIDIA Research   Santa Clara, CA
Research Intern ⋄ AI Algorithm Team   June 2022 – Jan. 2023
- Hosted by Dr. Jim Fan, Prof. Yuke Zhu, and Prof. Anima Anandkumar.
- Developed embodied agents empowered by foundation models in various domains such as those related to robot learning [2] and open-ended video games [3, 6].
- Created a novel algorithm to enhance Transformer agents' learning efficiency and generalization [1].

ByteDance   Beijing, China
Research Intern ⋄ AI Lab   Sept. 2020 – Aug. 2021
- Reproduced the *For The Win* (FTW) agent in the *Science* paper and deployed it in a 3D MOBA mobile game [demo].

The University of Edinburgh   Edinburgh, UK
Undergraduate Research Assistant   May 2019 – July 2020

- Developed a dual-branch ConvNet model for high-fidelity and rapid imaging of reactive flows [5].

REFEREED PUBLICATIONS

* Equal contribution. † Equal advising.

[1] Lucy Xiaoyang Shi*, **Yunfan Jiang***, Jake Grigsby, Linxi Fan†, and Yuke Zhu†. "Cross-Episodic Curriculum for Transformer Agents". In: *Conference on Neural Information Processing Systems (NeurIPS)*. 2023.

[2] **Yunfan Jiang**, Agrim Gupta*, Zichen Zhang*, Guanzhi Wang*, Yongqiang Dou, Yanjun Chen, Li Fei-Fei, Anima Anandkumar, Yuke Zhu†, and Linxi Fan†. "VIMA: General Robot Manipulation with Multimodal Prompts". In: *International Conference on Machine Learning (ICML)*. 2023. Also **Oral Presentation** at NeurIPS 2022 Foundation Models for Decision Making Workshop.

[3] Linxi Fan, Guanzhi Wang*, **Yunfan Jiang***, Ajay Mandlekar, Yuncong Yang, Haoyi Zhu, Andrew Tang, De-An Huang, Yuke Zhu†, and Anima Anandkumar†. "MineDojo: Building Open-Ended Embodied Agents with Internet-Scale Knowledge". In: *Conference on Neural Information Processing Systems (NeurIPS), Datasets and Benchmarks Track*. 2022. **Outstanding Paper Award, Featured Paper Presentation**.

[4] Yueyi Jiang, **Yunfan Jiang**, Liu Leqi, and Piotr Winkielman. "Many Ways to Be Lonely: Fine-Grained Characterization of Loneliness and Its Potential Changes in COVID-19". In: *Proceedings of the International AAAI Conference on Web and Social Media (ICWSM)* 16.1 (May 2022), pp. 405–416.

[5] **Yunfan Jiang**, Jingjing Si, Rui Zhang, Godwin Enemali, Bin Zhou, Hugh McCann, and Chang Liu. "CSTNet: A Dual-Branch Convolutional Neural Network for Imaging of Reactive Flows Using Chemical Species Tomography". In: *IEEE Transactions on Neural Networks and Learning Systems* 34.11 (2023), pp. 9248–9258. DOI: `10.1109/TNNLS.2022.3157689`. Submitted in 2020.

TECHNICAL REPORTS

[6] Guanzhi Wang, Yuqi Xie, **Yunfan Jiang***, Ajay Mandlekar*, Chaowei Xiao, Yuke Zhu, Linxi Fan†, and Anima Anandkumar†. "Voyager: An Open-Ended Embodied Agent with Large Language Models". In: *arXiv preprint arXiv: Arxiv-2305.16291* (2023). Also **Oral Presentation** at NeurIPS 2023 Agent Learning in Open-Endedness Workshop and Intrinsically Motivated Open-Ended Learning Workshop.

SOFTWARE

[S1] *VIMA-Bench*. URL: `https://github.com/vimalabs/VIMABench`. **200+ GitHub Stars**.

[S2] *MineDojo*. URL: `https://github.com/MineDojo/MineDojo`. **1.5K+ GitHub Stars**.

SPEECHES

"VIMA: General Robot Manipulation with Multimodal Prompts" [pdf]

- Invited Talk at Boston Dynamics AI Institute	Feb. 2023
- Oral Presentation at NeurIPS 2022 Foundation Models for Decision Making Workshop, New Orleans, LA	Dec. 2022
- Invited Talk at Prof. Anima Anandkumar's Caltech Group	Nov. 2022
- Invited Talk at Inspir.ai	Oct. 2022

"MineDojo: Building Open-Ended Embodied Agents with Internet-Scale Knowledge" [pdf]

- Lecture Talk at Stanford CS 422 Interactive and Embodied Learning Feb. 2023
- Invited Talk at Inspir.ai   Oct. 2022
- Co-presentation at Prof. Anima Anandkumar's Caltech Group   Aug. 2022

"Towards Strong and Robust Performance for Long-Horizon Tasks in POMDPs via Deep RL"
- Invited Talk at ByteDance AI Lab, Beijing, China   Dec. 2020

PROFESSIONAL SERVICES

Conference Reviewer
- Conference on Neural Information Processing Systems (NeurIPS)
- Conference on Neural Information Processing Systems (NeurIPS) Datasets and Benchmarks Track
- International Conference on Learning Representations (ICLR)

Workshop Organizer
- *Program Committee*, 2nd Workshop on Foundation Models for Decision Making, Conference on Neural Information Processing Systems (NeurIPS), 2023

Volunteer
- International Conference on Machine Learning (ICML)   2023

TEACHING

Course Grader, Stanford University
- ENGR 76 Information Science and Engineering, Spring 2023, Instructor: Prof. Ayfer Özgür
- EE 364A Convex Optimization I, Winter 2023, Instructor: Prof. Stephen Boyd
- EE 277 Reinforcement Learning: Behaviors and Applications, Fall 2021, Instructor: Prof. Benjamin Van Roy
- EE 236A Modern Optics, Fall 2021, Instructor: Dr. Mohammad Zaman

SELECTED MEDIA COVERAGE

[M1] Stanford Electrical Engineering 2023 Commencement Ceremony and Awards, June 20, 2023. URL: https://ee.stanford.edu/2023-commencement-ceremony-and-awards.

[M2] NVIDIA GTC Jensen Huang Keynote, Mar. 21, 2023. URL: https://www.nvidia.com/gtc/keynote/.

[M3] "Building Generally Capable AI Agents with MineDojo," by Nathan Horrocks, *NVIDIA Blog.* July 1, 2022. URL: https://developer.nvidia.com/blog/building-generally-capable-ai-agents-with-minedojo/.