Ziqi Liu

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Education

2025–Now **Master of Philosophy**, The Hong Kong University of Science and Technology

- Supervisor: Qijia Shao
- Research Focus: Mobile & Ubiquitous Computing, HCI.
- 2-year fully-funded research-based postgraduate program of **Integrated Systems and Design**. My research focuses on the synergy between AI-driven sensing and adaptive intervention. By integrating hardware and software innovations across ubiquitous devices and wearables, I design and develop closed-loop systems that tightly couple the implicit, continuous sensing of behavioral and physiological states with just-in-time, context-aware interventions.

2021–2025 **Bachelor of Engineering**, Tsinghua University

- Supervisor: Yuntao Wang, Haipeng Mi
- GPA: 3.70/4.0
- 4-year interdisciplinary undergraduate program of **Creative Design and Intelligent Engineering** with coursework in Electrical Engineering and Computer Science (main part), Mechanical Engineering, Interaction and Industrial Design.

Research Experiences

09/2025–Now **UbiquitousX Lab, The Hong Kong University of Science and Technology**
M.phil Student

- **Project:** Implicit Reachability Analysis and Tap Prediction for Mobile Interaction
  Advisor: Prof. Qijia Shao
  - Led the research project *PreTap* (Submitted to IMWUT '26), which proposed an on-device AI system that leverages implicit motion sensing to infer user-specific reachability and predict imminent tap regions and for proactive, ergonomic interface adaptation for one-handed mobile interaction.

05/2024–06/2025 **Pervasive HCI Group, Tsinghua University**
Undergraduate Research Assistant

- **Project:** Enhancing Smartphone Eye Tracking via Implicit Calibration
  Advisor: Prof. Chun Yu
  - Conducted the algorithm design for the research project *COMETIC* (CHI '25), which introduced a cursor-based implicit calibration method for smartphone eye tracking that leverages the inherent correlation between cursor operations and gaze patterns to continuously fine-tune tracking accuracy during natural interaction.
- **Project:** Pen-based Physiological Sensing & Interaction
  Advisor: Prof. Yuntao Wang
  - Designed a pen-based sensing system that integrates EDA, PPG, and IMU sensors to enable unobtrusive physiological monitoring and cognitive load assessment during natural handwriting interaction.

03/2024– 01/2025 **Future Lab, Tsinghua University**
Undergraduate Research Assistant

- **Project:** Olfactory Experiences in Mixed Reality
  Advisor: Prof. Qi Lu
  - Co-led the research project *AroMR* (CHI EA '25), which introduces a "field-centric" olfactory rendering strategy by decentralizing displays into the environment to create immersive, context-aware scent experiences in Mixed Reality.
- **Project:** Modernizing Traditional Embroidery with EL Threads
  Advisor: Prof. Haipeng Mi
  - Conducted the interaction and system design to explore the redesign possibilities of traditional embroidery using electroluminescent (EL) threads, proposing a framework for sustainable cultural preservation through smart materials.

Publications

- **Ziqi Liu**, Ziyi Xu, Jinhe Wen, Xiangjie Tang, and Qijia Shao. 2026. PreTap: Implicit Reachability Analysis and Tap Prediction for One-Handed Mobile Interaction. *Submitted to Proceedings of the ACM on Interactive, Mobile, Wearable and Ubiquitous Technologies* **(IMWUT '26)**.
- 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

06/2025– 08/2025 **Shokz, Shenzhen**, *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.

01/2025– 03/2025 **XIAO MI, Beijing**, *Product Manager Intern*
Corporate Group Technology Committee - Xiao Ai Interconnection Group

- Designed and implemented voice interaction response strategies for scenarios with co-existence of multiple devices such as smartphones, smart home devices, and wearable devices.
- Responsible for interaction design, promotion, and testing of new terminals.

08/2024– 11/2024 **Mercedes Benz, Beijing & Future Lab, Tsinghua**, *Research Intern*
Project: Towards Sustainable Car Interior Design with Smart Interactive Material

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

10/2023– 03/2024 **Huawei & Future Lab, Tsinghua**, *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.

Teaching Experience

Spring 2026 **Teaching Assistant**, *ISDN5230 - Artificial Intelligence of Things for Healthcare*

Society Memberships

07/2022–07/2023 **Deputy Director**, *External Relations Department, Xinya College, Tsinghua*

09/2021–07/2022 **Member**, *External Relations Department, Xinya College, Tsinghua*

Skills

- **Programming Languages:** Python, C/C++, HTML, shell
- **Embedded Systems & Hardware Design:** Raspberry Pi, ESP32, Arduino, Verilog, QuartusII, Multisim
- **Modeling & Graphic Design:** AutoCAD, Solidworks, Figma, Adobe suite, Unity, Blender
- **Skill Set:** Machine Learning(Pytorch), User Interface Design, Digital Fabrication, Rapid Prototyping