

Yinsheng Yao

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EDUCATION

Tongji University

Bachelor of Engineering in Computer Science and Technology **GPA: 88.56/100** Shanghai, China

Selected Honors: Second Prize, Tongji University Scholarship (2022-2023 Academic Year)

Relevant Coursework: Operating Systems, Data Structures, Algorithm Analysis and Design, Computer System Architecture, Machine Learning, Principles and Technologies of Artificial Intelligence, Artificial Intelligence Project, Database Systems, Software Engineering, Advanced Programming, Object-Oriented Programming, Computer Vision

RESEARCH EXPERIENCE

Multi-Agent Reasoning and Evaluation Framework

Aug. 2025 – Present

Group Project, Supervisor: Prof. Dawei Cheng, Tongji University

- Designed and implemented a multi-agent reasoning architecture integrating specialized roles (Planner, Researcher, Skeptic, Judge, and Stylist) to support multi-stage planning, internal debate, external verification, and consensus synthesis for complex reasoning tasks
- Developed a reasoning-hop-based routing mechanism, enabling dynamic path selection between fast and full reasoning pipelines based on task complexity; Implemented asynchronous web verification and structured deliberation loops to improve factual consistency and causal reasoning
- Conducted automated evaluations on OBQA and TruthfulQA datasets, achieving great performance compared with the baseline

Detect and Correct: Hybrid Feedback Framework for Code Hallucination Mitigation

May 2025 – Present

Group Project, Supervisor: Prof. Tianyi Zhang, Purdue University

- Designed a hybrid feedback framework combining model-based hallucination detection and execution-based verification to reduce logical errors in LLM-generated code
- Built a Transformer detector using token, syntax, and confidence features to localize logical errors
- Designed an iterative correction pipeline with structured hybrid prompts and a “reset thinking” mechanism
- Improved code accuracy by 7–13% on HumanEval, MBPP, and LiveCodeBench benchmarks

Multilingual Sign Language Processing System Based on Large Language Models

Dec. 2024 – Oct. 2025

Group Project (Team Leader)

- Designed word order transformation logic between natural and multilingual sign languages for video synthesis
- Enhanced gesture precision by comparing digital human motions with teacher demonstrations
- Structured sign sequences in JSON for integration with video generation pipelines
- Validated gesture consistency and created video batches for the National Innovation and Entrepreneurship Program
- Awarded in the 2025 China International College Students’ Innovation Competition (Shanghai Division)

Novel Style Discovery & Dataset Construction Module

Mar 2024 – Apr 2025

Group Project, Supervisor: Prof. Chen Ye, National-level Innovation and Entrepreneurship Training Program

- Collected historical Chinese calligraphy data and applied character-level segmentation tools to build a comprehensive style-specific dataset, and built a website with timeline visualizations of calligraphy heritage
- Assisted in training a neural network for writing style discovery using SupConLoss and DINO, and performed PCA-based feature visualization

Chinese Character Style Recognition System

Jan. 2023 – Present

Group Project, Supervisor: Prof. Chen Ye, Tongji University

- Built a deep learning framework for 400 calligraphy styles (1,000+ images each) using Vision Transformer (ViT) with pretrained ImageNet weights via timm
- Preprocessed images by denoising and converting backgrounds to white-on-black for consistent training input
- Enhanced discrimination through ArcFace loss function, improving the separation of visually similar calligraphic styles
- Applied TrivialAugmentWide, Mixup, CutMix, and optimized training with AdamW, cosine annealing, AMP, and early stopping for efficient, stable convergence
- Developed and deployed three web applications: a [project showcase](#), a calligraphy style [recognition system](#) & [showcase](#), and a character image retrieval site, built with HTML, CSS, and JavaScript
- Submitted a deployed system as a project and received the Excellent Project Award in the University Innovation and Entrepreneurship Training Program

INTERNSHIP EXPERIENCE

Assistant Test Engineering Intern, Shanghai Bright Power Semiconductor Co., Ltd.

Jan. – Feb. 2024

- Participated in chip testing, including PCB soldering, electrical connections, and parameter measurement
- Developed C-based testing programs integrated with the CTA8280 system for multiple chip batches
- Analyzed chip performance data on yield and tolerance under extreme voltage/current conditions to support reliability evaluation

PROFESSIONAL SKILL

Programming: Python, C, C++ (Proficient in syntax and object-oriented design)

Frameworks & Tools: PyTorch, timm, Docker, GitHub, Hugging Face

Database & Back-end: MySQL (with basic optimization), OceanBase, MiniOB

Front-end Development: HTML5, CSS, JavaScript

AI Application: Deep Learning, Computer Vision, Transformer Models, Large Language Models (LLMs), Prompt Engineering