Yunqiang Pei

Curriculum Vitae

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google scholar

Research Interest

I am a fourth-year Ph.D. candidate from the **University of Electronic Science and Technology of China** and a visiting Ph.D. student at **KAIST's Wearable and Interactive Technology Lab**. My research is at the intersection of **Augmented Reality (AR) and AI**, with a core focus on **human-agent alignment**.

My work involves developing **Proactive AR Agents** by integrating **Large Language Models (LLMs)** with real-time **physiological and behavioral data**. The objective is to build intelligent, context-aware systems that can **anticipate user needs** and foster mutual understanding, paving the way for more intuitive human-agent interaction.

Keywords: AR × AI, Proactive AR Agent, LLMs, Human-Agent Alignment, Physiological Computing

Employment

07-11/2021 **Software engineer**, Thoughtworks, *Chengdu, Sichuan, China.*

Education

09/2014- **Sichuan University of Science and Engineering**, *China*
current
- B.S. in Internet of Things Engineering, School of Computer Science
- Won **National Scholarship** for **Two Consecutive Years** (2015-2017)
- Sichuan Province **Outstanding Graduate** (2017-2018)
- Awarded the First-Class Scholarship for Three Consecutive Years (2014–2017)
- GPA: 3.7 / 5.0 (Ranked **First** in my major)

09/2018- **Southwest University of Science and Technology**, *China*
06/2021
- M.A. in Computer Science and Technology, School of Computer Science and Technology
- **Outstanding Master's Thesis**
- **Nominated for Best Paper Award** at ICVRV 2019
- Score: 90.88 / 100.0 (Ranked **First** in the whole grade)

09/2022- **University of Electronic Science and Technology of China (UESTC)**, *China*

current
- Ph.D. candidate in Electronic Information, School of Computer Science and Engineering
- Won Second Prize in the (National) University Student Competition Five Minute Research Presentation (in English)
- Won the First-Class Scholarship in 2024, the Second-Class Scholarship in 2023, and the Freshman Scholarship in 2022
- **Nominated for Best Paper** at MM 2024
- Awarded the Academic Rising Star Honor of UESTC
- GPA: 3.84 / 4.0

03/2025-
03/2026 **Korea Advanced Institute of Science and Technology (KAIST)**, *South Korean*
- Visiting Ph.D. student conducting research in the Wearable and Interactive Technology (WIT) Lab at the School of Electrical Engineering, under the supervision of Professor Ian Oakley

Publications

Quick summary since 2019: First Author(8), Awarded Paper(1), Best Paper Nomination (1), MM(3), VR (poster × 2), UIST(1), AAAI(1), ICVRV(1), PRAI(1), SCIENCE CHINA Information Sciences(1), Journal of System Simulation(1), Journal of Graphics(2)

C1 **Yunqiang Pei**, Hongrong Yang, Kaiyue Zhang, Guoqing Wang*, Peng Wang, Chaoning Zhang, Yang Yang, Heng Tao Shen. Improving Interaction Comfort in Authoring Task in AR-HRI through Dynamic Dual-Layer Interaction Adjustment. *ACM Multimedia* (MM Oral Paper). 2025

C2 **Yunqiang Pei**, Renming Huang, Mingfeng Zha, Guoqing Wang*, Peng Wang, Kang Qiao, Yang Yang, Heng Tao Shen. AttentionAR: AR Adaptation and Warning for Real-World Safety via Attention Modeling and MLLM Reasoning. *ACM Symposium on User Interface Software and Technology* (UIST Paper). 2025

C3 **Yunqiang Pei**, Kaiyue Zhang, Hongrong Yang, Yong Tao, Qihang Tang, Jialei Tang, Guoqing Wang*, Zhitao Liu, Ning Xie, Yang Yang, Heng Tao Shen. Improving Interaction Comfort in Authoring Tasks in AR-HRI through Dynamic Dual-Layer Interaction Adjustment. *ACM Multimedia* (**Best Paper Nomination**). 2024

C4 **Yunqiang Pei**, Qihang Tang, Jialei Tang, Mingfeng Zha, Dongyu Xie, Guoqing Wang*, Zhitao Liu, Ning Xie, Yang Yang, Heng Tao Shen. Emotion Recognition in HMDs: A Multi-task Approach Using Physiological Signals and Occluded Faces. *ACM Multimedia* (MM Paper). 2024

C5 **Yunqiang Pei**, Kaiyue Zhang, Ziyang Lu, Mingfeng Zha, Guoqing Wang*, Zhitao Liu, Ning Xie, Yang Yang, Heng Tao Shen. Toward Optimized AR-based Human-Robot Interaction Ergonomics: Modeling and Predicting Interaction Comfort. *IEEE Conference on Virtual Reality and 3D User Interfaces* (VR Poster). 2024

C6 Ziyang Lu, **Yunqiang Pei**, Guoqing Wang*, Peiwei Li, Yang Yang, Yinjie Lei, Hengtao Shen. ScanERU: Interactive 3D Visual Grounding Based on Embodied Reference Understanding. *The 38th Annual AAAI Conference on Artificial Intelligence*. 2024

C7 **Yunqiang Pei**, Renming Huang, Guoqing Wang*, Yang Yang, Heng Tao Shen. Multimodal Apology: Using WebXR to Repair Trust with Virtual Companion. *IEEE Conference on Virtual Reality and 3D User Interfaces* (VR Poster). 2023

C8 Shanshan Xiang, Wensheng Tang, **Yunqiang Pei**, Yadong Wu*, Yonghui Chen, Fupan Wang, Zhiwei Hou. IV-WA: An Information Visual Tool with WebAR. *International Conference on Pattern Recognition and Artificial Intelligence* (PRAI). 2021

C9 **Yunqiang Pei**, Yadong Wu*, Song Wang, Fupan Wang, Hongyu Jiang, Shijian Xu, Jinquan Zhou. Wa vis: A Web-based Augmented Reality Text Data Visual Analysis Tool. *International conference on virtual reality and visualization* (ICVRV, **Best Paper Honorable Mention Award** ⋆). 2019

J1 Guoqing Wang (Advisor)*, **Yunqiang Pei**, Yang Yang, Xing Xu, Zheng Wang, Hengtao Shen. A Review and Outlook of Shared Multi-Modal Trustworthy Human-Robot Interaction Research, *SCIENCE CHINA Information Sciences*. 2023

J2 Chunhong Liu, Song Wang*, Fupan Wang, Wensheng Tang, **Yunqiang Pei**, Dongsheng Tian, Yadong Wu. AR-assisted Sign Language Letter Recognition Method Based on Improved MobileNet Network, *Journal of System Simulation*. 2023

J3 Nanshan Liu, **Yunqiang Pei**, Hao Jiang, Yongguo Han, Yadong Wu*, Fupan Wang, Siheng Yi. WebAR garbage classification information visualization method based on VD-MobileNet network, *Journal of Graphics*. 2022

J4 **Yunqiang Pei**, Yadong Wu*, Fupan Wang, Xiaorong Zhang, Hongyu Jiang, Shijian Xu, Wensheng Tang. IV LKWA: an information visual analysis tool with advanced L-K optical flow based WebAR, *Journal of Graphics*. 2020

Winter and Summer Vacation Study Program

01/2023-02/2023 I participated in the Machine Learning Winter Programme organised by **Girton College, Cambridge** from 23 January – 10 February 2023.

During this winter programme I completed the following assessed module: Machine Learning

Conference Volunteering Experience

07/2019 Student Volunteer at **ChinaVIS 2019**, Chengdu, China.

04/2025 Student Volunteer at **ACM CHI 2025**, Yokohama, Japan.

10/2025 Student Volunteer at **ISMAR 2025**, Daejeon, South Korea.

Languages and Levels

Chinese	Proficient
English	Advanced
Korean	Intermediate