Ziru Wei

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Research Interests: Multimodal Interaction, User Modeling, Human-Robot Interaction, Extended Reality

Education

Carnegie Mellon University May 2026
- Master of Science in Computational Design (research-based, HCI focus), GPA: 4.14/4.33
- Thesis Topic: *Toward Interacting with Proactive Intelligence in Everyday Physical Environments* (Advised by Prof. Alexandra Ion)

Soochow University Jun 2024
- Bachelor of Architecture, GPA: 3.7/4.0

Research Works

(Under review at 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

(Under review at 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)*, 2022 (peer-reviewed, ~30% acceptance, top-tier computational design conference)

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, Interactive Structures Lab, Human-Computer Interaction Institute, Carnegie Mellon University Mar 2025 - Present
- Designed and conducted empirical human-robot interaction studies, investigating how users perceive proactive robot assistance across contexts, tasks, and proactivity; synthesized quantitative and qualitative results into design recommendations for unobtrusive assistance by physical agents
- Developing an optimizer that selects, orchestrates, and schedules distributed multimodal outputs to initiate contextually appropriate assistance (ongoing)

Research Intern, WHY Research Lab, Carnegie Mellon University Aug 2024 - Jan 2025
- Replicated the "Ladybug" project by disassembling and re-soldering disk drives and integrating a Raspberry Pi
- Built the WasteStation database in Notion to map connections between components and potential reuse applications

Research Assistant, Humachine Lab, Soochow University Aug 2021 - Jul 2022
- Implemented MR workflows for nonlinear façade assembly and designed four on-site collaboration methods to maximize the utilization of limited MR devices within a small, low-tech construction team
- Documented the design-to-construction process and contributed to academic writing

Skills

Technical
- Hardware: Arduino, Raspberry Pi
- Programming Languages: Python, R, C#, Pascal, HTML, CSS, JavaScript

Design & Production
- Software: Unity, 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)

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 Guest Reviewer, Fundamentals of Computational Design (62-275), Spring 2025, Carnegie Mellon University Jan 2025 - May 2025

- Provided feedback on team-based computational design projects for over 50 students

Student Volunteer at des[AI]gn conference 2024, American Institute of Architecture Students Oct 2024

- 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 Dec 2021

- Exhibited 'Layered Rafters Lodge', a design integrating traditional material framing with modern bamboo construction techniques

Design Exhibition Curatorial Assistant May 2021

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