

# Ziqi Liu

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## EDUCATION

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### Tsinghua University

09/2021 — 06/2025

- Bachelor of Engineering
- GPA: 3.70/4.0
- 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

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### Pervasive HCI Group, Tsinghua University

06/2024 — 06/2025

#### *Enhancing Smartphone Eye Tracking with Cursor-Based Interactive Implicit Calibration*

Research Fellow | 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 Fellow | 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 Fellow | Advisor: Prof. Haipeng Mi

- We employ Electroluminescent threads and introduces a "Core Dimension-Innovation Dimension" 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

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- 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)*.

## INDUSTRY EXPERIENCES

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### **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).

### **Shokz, Shenzhen**

**06/2025 — 08/2025**

*Research Intern | Project: Design and Deployment of Clamping Force Test Sensors for Head-Mounted Headphones*

- Designed and built a clamping force measurement system for two bone conduction headphone products in the pre-research stage, and developed wearable test prototypes
- Conducted user experiments and wearing tests to support application scenarios in the product's pre-research stage (e.g., facial contact area and pressure analysis, wearing comfort evaluation)

## SOCIETY MEMBERSHIPS

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Member of the External Relations Department, Xinya College, Tsinghua

09/2021 — 07/2022

Deputy Director of the External Relations Department, Xinya College, Tsinghua

07/2022 — 07/2023

## Skills

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**Programming Languages:** Python, C/C++ , HTML, shell

**Hardware Programming:** Verilog, Arduino, Quartus II, Multisim

**Modeling & Graphic design:** AutoCAD, Solidworks, Figma, Adobe suit, Unity, Blender

**Skill Set:** Machine Learning, User Interface Design, 3D printing, Laser Cutting