

# WENHAO CHEN

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## EDUCATION

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**Shanghai Jiao Tong University**, Shanghai, China Sept. 2019 – June 2023 (Expected)

*B.Eng.* in Computer Science and Engineering

- **GPA:** 92.19/100 (or 3.97/4.3), **Rank:** 10/120
- Member of **Zhiyuan Honors Program (Engineering)**
- **Selected A+ courses:** Data Structure (Honor), Discrete Mathematics (Honor), Probability and Statistics (Honor), Algorithms and Complexity, Operating System, Computer Architecture, Artificial Intelligence, Computer Graphics, ...
- **TA Experience:** Programming and Data Structure I (Honor)

## RESEARCH INTEREST

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I'm broadly interested in the intersection of machine learning, systems, and computer architecture, which includes

- Computation efficient DNN training and inference
- Accelerating DNN on heterogeneous hardware
- Deploy DNN on low-power and edge devices

## EXPERIENCE

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**Research Intern** July 2022 – Present

**Microsoft Research Asia**, **System Research Group**, advised by **Dr. Qi Chen**, **Dr. Quanlu Zhang** and **Dr. Hui Xue**

**Research Topics:** Efficient Reinforcement Learning System

- Improve resource utilization during the Reinforcement Learning training
- Accelerate Reinforcement Learning computation on heterogeneous and large-scale systems
- Automatically schedule resources for different Reinforcement Learning algorithms on different hardware configurations

**Research Intern** June 2021 – Present





**Shanghai Jiao Tong University**, **Apex Lab**, supervised by **Prof. Weinan Zhang**

**Research Topics:** Reinforcement Learning Applications

- Branch Ranking for Efficient Mixed-Integer Programming via Offline Ranking-based Policy Learning (submitted to **ECML PKDD'22**) / arXiv July 2021 – Nov. 2021  
We combined offline Reinforcement Learning and a long-sighted hybrid search scheme to solve Mixed-integer Programming problems efficiently and with better generalization ability.
- Internship at Digital Brain Laboratory Mar. 2022 – June 2022  
Research on efficient and unified modeling systems for Operations Research, as well as support various solving algorithms, including traditional and machine learning-based ones.

## PROJECTS

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-  **Tianshou** (Committer, 5.3k stars) July 2022  
Tianshou is a reinforcement learning platform based on pure PyTorch, providing a fast-speed modularized framework and pythonic API for building the deep reinforcement learning agent with the least number of lines of code.
-  **GPU Programming Project** Dec. 2022  
Implemented neural network operators using CUDA Core and Tensor Core programming, and combined these custom operators to complete Resnet18 inference on ImageNet. Besides, we simulated a Volta architecture GPU, including shared memory, register file, CUDA core, and Tensor Core, supporting 10+ SASS instructions.
-  **AlphaZero Gomoku** Oct. 2021  
Implemented the entire training procedure of AlphaZero with Pytorch and trained it on a 10 x 10 Gomoku game.
-  **RISC-V CPU Simulator** July 2020  
Simulated a 5-stage pipeline CPU supporting 32 RISC-V instructions, correctly handling various hazards and containing branch prediction. Besides, an out-of-order execution version using the Tomasulo algorithm is also implemented.

## HONORS AND AWARDS

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- **Zhiyuan Honor Scholarship** (top 5%), Shanghai Jiao Tong University 2020, 2021
- **Academic Excellence Scholarship** (top 30%), Shanghai Jiao Tong University 2020, 2021
- **National Olympiad in Informatics in Provinces (NOIP), 1<sup>st</sup> Prize (477/600)**, China 2018

## PROGRAMMING SKILLS

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- **Programming Languages:** Python, C/C++, CUDA, C#
- **ML Related Skills:** PyTorch (proficient), TensorFlow (able to read)
- **Writing Tools:** Markdown, L<sup>A</sup>T<sub>E</sub>X
- **Tools and Environments:** Git, Linux, Docker

## LANGUAGE SKILL

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- **TOEFL:** 105/120 (Reading 30, Listening 28, Speaking 23, Writing 24)