

# Ziru Wei

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## EDUCATION

<b>Carnegie Mellon University</b> <ul style="list-style-type: none"><li>Master of Science in Computational Design (HCI focus), GPA: 4.0/4.0</li><li>Thesis: <i>Towards Multimodal Interaction with Proactive Physical Agents</i> (Advised by Prof. Alexandra Ion)</li></ul>	2026.05
<b>Soochow University</b> <ul style="list-style-type: none"><li>Bachelor of Architecture, GPA: 3.7/4.0</li></ul>	2024.06

## 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)

## 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. Accepted as an abstract to the 4S 2025 Conference: Reverberations, September 3-6, 2025 in Seattle, WA.

## 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

## 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