Ziru Wei

ziruw@andrew.cmu.edu | zuriniw.github.io

Keywords: Technical HCI, Human–Robot Interaction, User Modeling, Multimodal Interaction, Extended Reality

EDUCATION

Carnegie Mellon University 2026.05
- Master of Science in Computational Design (HCI focus), GPA: 4.0/4.0
- Thesis: *Towards Multimodal Interaction with Proactive Physical Agents* (Advised by Prof. Alexandra Ion)

Soochow University 2024.06
- Bachelor of Architecture, GPA: 3.7/4.0

PUBLICATIONS

(In submission, CHI 2026) "Let me lend you a hand": Understanding Contextual Perceptions of Physical Proactivity in Small-scale Personal Assistance Robots
Ziru Wei, Violet Yinuo Han, Tanvi Handoo, Alexandra Ion

(In submission, CHI 2026) Embodiment and Interaction Influence Perceptions of Robotic Collaborators in Everyday Physical Tasks
Violet Yinuo Han, Ziru Wei, Aiden Yiliu Li, Chris Wu, Alexandra Ion

On-site Holographic Building Construction: A Case Study of Aurora
Sijie Liu, Ziru Wei, Sining Wang. *Proceedings of the Association for Computer-Aided Architectural Design Research in Asia (CAADRIA)* (Peer-reviewed), 2022

Mixed-Reality Assisted Refinement Strategies for Old Residential Renovation and Participatory Design Research: A Case Study of the Sericulture Community in Suzhou
Ziru Wei, X. Zhao, Y. Wang, et al. *Architecture & Culture* (Core Journal of China), July 2023, pp. 180–183.

POSTERS AND ABSTRACTS

Embodied Generative storytelling
Ziru Wei, Jimmy Cheng. Abstract accepted, 4S 2025 Conference: Reverberations, Seattle, WA, Sept 3–6, 2025.

EXPERIENCE

Research Student at Interactive Structures Lab, Human-Computer Interaction Institute, Carnegie Mellon University 2025.04 - Present
- Conducted a Wizard-of-Oz user study on small-scale personal robots across private, social, and public-work environments; modeled intention-aware and intention-revealing proactivity, and distilled quantitative and qualitative findings into design recommendations for unobtrusive proactive robots.
- Building a computational pipeline to orchestrate the multimodal behaviors of proactive personal robots, integrating perception, decision-making, and interaction modules (ongoing).

Research Student at CodeLab, Carnegie Mellon University 2025.02 - 2025.06
- Independent Project 1: Implemented a real-time system that transformed hand shadows into six-panel comic storytelling, leveraging MediaPipe for motion capture, StreamDiffusion for real-time image synthesis, and an LLM for caption generation.
- Independent Project 2: Experimented with ML techniques to automate the curation of creative works, exploring varying balances between human-led and machine-led decision-making.

Research Intern at WHY Research Lab, Carnegie Mellon University 2024.08 - 2025.01
- Built the WasteStation database in Notion to map connections between components and potential reuse applications
- Replicated the 'Ladybug' project, which transformed dismantled disk drives into a scanning device through disassembly, resoldering, and Raspberry Pi integration

Research Assistant, Humachine Lab, Soochow University 2021.08 - 2022.07
- Executed Mixed Reality (MR) workflows in nonlinear panel assembly of a full-scale house within 10 days
- Framed and led four on-site collaboration methods to maximize the benefits of MR in registration, adjustment, synchronized work, and cross-time work
- Documented the design-to-construction process and contributed to academic writing

Awards and Honors

Computational Design Commendation, Carnegie Mellon University	2025
Computational Design Commendation, Carnegie Mellon University	2024
Merit Scholarship, Carnegie Mellon University	2024
Excellence Award, Shanghai Youth Architectural Design Competition	2023
Innovation & Academic Excellence Scholarship, Soochow University	2020 - 2022
Overall Excellence Award Winner, Solar Decathlon China	2022
First Prize (Top 2%) in "Zijin Award" of Architectural Design Contest	2022
METTLER TOLEDO Scholarship (Top 2%)	2019

Skills

Technical
- Hardware: Arduino, Raspberry Pi
- Languages: Python, R, C#, Pascal, HTML, CSS, Javascript
- Game Engine: Unity

Design & Production
- Software: Rhino, Grasshopper with GHPython, Blender, AutoCAD, Adobe Creative Suite, Figma, Procreate
- Fabrication: 3D printing, Soldering and electronic wiring, Welding (basic), Woodworking

Languages
- English (Fluent), Mandarin (Native), Portuguese (Beginner)

Activities

Course Project Reviewer   2025.01 - 2025.05
- Worked as a Guest Reviewer for the Spring 2025 Fundamentals of Computational Design course at Carnegie Mellon University, taught by Vernelle A. A. Noel.
- Facilitated project reviews for over 50 students working in teams, providing feedback to support their growth in computational design practices.

Student Volunteer at des[AI]gn conference 2024, American Institute of Architecture Students   2024.10
- Assisted in workshop setup, documented the sessions through photography, and facilitated the use of interactive swatch-making software for creating knit samples in Textiles Lab, Carnegie Mellon University
- Coordinated logistics and facilitated the setup for an AI panel discussion and the opening session of the conference

Suzhou International Design Week   2021.12
- Exhibited 'Layered Rafters Lodge', a design integrating traditional material framing with modern bamboo construction techniques

Design Exhibition Curatorial Assistant   2021.05
- Organized featured models and drawings for the exhibition, assisting in the re-arrangement of the architecture department's showcase