Ziqi Liu

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EDUCATION

Tsinghua University   2021 — Expected 2025

- B.Eng. in Automation
- GPA: 3.74/4.0
- I was enrolled in a 4-year interdisciplinary undergraduate program of Creative Design and Intelligent Engineering, where we took courses from Electrical Engineering and Computer Science (main part), Mechanical Engineering, Interaction and Industrial Design.
- Core Courses: Data Structure | Pattern Recognition and Machine Learning | Principles of Artificial Intelligence | Fundamentals of Analog Electronics | Digital Electronics | Signals and System Analysis | Engineering Mechanics A | Fundamentals of Mechanical Design | User Experience Design | Interaction Design

RESEARCH EXPERIENCES

Pervasive HCI Group, Tsinghua University   06/2024 — Present

Enhancing Smartphone Eye Tracking with Cursor-Based Interactive Implicit Calibration
Research Assistant | Advisor: Prof. Chun Yu

- We introduce COMETIC (Cursor Operation Mediated Eye-Tracking Implicit Calibration), which uses cursor-eye movement correlation to enhance tracking accuracy. By filtering cursor coordinates as gaze proxies and fine-tuning with related images, COMETIC reduces tracking error to 208.04 px (1.2 cm), improving accuracy by 49.64%. Optimal results occur with cursor points 250-300 px (1.44-1.73 cm) from the gaze.

Physiological Signal Perception in Pen-based Interaction
Graduate Project | Advisor: Prof. Yuntao Wang, Prof. Haipeng Mi

- This project aims to explore the possibilities of collecting, denoising, and analyzing GSR (Galvanic Skin Response), IMU (Inertial Measurement Unit), and PPG (Photoplethysmography) data in pen-based interaction, and conduct applications related to cognitive load monitoring and emotional recognition.

Future Lab, Tsinghua University   03/2024 — 01/2025

AroMR: Designing Olfactory Experiences for Spatial Computing Scenarios in Mixed Reality
Research Assistant | Advisor: Prof. Qi Lu

- Co-led the project of AroMR, which focused on designing the 'field-centric' olfactory rendering strategy for mixed reality, with a proof-of-concept system and exploration of potential olfactory scenarios and design spaces.

Tradition Meets Light: Modernizing Traditional Embroidery with Electroluminescent Threads
Research Assistant | Advisor: Prof. Haipeng Mi

- We employ Electroluminescent threads and introduces a "CoreDimension-InnovationDimension" framework to explore ways to modernize traditional embroidery, which presents a novel approach to merging traditional arts with modern technology, paving the way for cultural preservation and sustainable innovation.

PUBLICATIONS

- Yibo Wang, **Ziqi Liu**, Jiao Xue, Qi Lu. 2025. AroMR: Decentralizing Olfactory Displays into the Environment for Olfactory-Augmented Experiences in Mixed Reality. *In Extended Abstracts of the CHI Conference on Human Factors in Computing Systems* **(CHI EA '25)**.

- Chang Liu, Xiangyang Wang, Chun Yu, Yingtian Shi, Chongyang Wang, **Ziqi Liu**, Chen Liang, Yuanchun Shi. 2025. Enhancing Smartphone Eye Tracking with Cursor-Based Interactive Implicit Calibration. *In Proceedings of the 2025 CHI Conference on Human Factors in Computing Systems* **(CHI '25)**.

OTHER EXPERIENCES

Huawei & Future Lab, Tsinghua   10/2023 — 03/2024

Research Intern | Project: Design Research of Future Terminal

- Desk research on innovations in technology, form, and interaction modes of smart terminals
- Concept design of the interaction and application of HMD devices, with low-fidelity demos.

Mercedes Benz, Beijing & Future Lab, Tsinghua   08/2024 — 11/2024

Research Intern | Project: Towards Sustainable Car Interior Design with Smart Interactive Material

- Desk research on interactive materials in HCI
- Design and fabricate the high-fidelity demo for interior design with interactive materials, primarily responsible for lighting effects design and circuit implementation.

XIAO MI, Beijing   01/2025 — 03/2025

Product Manager Intern | Corporate Group Technology Committee - Xiao Ai Interconnection Group

- Design and implementation of voice interaction response strategies in scenarios with coexistence of multiple devices such as smartphones, smart home devices, and wearable devices
- Responsible for the interaction design, promotion, and testing of new terminals (such as smart glasses) and new features (such as the multi - user personalized response).

Skills

CS: basic AI methods, Python, C/C++, HTML

EE: circuit design, Verilog, Arduino

Design: AutoCAD, Solidworks, Figma, Adobe suit, Unity, Blender

English: CET-4: 648; TOEFL: 99