Qingshan Hou

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Education

Tongji University

Sep.2022 – Jun.2026

Computer Science and Technology Undergraduate Shanghai, China

- GPA: 4.46/5.0 | 89.57/100 | 3.88/4.0(Evaluated by World Education Services WES)
- Coursework: Linear Algebra · Assembly Language Programming · Software Engineering · Artificial Intelligence · Data Structures · Algorithms · Object-Oriented Programming · Operating Systems · Principles of Computer Organization · Computer Networks
- Class Monitor: Class of 2022, Computer Science and Technology 2nd Cohort

National University of Singapore

Aug.2025 – Dec.2025

Dept of Computer Science Exchange Student Singapore

Doing course work(CS4218 Software Testing) and AI for Science research. See "Project Experience" section for details.

Internship

Dun & Bradstreet (Shanghai)

Mar.2026 – Present

Tech Trainee Intern (Just landed) Shanghai, China

- Core Responsibilities: Driving technical solutions for enterprise data applications, from initial conceptualization to deployment and testing.
- Technical Growth: Mastering enterprise-grade Big Data workflows and Cloud-based architecture to support rapid business requirement response.
- Quality Assurance: Facilitating project tracking and code management to ensure high-standard delivery for international clients.

Carl Zeiss (Shanghai) Co. Ltd.

Dec.2025 – Mar. 2026

Deep Learning Intern Shanghai, China

- Contributing to a battery defect detection project using advanced deep learning and computer vision techniques.
- Assisting in data acquisition and annotation, including processing and cleaning large-scale industrial datasets.
- Training, optimizing, and evaluating deep learning models for automated defect detection.

- Analyzing experiment results and proposing improvements for model robustness and deployment readiness.

Heywhale Technology Co., Ltd. Jul. 2025 – Sep. 2025

Research Intern Shanghai, China

- Participated in the "Large Model + X" Summer Camp focused on artificial intelligence and large-scale model development.
- Completed a structured curriculum covering Python, Numpy, Pandas, machine learning, deep learning, and NLP fundamentals.
- Conducted applied research and hands-on experiments in LoRA fine-tuning, RAG, and model deployment on real datasets.
- Gained practical experience in end-to-end AI model optimization, evaluation, and deployment under industry supervision.

Hundsun Technologies Inc. Jul.2024 – Aug.2024

FinTech Intern Hangzhou, China

- Led a team of 6 members as product manager to design and develop a conceptual fund trading system.
- Gained hands-on experience in financial technology, including subscription, redemption, and clearing processes, as well as full-stack development using Vue.js for the front-end, Spring Boot for the back-end, and MySQL for database management.
- Certified Junior FinTech Engineer, Hundsun Technologies Inc.
- Recognized with the "Best Quality Award" for leading the development of the fund trading system.

Research Experience

Cross-View Visual Place Recognition with AlphaEarth Oct.2025 – Present

Computer Vision Cross-View Geo-Localization Tongji University

- Developing a cross-view visual place recognition framework that leverages DeepMind's AlphaEarth, a global 10m-resolution multimodal satellite embedding model.
- Designing a decoder network to perform place recognition directly in the AlphaEarth feature space, enabling robust location retrieval under large viewpoint and appearance changes.
- Building an alignment encoder that maps ground-level optical images into the AlphaEarth latent space, supporting cross-view matching between ground imagery and satellite representations.
- Evaluating model robustness across diverse regions and viewpoints, providing insights for global-scale geo-localization and multi-view mapping applications.

Research Assitant: Multi-Agent Spatio-temporal Coordination Feb.2025 – Jul.2025

Embodied AI Multi-Agent Systems Tongji University

- Conducting research on multi-agent spatiotemporal coordination problems in the context of embodied intelligence, focusing on collaborative perception, task planning, and motion synchronization.
- Exploring strategies for communication and policy learning among agents to enable robust cooperation for perception and prediction.
- The project also aims to enhance the generalization capability of embodied agents across diverse domestic scenarios(such as autonomous driving).

Project Experience

Virtual Vault (NUS CS4218) Aug 2025 – Dec 2025

SDET Automated Testing National University of Singapore

- Multi-tiered Automated Testing Architecture: Engineered a comprehensive testing for a MERN-stack e-commerce platform, utilizing Jest and Playwright to cover layers from low-level units to high-level UI components.
- Unit & Integration Testing: Authored rigorous test suites using Jest Mocking techniques to decouple and validate Database Access Objects and third-party Payment Gateway APIs.
- E2E & Regression Automation: Developed Playwright scripts for end-to-end testing, achieving over 80% coverage of critical business flows including user authentication, advanced search, and checkout processes, significantly reducing regression cycles.
- Performance Benchmarking & Diagnostics: Conducted high-concurrency load testing using JMeter; analyzed throughput and latency metrics to identify database query bottlenecks and proposed actionable optimization strategies.

BiLSTM-CRF Chinese Word Segmentation System Feb.2025 – Dec.2025

Deep Learning Word Segmentation Tongji Universiy

- Implemented a Chinese word segmentation system based on a BiLSTM-CRF architecture with multi-source embeddings (pretrained character embeddings, character-type embeddings, and bigram embeddings).
- Trained and evaluated on MSRA, PKU and Souhu corpora, achieving an F1 score of 0.91+ on the MSRA test set.
- Implemented a custom CRF layer with BMES illegal-transition constraints, training utilities including early stopping, LR scheduler, gradient clipping, and evaluation pipeline (span-based matching, visualization of training loss).

AI Multi-Agent Debate System Feb 2025 – Jun 2025

Deep Learning RAG Architecture Tongji University

- Architected and implemented a Multi-Agent AI debate platform based on RAG , support-

ing structured argumentation, automated speech generation, and lifecycle management for diverse agent roles.

- Developed a decoupled full-stack system using Node.js/Express for the backend and React/Vite for the frontend; utilized MySQL for persistent storage and integrated Python scripts to interface with OpenAI APIs for intelligent content synthesis.
- Designed 5 distinct AI agent personas and a comprehensive debate workflow , enabling multi-module collaboration and seamless data export/visualization.
- Formulated technical documentation including environment deployment guides, database schemas, and API specifications to ensure system maintainability and scalability.

ExCourt - Badminton Court Exchange System 📎 Aug.2024 – Jun.2025

Software Engineering Mini App Tongji Universiy

- Designed and developed a WeChat Mini Program to facilitate court exchange and team formation for badminton players.
- Implemented key features such as team formation requests, court exchanging, and a chat module for user interaction.
- Improved convenience for school badminton players and enhanced their overall experience

Intelligent Car Based Online Calibration System Apr.2024 – Jun.2024

Computer Vision Internet of Vehicles Tongji Universiy

- Developed an online calibration system using an intelligent car, replacing traditional static object-based calibration. This improved efficiency and reduced labor requirements.
- Utilized YOLO v9 for computer vision-based calibration and built a basic model of the intelligent car for autonomous movement and calibration.
- Enhanced calibration efficiency by automating the process with a self-moving car and reduced manual intervention and improved system accuracy.
- Won the Silver Medal at the 2024 China International College Students Innovation Competition (Tongji University Internal Competition).

🏆 Honors and Awards

- Tongji University Undergraduate Excellence Scholarship 📎 Nov.2023
- Certified Junior FinTech Engineer, Hundsun Technologies Inc. 📎 Aug.2024
- Excellence Award: 2025 Corpus & Data Intelligence Creative Competition (Embodied Intelligence Track)📎 Jul.2025
- First Prize: 35th Shanghai Youth Science&Technology Innovation Competition 📎 Apr.2020
- 《Large Model + X General Education Summer Camp》Artificial Intelligence and Large Model Development 📎 Sep.2021
- Silver Award: 2024 China International College Students Innovation Competition (Tongji University Internal Competition) 📎 Jun.2024

- President,Jiading Campus Basketball Association Jun.2024 - Jun.2025

Skills

- Programming Language: C++ Python JavaScript
- English Proficiency
  - IELTS: Overall band 7.5 (all sections are equal or above 7.0)
  - GRE: Verbal 157 Quantitative 170 Writing 4.0
  - CET4: 634
  - CET6: 584

Others

- Activities:
  - UFI Filters Group/Sofima Automotive Filter Asia-Pacific Headquarters Plant Tour
  - Performing a cappella at the Earth Hour event.
  - Mercedes-Benz 2025 Shanghai International Auto Show Youth Talent Day
- Interests:
  - Certified National Level-3 Basketball Referee
  - Music band lead singer
  - A cappella Tenor