

# Yongshan Chen

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## EDUCATION

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### Shanghai Jiao Tong University

*Bachelor of Computer Science*

Shanghai, China

*Sept. 2021 - Present*

- Member of ACM Honors Class, which is an elite CS program for top 5% talented students
- **Avg. GPA (All):** 3.78
- **Avg. GPA (Grade 3):** 4.05
- Scores of some courses:
  - \* Principle and Practice of Computer Algorithms:  $A^+$
  - \* Compiler Design and Implementation:  $A^+$
  - \* Algorithm Design and Analysis:  $A^+$
  - \* Deep Learning and Its Applications:  $A^+$
  - \* Introduction to Data Science:  $A^+$
  - \* Large Language Models:  $A^+$

## EXPERIENCE

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### Shanghai Jiao Tong University: Apex Lab

*Undergraduate Researcher, advised by Prof. Weinan Zhang*

Research Topic: Multi-Agent Reinforcement Learning

Shanghai, China

*July. 2023 - Present*

### University of Maryland

*Intern, advised by Prof. Kaiqing Zhang*

Research Topic: Game Theory and Large Language Model

Maryland, United States

*July. 2024 - December. 2024*

### The Fifth International Distributed AI Conference (DAI2023)

*Nanyang Technological University*

Poster presentation: *A Deep Q-Network Algorithm with Two-Level Neural Network in Real-Time Strategy Games.*

Singapore

*31.11.2023 - 3.12.2023*

## WORKS & PROJECTS

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### Learning in Games with Ranking Feedback

*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.

### Portable Language Model with Social Techniques (In progress)

*Yongshan Chen, Ziyang Chen, Jinghan Wang, Kaiqing Zhang*

A program focus on aligning llm's social ability with human and developing portable social models.

### 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 RISC-V cpu with i-cache and 512 local bi-modal 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

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### Scholarship

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

## OTHER EXPERIENCE

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### The Great Ideas in Computer Science

*Teaching Assistant*

*Sept. 2022 - Feb. 2023*

### Principle and Practice of Computer Algorithms

*Teaching Assistant*

*Jun. 2023 - Sept 2023*