

YUNHAO ZHAO

☎ [13951905805](tel:13951905805) ✉ zyhian2004@gmail.com 🌐 <https://github.com/ianzhaoyh>

Education

Macao University of Science and Technology

Sep. 2022 - present

B.S. in Computer Science - **GPA: 3.77/4.00 (Top 5%)**

Macao SAR, China

- "Dean's Honor List" of the Faculty of Innovation Engineering of the academic year 2022/2023
- Related courses: Calculus I, Calculus II, Calculus III, Linear Algebra, Discrete Mathematics, Probability and Statistics, Computer Programming (with C), Object-Oriented Programming (with C++), Data Structures (with C), Design and Analysis of Algorithms, Computer Organization (RISC-V), Database Systems, Computer Network, Software Engineering, Compiler Construction, Operating System, Deep Learning, Computer Vision, Data Mining

Experience

Robotics R&D Internship at Yijiahe Technology Co. Ltd.

Jun. 2024 – Jul. 2024

test position

Yijiahe Technology Co. LTD, Nanjing, China

- Collaborated on the development of a metro maintenance robot, marking inspection points to ensure precise navigation and task execution
- Created automated testing scripts using Python, increasing testing efficiency by 30% and improving accuracy
- Contributed to the successful completion of maintenance tasks for a subway inspection robot, facilitating its deployment in real-world scenarios

Robotics R&D Internship at a Startup

Jun. 2025 – Present

Robotics engineer

Bohan Information Technology Co., LTD, Nanjing, China

- Participate in the secondary development of a Unitree G1 humanoid robot, modified to a 23-DOF version, in a collaborative project with Nanjing Normal University focused on reinforcement learning.
- Implement a motion capture pipeline with YOLOv8 and TRAM, utilizing the ASAP (Aligning Simulation and Real-World Physics) framework to train RL policies in the Isaac Gym simulation environment.
- Execute a full pipeline involving Sim2Sim transfer from Isaac Gym to MuJoCo, achieving final Sim2Real deployment on the physical 23-DOF robot.

Project

Kagami Distributed Mirror System Development

Sep. 2024 - Dec. 2025

- Developed key frontend components for "Kagami," a distributed mirror system, using TypeScript and React.js to enable real-time resource monitoring.
- Executed comprehensive interface testing using Apifox to ensure robust API interactions and validate integration with backend services.
- Collaborated with backend developers to debug API endpoints and resolve edge cases, significantly enhancing overall system reliability and performance.

RISC-V 32-bit Pipeline Processor (Computer Organization Final Project)

May 2024 - Jun. 2024

- Designed and built a 5-stage RISC-V 32-bit pipeline processor in Logisim supporting I, R, B, J, and U-type instructions.
- Implemented core modules including the Register File, ALU, Control Unit, and a Forwarding Unit to resolve data hazards.
- Validated processor correctness by passing all tests using raw binaries of sorting algorithms compiled from self-written RV32I assembly.

Pyc Compiler Development

Oct. 2024 - Dec. 2024

- Developing a compiler for Pyc, a self-designed programming language, as part of a Compiler Principles coursework.
- Implemented a lexical analyzer in C using DFA theory to tokenize source code, and developed a recursive descent parser with context-free grammar.
- Integrated a symbol table to perform semantic analysis, including type checking and scope rule validation.

Implementation of Reinforcement Learning Agents (UCB CS188 Project)

July. 2025

- Developed an offline planning agent by implementing value iteration to compute optimal policies for known Markov Decision Processes (MDPs) in a Gridworld environment.
- Engineered a model-free, online Q-learning agent from scratch, incorporating an epsilon-greedy exploration strategy to learn optimal actions through direct environmental interaction in Gridworld and a simulated crawler robot.
- Implemented approximate Q-learning using a linear function approximator, enabling the agent to generalize value estimates across vast state spaces and successfully solve complex Pac-Man levels where tabular methods failed.

Pixel-Art Avatar Synthesis with Variational Autoencoder

Mar. 2025

- Designed a lightweight **fully connected** VAE: specified pixel-level I/O format, wrote a custom preprocessing pipeline, and implemented an **MLP encoder-decoder** in PyTorch for 10,000 Kaggle avatar images.
- Trained on a 9800/200 split with dynamic β -annealing to balance \mathcal{L}_{MSE} and KL terms; explored latent dimensions $\{16, 32, 64, 128\}$ and selected 128-d for best trade-off between reconstruction and diversity.
- Built an evaluation routine computing (i) a bidirectional set-to-set distance D over 200 generated samples vs. test set and (ii) reconstruction MSE, revealing consistent quality gains across larger latent sizes.

Additional Information

Competition China Undergraduate Mathematical Contest in Modeling National Second Prize

Skills: C/C++, Python, Pytorch, Mujoco, IssacGym , TypeScript, React, Git, fastapi, L^AT_EX

Languages: English (IELTS: 7.0), Mandarin (Native)

Interests: Photography, Basketball, Chinese Calligraphy