

ZHEYUAN XIAO

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 Google Scholar  LinkedIn

EDUCATION

Master of Science in Computer Science
The University of Texas at Austin, United States
GPA: 4.0/4.0

Jan 2023 - Present

Bachelor of Engineering (Honours) with First Class Honours
The University of Auckland, New Zealand
Specialisation in Software Engineering
GPA: 7.029/9

July 2018 - December 2021

RESEARCH EXPERIENCE

- **TalentScope Copilot (LLM-driven Autonomous Web Agent Platform) — MSRA**
Aug 2025 – Present (Ongoing Research Collaboration)

- Developed a production-grade **web agent system** for academic talent discovery, enabling an LLM to **control a real browser** to search, navigate, extract evidence, and synthesize structured candidate profiles.
- Implemented multi-agent orchestration using **AutoGen** with **Playwright**-based tool use (browsing, page interaction, content parsing), improving robustness of open-web retrieval and reducing hallucination via evidence-grounded pipelines.
- Built a full-stack platform with a **TypeScript** front-end and a **Python** back-end, supporting workflow execution, provenance tracking, and evaluation for ranking/profile-enrichment tasks; ongoing work targets systematic benchmarking and a paper submission.

- **Unveiling the Learning Mind of Language Models: A Cognitive Framework and Empirical Study — Microsoft Research Asia (MSRA)**

Dec 2024 – June 2025

- Designed and implemented an end-to-end pipeline to investigate how domain-specific knowledge is retained and transferred during LLM fine-tuning.
- Constructed large-scale QA datasets across diverse domains and fine-tuned 7B-scale models (Qwen2.5, LLaMA 3.1, Mistral 7B) using LoRA and supervised fine-tuning (SFT) on multi-node 8×A100 GPU clusters.
- Conducted systematic evaluations against domain baselines, providing empirical evidence on the mechanisms and limitations of knowledge inheritance.
- Research accepted as a **poster at NeurIPS 2025**, one of the premier conferences in AI.
- Preprint available at: [arxiv.org/2506.13464](https://arxiv.org/abs/2506.13464).

- **Rethinking LLM-based Preference Evaluation — Hong Kong University of Science and Technology (HKUST)**

Feb 2024 – July 2024

- Identified and formalized *desirability* and *information mass* as pivotal factors influencing LLM preference evaluation.
- Demonstrated their critical role in shaping the reliability and accuracy of model assessment, challenging prior paradigms in evaluation methodology.
- Synthesized theoretical and empirical insights into a comprehensive paper, published in the **Findings of EMNLP 2025**.
- Preprint available at: [arxiv.org/2407.01085](https://arxiv.org/abs/2407.01085).

WORK EXPERIENCE

- **Software Engineer II** — **Resideo (Honeywell Home)** - Auckland, New Zealand Mar 2025 - Present
 - Built an end-to-end **automation test system** spanning **GitHub Actions** CI, camera **cloud platform** integration, and device-level messaging validation via **MQTT**; enabled continuous regression on real devices and reduced manual verification effort.
 - Designed and maintained a scalable test architecture for NVR/camera ecosystems, including test orchestration, artifact collection, and reliability reporting across firmware and cloud services.
 - Enhanced camera analytics by fine-tuning **Qwen-Image** with **LoRA** to generate style-consistent synthetic data, improving robustness for object detection and scene understanding.
 - Collaborated with research scientists to train **CLIP/CNN** models and deploy optimized inference to **Am-barella CV72S SoC** for next-generation smart cameras, with attention to performance and on-device constraints.
- **Intermediate Software Engineer** — **Fisher&Paykel Appliances** - Auckland, New Zealand Jan 2022 - Mar 2025
 - Lead the creation of a comprehensive automated testing platform, integrating hardware, firmware, and high-level software, bolstered by Behavior-Driven Development (BDD) methodologies
 - Developed embedded software in C for refrigerator systems, optimizing key algorithms
 - Managed DevOps activities, including Docker containerization, Makefile updates, and CI/CD pipeline implementation through Azure DevOps and Jenkins
- **Teaching Assistant** — **The University of Auckland** - Auckland, New Zealand Mar 2021 - Dec 2021
 - Teaching assistant for the course - *Advanced Topics in Database Systems* in 2021 semester one
 - Teaching assistant for the course - *Object Oriented Software Development* in 2021 semester two
 - Teaching assistant for the course - *Functional Programming and Distributed Services* in 2021 semester two
- **Machine Learning Intern** — **Intellifusion** - Shenzhen, China Dec 2019 - Mar 2020
 - Developed and optimized machine learning models for face recognition, improving accuracy and performance.
 - Collaborated on a team project to integrate face recognition technology into security and surveillance products, enhancing client security measures.

OTHER ACHIEVEMENTS

- First in Course Award in Computer Graphics and Image Processing — **The University of Auckland, New Zealand** (2020 Semester one)