Yongshan Chen

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Education

Northeastern University — Boston, United States
PhD in Electrical Engineering, ECE — *Sept. 2025 - Present*

Shanghai Jiao Tong University — Shanghai, China
Bachelor of Computer Science (Honors) — *Sept. 2021 - Jun. 2025*

- Member of ACM Honors Class, which is an elite CS program for top 5% talented students

Experience

Northeastern University: Imani's Lab — Boston, United States
Research Assistant, advised by Prof. Mahdi Imani — *Sept. 2025 – Present*
Research Topic: Game Theory, Multi-Agent Reinforcement Learning

Shanghai Jiao Tong University: Apex Lab — Shanghai, China
Undergraduate Researcher, advised by Prof. Weinan Zhang — *July. 2023 – July. 2025*
Research Topic: Multi-Agent Reinforcement Learning

University of Maryland — Maryland, United States
Intern, advised by Prof. Kaiqing Zhang — *July. 2024 – December. 2024*
Research Topic: Game Theory and Large Language Model

The Fifth International Distributed AI Conference (DAI2023) — Singapore
Nanyang Technological University — *31.11.2023 – 3.12.2023*
Poster presentation: *A Deep Q-Network Algorithm with Two-Level Neural Network in Real-Time Strategy Games.*

Works & Projects

Online Learning and Equilibrium Computation with Ranking Feedback ICLR 2026 Received Paper
Mingyang Liu, Yongshan Chen, Zhiyuan Fan, Gabriele Farina, Asu Ozdaglar, Kaiqing Zhang
This research tackled a specialized case of the multi-arm bandit problem, where the player receives only a ranking of the k-selected actions at each timestep based on their current or average rewards. We derived hardness results for both single-step and average reward cases, proposed algorithms for these scenarios, and proved that under certain constraints on the utility vector's overall change, our method achieves time-average no regret.

Finite-Sample Regret Analysis of Nash Q-Learning with Random-Feature Approximation Submitted to ICML 2026
Yongshan Chen, Zhuowen Zou, Calvin Yeung, Yuchen Hou, Mohsen Imani, Tian Lan, Mahdi Imani
We provide finite-sample regret guarantees for Nash Q-learning in two-player zero-sum Markov games using random-feature approximation, with explicit separation of statistical and representation errors.

A Deep Q-Network Algorithm with Two-Level Neural Network in Real-Time Strategy Games
SJTU ACM Class Machine Learning 2023 Assignment (CS420 Course Project)
An improvement on traditional DQN algorithm to improve battle micro-control performance while reducing training expenses.

Also as a received poster of The Fifth International Distributed Artificial Intelligence Conference (DAI2023).

Mutual Theory of Mind in Human-AI Collaboration: An Empirical Study with LLM-driven AI Agents in a Real-time Shared Workspace Task
Shao Zhang, Xihuai Wang, Wenhao Zhang, Yongshan Chen, Landi Gao, Dakuo Wang, Weinan Zhang, Xinbing Wang, Ying Wen
Conducted a mixed-design experiment using a large language model-driven AI agent with ToM and communication modules in a real-time shared-workspace task To explore the mutual theory of mind(MToM) process.

RISC-V CPU Implemented in Verilog RTL
SJTU ACM Class Computer Architecture 2022 Assignment (MS108 Course Project)
A Tomasulo RISCV-V cpu with i-cache and 512 local biomodal branch predictors.

Compiler for Mx* Language
SJTU ACM Class Compiler Design and Implementation 2022 Assignment (MS208 Course Project)
A compiler in Java for Mx* language (which is a C++ and Java like language). From front end to redesigned LLVM IR to back end. With optimization algorithms including graph coloring, mem2reg and localization, my design reached **top** performance in ACM class 2021.

Honors & Awards

Scholarship

- 2021, 2022, 2023, 2024 Zhiyuan Honorary Scholarship (Top **2%** in Shanghai Jiao Tong University).

Other Experience

The Great Ideas in Computer Science
Teaching Assistant *Sept. 2022 - Feb. 2023*

Principle and Practice of Computer Algorithms
Teaching Assistant *Jun. 2023 – Sept 2023*