

CURRICULUM VITAE

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EDUCATION

Shanghai Jiao Tong University

September 2022 - Present

B.Eng. in Electronic Science & Technology (Zhiyuan Honors Program)

Core GPA: 3.85/4.3 Ranking: 10/64

Core Credit Points: 89.45 Ranking: 11/64

National University of Singapore

April 2025 - Present

Research Intern, CogAI4Sci

<https://www.asintelligence.xyz/>

University of Michigan, Ann Arbor

Starting September 2026

Incoming Ph.D. Student in Electrical and Computer Engineering

PUBLICATIONS

1. **S. Xiang**, S. Wu, X. Liu, Q. Qiu, Y. Zhang, Y. Chen, and Q. Zhuge, “OptiMA: Collaborative Multi-Agent Framework for Modelling and Controlling Raman Amplifier in Intelligent Optical Networks,” *European Conference on Optical Communication (ECOC)*, Copenhagen, Denmark, Oct. 2025. (accepted, to appear in IEEE Xplore) [IEEE Xplore]
2. Xiaomin Liu†, Yuming Cheng†, **Shaowen Xiang**, Massimo Tornatore, Qizhi Qiu, Yihao Zhang, Weisheng Hu, and Qunbi Zhuge*, “Field-trial Investigations into the Impact of Digital Twin Accuracy on Optical Power Optimization,” submitted to *Asia Communications and Photonics Conference (ACP)*, 2025. (under review)
3. Yuan Xu, **Shaowen Xiang**, Yizhi Song, Ruoting Sun, and Xin Tong, “DuetUI: A Bidirectional Context Loop for Human-Agent Co-Generation of Task-Oriented Interfaces,” submitted to *ACM Conference on Human Factors in Computing Systems (CHI)*, 2025. (accepted) [arXiv:2509.13444]
4. Hongyu He, **Shaowen Xiang**, Ye Zhang, Yingtao Zhu, Jin Zhang, Hao Deng, Emily Alsentzer, Qingyu Chen, Kun-Hsing Yu, Andrew Marmenshall, Tingting Chen, Srinivas Anumasa, Daniel Ebner, Dean Ho, Kee Yuan Ngiam, Ching-Yu Cheng, and Dianbo Liu, “AI-generated data contamination erodes pathological variability and diagnostic reliability,” arXiv preprint, 2026. [arXiv:2601.12946]

HONORS AND AWARDS

National Scholarship (Top 0.2%)

Sep. 2024

Intel Cup Undergraduate Electronic Design Contest, Third Prize (Top 10%)

Aug. 2024

Zhiyuan Scholarship

Dec. 2024&2023

Chinese Mathematics Competitions (CMC), First Prize (Top 5%)

Oct. 2023

EXPERIENCE

Collaborative Multi-Agent Framework for Modelling and Controlling in Optical Networks (ECOC 2025)

Jan 2025 – May 2025

Project Leader

SJTU Advisor: Prof. Qunbi Zhuge

- Led development of **OptiMA**, a multi-agent LLM framework for intelligent optical networks, integrating real-time control, digital-twin modeling, and pump optimization in optical systems, and validated it on a C+L band Raman amplifier testbed.
- Proposed a novel chain-of-thought prompting strategy for hyperparameter optimization, formulating a bilevel problem that both accelerated convergence by 50% and significantly reduced RMSE as compared to baseline methods.
- Designed an LLM-enhanced Bayesian optimization pipeline that achieved **0.135 dB** on-off gain RMSE, surpassing traditional BO approaches (0.191 dB), and which demonstrated superior stability and performance in experimental evaluations.

Model Collapse in Medical AI: A Critical Threat to Healthcare Quality and Equity May 2025 – Present

Researcher

NUS Advisor: Prof. Dianbo Liu

- Investigated **model collapse** in multi-modal medical generative models through large-scale experiments using the MIMIC-CXR and MIMIC-IV datasets, which analyzed text generation and image synthesis over successive generations.
- Designed evaluation pipelines that diagnosed degradation patterns—including clinical knowledge loss, vocabulary drift, and reduced image diversity—, cross multiple synthetic data iterations.
- Proposed and validated mitigation strategies (real/synthetic data mixing, bias-aware sampling, feature-space regularization) that preserved disease diversity and improved text–image coherence.

GenUI: User & AI-Agents Collaboration Mechanisms in Generative Interface Design (*CHI 2026*)

Jul 2025 – Sep 2025

Researcher

HKUST Advisor: Prof. Xin Tong

- Developed **GenUI**, an AI-powered system that transforms natural language requirements into interactive interfaces, exploring multi-agent collaboration for intelligent UI generation.
- Designed agent-based workflows for task decomposition, interface synthesis, and contextual reasoning, leveraging LangChain for coordination and memory management. Contributed to a research study on **AI–end-user collaboration mechanisms** in task-driven design.
- Implemented a scalable architecture with RESTful APIs connecting frontend (Vue3) and backend (FastAPI), enabling real-time code generation and multi-user collaboration.

TECHNICAL STRENGTHS

Computer Languages	Python; C++/C; MATLAB; Verilog
Frameworks & Tools	PyTorch; Latex; LangChain; Linux; FPGA