# Yansong Li (Jack)

*Curriculum Vitae*


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## EMPLOYMENT

**Chief Operating Officer** 05/2025–Present
Liii Network
The company that develops Mogan/Liii STEM and Goldfish Scheme.

**Adjunct Research Assistant Professor in School of Engineering** 04/2026–Present
Eastern Institute of Technology, Ningbo, China
Host: Shiyi Chen

## EDUCATION

**Ph.D. in Department of Electrical and Computer Engineering** 05/2025
University of Illinois Chicago, Chicago, IL
Advisor: Shuo Han
Thesis: "*Helpers in Learning Systems*"

**Bachelor in Department of Mathematics** 07/2020
Southern University of Science and Technology, Shenzhen, China
Advisor: Luchuan Liu

## RESEARCH INTERESTS

Reinforcement Learning; Optimization on Manifold; AI Agents;

## PUBLICATIONS

∗: Corresponding author. †: equal contribution

### Peer-Reviewed Conference Publications

[1] Yu Wu, **Yansong Li**†, Zeyu Dong†, Nitya Sathyavageeswaran, and Anand D. Sarwate, "Learning to help in multi-class settings", in *The Thirteenth International Conference on Learning Representations*, 2025.

[2] Zeyu Dong, Yimin Zhu, **Yansong Li**, Kevin Mahon, and Yu Sun*, "Generalizing end-to-end autonomous driving in real-world environments using zero-shot LLMs", in *8th Annual Conference on Robot Learning*, 2024.

[3] **Yansong Li*** and Shuo Han, "Efficient collaboration with unknown agents: Ignoring similar agents without checking similarity", in *Proceedings of the 23rd International Conference on Autonomous Agents and Multiagent Systems, AAMAS 2024, Auckland, New Zealand, May 6-10, 2024*, Mehdi Dastani, Jaime Simão Sichman, Natasha Alechina, and Virginia Dignum, Eds., International Foundation for Autonomous Agents and Multiagent Systems / ACM, 2024, pp. 2363–2365. DOI: 10.5555/3635637.3663161.

[4] **Yansong Li*** and Shuo Han, "Solving strongly convex and smooth stackelberg games without modeling the follower", in *American Control Conference, ACC 2023, San Diego, CA, USA, May 31 - June 2, 2023*, IEEE, 2023, pp. 2332–2337. DOI: 10.23919/ACC55779.2023.10156010.

[5] **Yansong Li*** and Shuo Han, "Accelerating model-free policy optimization using model-based gradient: A composite optimization perspective", in *Learning for Dynamics and Control Conference, L4DC 2022, 23-24 June 2022, Stanford University, Stanford, CA, USA*, Roya Firoozi, Negar Mehr, Esen Yel, Rika Antonova, Jeannette Bohg, Mac Schwager, and Mykel J. Kochenderfer, Eds., ser. Proceedings of Machine Learning Research, vol. 168, PMLR, 2022, pp. 304–315.

**Preprints**

[1] Tianyou Liu, Ziqiang Li, Xurui Liu, Yu Wu, and **Yansong Li***, *Latex compilation: Challenges in the era of llms*, 2026. arXiv: 2603.02873 [cs.CL].

[2] Yu Wu, Shuo Wu, Ye Tao, **Yansong Li**, and Anand D. Sarwate, *From deferral to learning: Online in-context knowledge distillation for llm cascades*, 2026. arXiv: 2509.22984 [cs.AI].

[3] Xiaoxuan Liang, Wuyang Zhang, Hong Zhou, Zhaolong Wei, Sicheng Zhu, **Yansong Li**, Rui Yin, Jiantao Yuan, and Jeremy Gummeson, "Sonicmesh: Enhancing 3d human mesh reconstruction in vision-impaired environments with acoustic signals", in *Submitted to CVPR 2025*, under review, 2025.

[4] Zhuohang Yu, Ling An, **Yansong Li**, Yu Wu, Zeyu Dong, Zhangdi Liu, Le Gao, Zhenyu Zhang, and Chichun Zhou, *Eapcr: A universal feature extractor for scientific data without explicit feature relation patterns*, 2024. arXiv: 2411.08164 [cs.LG].

[5] **Yansong Li***†, Zeyu Dong†, Ertai Luo, Yu Wu, Shuo Wu, and Shuo Han, *When to trust your data: Enhancing dyna-style model-based reinforcement learning with data filter*, 2024. arXiv: 2410.12160 [cs.LG].

[6] **Yansong Li***†, Zeyu Dong†, and Shuo Han, "Bayes-Optimal, Robust, and Distributionally Robust Policies for Uncertain MDPs", *preprint*, Oct. 2024. DOI: 10.25417/uic.27138990.v1.

[7] **Yansong Li***, Zeyu Dong, and Shuo Han, "Removing Redundant Partner Policies May Be Unnecessary for Ad Hoc Teamwork", *preprint*, Oct. 2024. DOI: 10.25417/uic.27139116.v1.

## INTERNS

### Reseach Interns

**LLM in End-To-End Autonomous Driving** 05/2024-08/2024
Stony Brook University
Advisor: Dantong Yu
Accepted to CoRL 2024

**Learning To Help: Training Models to Assist Legacy Devices** 08/2024-Now
Rutgers University
Advisor: Anand D. Sarwate
Accepted to ICLR 2025

### Industry Experiences

**Maintainer: Goldfish Scheme & Mogan STEM** 05/2024-Now
LIII NETWORK (An open-source company)
*Founder*: Da Shen; *Co-founder & COO*: **Yansong Li**
I am the co-founder and COO of LIII NETWORK, an open-source company that develops Goldfish Scheme: a Scheme interpreter with Python-like standard library functionalities. Goldfish Scheme is the foundation of Mogan STEM, a WYSIWYG TEX-style editor we developed. Mogan STEM can help you type equations 10 times faster than LATEX.

## RESEARCH EXPERIENCES

**Combining model-based & model-free reinforcement learning.** 09/2020-03/2025
*Project Organizer & Corresponding Author*
We develop two algorithms that leverage gradient information from an estimated model to accelerate model-free training. The experiments are conducted on an additive nonlinear system with a linear estimated model (published in *L4DC*) and in the `mujoco` environment with a Gaussian estimated model (under review for *AAAI* and *ICLR*).

**Renaissance of Literate Programming in the Era of LLMs** 10/2024-Now
*Project Organizer & Corresponding Author*
We developed a Scheme interpreter with Python-like standard library using literate programming. Most of the code is generated by LLMs by using the literate programming document as prompts. The technical report is available at `https://github.com/LiiiLabs/goldfish/releases/download/v17.10.9/Goldfish.pdf`, and the prompt engineering paper is under ICML review.

**AI agent that can effectively collaboration with human** 11/2021-2024/05
*Project Organizer & Corresponding Author*
We utilize stochastic game theory and Stackelberg game formulation. In our setting, human agents are not assumed to be rational, and their utility functions are unknown. Based on these constraints, we develop two algorithms: one for Stackelberg games and another for stochastic games, both designed to facilitate AI-human collaboration. Experiments are conducted in the Overcooked-AI environment. The results have been published in the *ACC* and the *AAMAS* extended abstract. Additionally, two papers extending this formulation to partial observations are available as open-access preprints and are currently under review.

**LLM for end-to-end autonomous driving** 05/2024-Now
*Coauthor*
We develop a hybrid system that leverages a large language model (LLM) to provide high-level instructions at low frequency, enhancing the generalization capability of a high-frequency onboard controller running on an iPhone for autonomous driving. This design mitigates the high-latency challenges of LLMs, making our experiments the first real-world implementation of LLMs in this context. The results have been published in the *CORL*. Ongoing research has been submitted to *CVPR* and is currently under review.

## TEACHING EXPERIENCE

Southern University of Science and Technology:

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| MA213-16 | Calculus I (Tutorial, Fall 2020) |
| MA101B | Mathematical Analysis (Tutorial, Spring 2019) |
| Online Lecture | Control Theory and Optimization (Summer 2021) |
| Online Lecture | RL and Game Theory (Summer 2023) |

LIII NETWORK:

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| Online Lecture | Academic Writing With Mogan (Fall 2024) |
| Online Lecture | SICP (Fall 2024) |

## OPEN SOURCE COMMUNITY

**Mogan STEM** 09/2022-Now
*Maintainer*
A WYSIWYG editor that can type equations 10 times faster than LaTeX. See "A quick tour of TeXmacs" for a 3-minute short introduction. Plugins I developed (vim-like keybindings and algorithm2e package) can be found in Jack's Github.

**Goldfish Scheme** 07/2024-Now
*Maintainer*
A `Scheme` interpreter based on `S7 Scheme` and `C++`. This interpreter matches the speed and simplicity of `S7 Scheme` while offering improved support for Microsoft Windows. In `Goldfish Scheme`, we have implemented the complete set of features from R7RS and included many functionalities inspired by the `Python` standard library. `Goldfish Scheme` will be the foundation for GNU TeXmacs/Mogan in the future.

**SDPA-Python Documentation** 07/2022-Now
*Contributor*

## PROFESSIONAL SERVICE

**Reviewer**

**Journals**
Science China Information Sciences

**Conferences**
International Conference on Learning Representations (ICLR)
IEEE Conference on Decision and Control (CDC)
International Conference on Identification, Information and Knowledge in the Internet of Things (IIKI)

## INVITED TALKS

1. "Bayes-Optimal, Robust, and Distributionally Robust Policies for Uncertain MDPs", RINGS informal seminar, Rutgers University-New Brunswick, 08/2024.
2. "Efficient Collaboration with Unknown Agents: Ignoring Similar Agents without Checking Similarity", Digital Economy Lecture, Beijing Normal University & Hong Kong Baptist University United International College, 10/2023.
3. "Solving Strongly Convex and Smooth Stackelberg Games Without Modeling the Follower", 2023 American Control Conference, San Diego, 06/2023.