YUTONG LIN

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EDUCATION

University of Science and Technology of China (USTC) 09/2023 – 06/2026 (exp.)

M.E. in Computer Technology **GPA:** 3.8/4.3 → 3.7/4.0 | **Advisor:** Prof. Xiang-Yang Li

Hohai University 09/2019 – 06/2023

B.S. in Internet of Objects Engineering (IoT) **GPA:** 90/100 → 3.8/4.0 | **Ranking**: 2/124, Top 1.6%

RESEARCH INTERESTS

- **Human-computer Interaction:** Human-Centered AI, Accessible & Well-being Systems
- **Mobile & Ubiquitous Computing:** Edge & On-device Intelligence, Mobile Sensing, Ubiquitous Interaction

RESEARCH EXPERIENCE

1. Smartphone Users' Attention State Awareness — USTC

Project Lead | *Supervised by Prof. Xiang-Yang Li & Prof. Haohua Du* 12/2023 - 02/2025

- **Research Goal:** Investigated smartphone users' momentary attention states through multimodal sensing and behavioral modeling.
- **Framework & Data Collection:** 1. Designed an end-to-end attention prediction framework. 2. Developed an Android app to log device interactions, sensor data, and ESM self-reports. 3. Conducted field studies with 43 participants, collecting 9K+ real-world samples (dataset released).
- **Analysis & Modeling:** 1. Applied mixed-methods analysis combining LLM-assisted thematic coding and statistical modeling. 2. Designed a machine learning model, achieving over 80% F1 in cold-start attention states prediction. As the first author, submitted a paper to the *International Journal of Human–Computer Interaction (IJHCI)*.

2. Graph-of-Convex-Sets Motion Planning for Robotic Arms — USTC

Project Lead | *Supervised by Prof. Da Sun & Prof. Xiang-Yang Li* 03/2025 - 12/2025 (exp.)

- **Research Goal:** Designed a trajectory planning framework based on convex sets.
- **Methodology:** Partitioned the robot arm's free space into multiple convex regions and constructed a weighted graph based on the reachability between regions. Performed graph search to generate a sequence of convex regions and optimized trajectories within each region.
- **Key Design:** 1. Efficiently generated convex regions using goal-directed sampling. 2. Reduced graph complexity through heuristic pruning, accelerating path computation.
- **Applicability:** Demonstrated applicability in high-performance 2D planar path planning, 3D aerial vehicle trajectory planning, and trajectory planning for high-degree-of-freedom robotic arms.
  First-author paper scheduled for submission in 12/2025.

3. Linking Motion Design to Brand Perception in Mobile Interfaces — Online Summer Research

Core Member | *Supervised by Prof. Yang JIAO, Tsinghua University (THU)* 05/2025 - 09/2025

- **Research Goal:** Analyzed smartphone motion effects across multiple brands by extracting and quantifying objective motion parameters, and linked these parameters to user perception and brand style. Developed a perceptual-style map to visualize the relationship between motion parameters, user experience, and brand identity.
- **My Contribution:** 1. Implemented code-based methods to extract and quantify objective motion parameters of smartphone interface animations. 2. Conducted user experiments and quantitative data analysis.
  Co-authored and submitted a paper to *CHI 2026*.

4. Bandwidth-Efficient Audio Compression for Accurate MLLM ASR — Remote Research Intern

Project Lead | *Supervised by Prof. Yi Ding, University of Texas at Dallas (UTD)* 07/2025 - Ongoing

- **Research Goal I:** Explore the limits of multimodal large language models (MLLMs) performance in automatic speech recognition (ASR) tasks, identifying their capabilities and weaknesses under various distortions.

- **Research Goal II:** Design a bandwidth-efficient compression and decompression method for multi-channel audio. The compression module reduces transmission overhead, while the decompression module ensures that the restored audio enables MLLMs to perform ASR tasks accurately. Striking a balance between transmission efficiency and ASR accuracy, making it well-suited for edge applications with MLLMs in Human-AI Interactions.
- **Contribution:** Research Goal I has been preliminarily completed. For Research Goal II, a two-channel audio compression and decompression model has been designed, and it is currently being refined and optimized. [Demo Video (YouTube)]

5. NSFC (National Natural Science Foundation of China) Proposal Preparation (2026) USTC

Core Member | Supervised by Prof. Xiang-Yang Li 09/2025 - 11/2025

- Conducted a thorough literature review and assisted in drafting sections of the proposal.

PUBLICATIONS & MANUSCRIPTS

- **AttenTrack: Mobile User Attention Awareness Based on Context and External Distractions.** [Paper]
  Yutong Lin, Suyuan Liu, Kaiwen Guo, Haohua Du, Chao Liu, Xiang-Yang Li.
  Under review at the International Journal of Human–Computer Interaction (IJHCI).
- **A Two-Stage LLM System for Enhanced Regulatory Information Retrieval and Answer Generation.** [Paper]
  Fengzhao Sun, Jun Yu, Jiaming Hou, ***Yutong Lin***, Tianyu Liu.
  In Proceedings of the 31st International Conference on Computational Linguistics (COLING) Workshops, 2025.
- **From Parameters to Style: A Dual-Dimensional User Perceptual Structure of Smartphone Motion Effects Design**
  Rui Zhang, Wei Gong, Yiran Liu, Ziyao Zhang, Chenxi Xiao, ***Yutong Lin***, Siyu Dai, Stephen Jia Wang, Yang Jiao.
  Under review at the ACM CHI Conference on Human Factors in Computing Systems (CHI 2026).

WORK EXPERIENCE

1. Algorithm Engineering Intern – ***JD.com, Inc.*** (Beijing, China) 06/2023 - 08/2023

Received guidance from Prof. Desheng Zhang, Rutgers University

Courier Calorie Consumption Prediction and Delivery Difficulty Assessment

- Developed a calorie consumption prediction system for delivery couriers by leveraging order data, device logs, and wearable fitness tracker information to quantify delivery area difficulty and optimize fairness in order allocation.

Courier Delivery Route Sequence Reconstruction

- Fused order data with courier trajectory stay points to reconstruct the true delivery route, addressing the issue of order sequence disruption caused by batch "delivered" clicks.

2. Smart Manufacturing Intern – ***NIO Inc.*** (Shanghai, China) 07/2024 - 01/2025

Automotive Plant Data Governance and Standardization Project

- Designed a unified industrial data representation framework spanning physical-virtual spaces, and participated as a core member in drafting the corporate standard *Industrial Metaverse Data Interoperability Specification*, establishing standardized data representation formats.

LANGUAGES & SKILLS

- **Languages:** TOEFL 97 (L: 24, R: 28, S: 24, W: 21)
- **Domain-Specific Skills:** Android development, PyTorch, MySQL, Linux, LaTex, Git
- **Programming Languages:** Python, Java, C++, MATLAB

AWARDS & HONORS

- **Academic Excellence Scholarship** – *Hohai University* 2020, 2021, 2022, 2023
- **Outstanding Student Award** – *Hohai University* 2020, 2021, 2022, 2023
- **First-Class Graduate Scholarship** – *University of Science and Technology of China* 2024 & 2025