Hongfei Ji

Email: hongfeij@outlook.com
Website: https://www.hongfeiji.com/en/research

Education

2024 - **Georgia Institute of Technology** | Online
M.S. in Computer Science (Specialization: Interactive Intelligence)

2022 - 2024 **Carnegie Mellon University** | Pittsburgh, PA
M.S. in Computational Design
Dissertation: Just an error? - Prototyping embodied experiences of LLM hallucinations
Committee: Daragh Byrne, Sinan Goral

2016 - 2022 **Tongji University** | Shanghai, China
B.Arch, Minor in German, French
Thesis Project: Rule-Driven Algorithmic Cities - A Study of the Metaverse Space Framework

Research Experience

2025.08- **Graduate Research Assistant**
Expressive Machinery Lab
Georgia Institute of Technology, School of Literature, Media, and Communication
Advisor: Brian Magerko

- Investigated how AI-mediated embodied interaction can support cultural exchange in a dual-location co-dancing installation (LuminAI Duet).
- Designed and implemented a secure data-exchange pipeline for asynchronous movement sharing and crowd-sourced AI dataset creation.
- Implemented the front-end interface and integrated it with the installation's tangible components.

2025.03- **Graduate Research Assistant**

Extended Horizon Lab
Carnegie Mellon University, Human-Computer Interaction Institute
North Carolina State University, Department of Computer Science
Advisor: Georgie Qiao Jin

- Investigated AI-supported domestic physical activity play between children and their parents.
- Conducted a systematic literature review on child–AI interaction and physical activity play.
- Developed design ethnography and semi-structured interview protocols, recruited and conducted user studies with 10+ families (children aged 3–10).
- First-authored poster titled ""Jump, Stop, Jump Again": Exploring AI-Supported Physical Activity Play at Home with Parents and Children," published and presented at CHI Play 2025.
- First-authored paper titled "Three, Two, One, Jump!": Opportunities and Challenges of AI-Supported Children's Physical Activity Play at Home," under review for CHI 2026.
- Designing a projection-based AI-MR agentic system to support family physical activity play at home (Work in progress).

2024.01-
2025.02

2025.10-

Graduate Research Associate
hyperSENSE: Embodied Computations Lab
Carnegie Mellon University, School of Design
Advisor: Dina El-Zanfaly

AI-MR in Embodied Craft Learning
- Investigated the use of AI-MR systems to support embodied learning in pottery making.
- Conducted a systematic literature review on embodied interaction, craft in HCI, and AI-MR.
- Designed and implemented a real-time instructional system integrating multimodal 3D learning (voice commands, video, and gestures), CV-based shape comparison/improvisation, and rule-based/LLM-enhanced multimodal feedback.
- Developed contextual interview protocols and surveys for mixed-method analysis.
- Engaged with the ceramics community in Pittsburgh and conducted 20+ user studies, including ethnographic observations and prototyping with instructors and learners.
- First-authored poster titled "MRClay: An MR+AI System for Embodied Craft Learning," presented at XRTC Symposium, Carnegie Mellon University.
- First-authored paper titled "Reshaping Embodied Craft Learning with AI-MR: Insights from Designing Wheel-Throwing Guiding System," published and presented in DIS 2025.
- Investigating AI- and MR-based design strategies for supporting ceramists during hands-on embodied tasks (Work in progress).

XR Welding

- Supported research activities, including conducting user studies, setting up welding workstations, and debugging real-time data transfer scripts.

2023.09-2024.05 **Master's Thesis Research**

Carnegie Mellon University, School of Architecture

Advisor: Daragh Byrne, Sinan Goral

- Investigated how to prototype LLM hallucination experiences through embodied media.

- Designed and developed speculative design prototypes, including tangible voice assistant, multimodal chatbot, and immersive brainstorming tool.
- Conducted observational studies, pilot interviews and participatory workshops to identify interaction characteristics of LLM hallucination and propose prototyping guidelines for designers.
- First-authored poster titled "“Just an error? - Prototyping embodied experiences of LLM hallucinations," presented at C&C 2024.

Publications & Presentations

Publications

2025 **Hongfei Ji**, Yuhan Yuan, and Qiao Jin. "Three, Two, One, Jump!": Opportunities and Challenges of AI-Supported Children's Physical Activity Play at Home. Proceedings of the 2026 CHI Conference on Human Factors in Computing Systems. (Revise and Resubmit)

2025 **Hongfei Ji**, Yuhan Yuan, and Qiao Jin. 2025. “Jump, Stop, Jump Again”: Exploring AI-Supported Physical Activity Play at Home with Parents and Children. In Companion Proceedings of the Annual Symposium on Computer-Human Interaction in Play (CHI PLAY Companion '25). Association for Computing Machinery, New York, NY, USA, 215–221. https://doi.org/10.1145/3744736.3749349

2025 **Hongfei Ji**, Peiyu Hu, and Dina EL-Zanfaly. Reshaping Craft Learning: Insights from Designing an AI-Augmented MR System for Wheel-Throwing. Proceedings of the 2025 ACM Designing Interactive Systems Conference, 2549–2573. https://doi.org/10.1145/3715336.3735844

Manuscripts and Presentations

2024 **Hongfei Ji**, Dina El-Zanfaly. “XRClay: An XR+AI System for Embodied Craft Learning”. Extended Reality Technology Center Symposium, Carnegie Mellon University. [Poster Link]

2024 **Hongfei Ji**, Sinan Goral, Daragh Byrne. "Just an error?" - Prototyping embodied experiences of LLM hallucinations. Proceedings of the 16th Conference on Creativity&Cognition. (Volunteer Poster Presentation) [Poster Link]

2024 **Hongfei Ji**, Sinan Goral, Daragh Byrne. "Just an error?" - Prototyping embodied experiences of LLM hallucinations. Master's Thesis for the Master of Science in Computational Design (MSCD), Carnegie Mellon University, https://doi.org/10.1184/R1/25979272

Professional Service

Reviewer

2025 ACM Creativity & Cognition 2025

Student Volunteer

2025 ACM Designing Interactive Systems Conference 2025

2024 ACM Creativity & Cognition 2024

Grants, honours & awards

2024 **MSCD Research Support Fund ($1000)**, School of Architecture, CMU

2023 **MSCD Research Support Fund ($800)**, School of Architecture, CMU

2023-2024 **Academic Commendation**, School of Architecture, CMU

2022 **Outstanding Graduates of Shanghai**, Ministry of Education of PRC

2022 **Feng Chi-chun Scholarship**, The College of Architecture and Urban Planning, Tongji University

2018 **China National Scholarship**, Ministry of Education of PRC

Relevant Coursework

2025 **CS 7461: Machine Learning**, GT

CS 6795: Introduction to Cognitive Science, GT

2024 **CS 7637: Knowledge-Based AI**, GT

15-494: Cognitive Robotics, CMU

2023 **17-514: Principles of Software Construction**, CMU

48-734: Possibilistic Design, CMU

48-758: Responsive Mobile Environments, CMU

05-610: User-Centered Research and Evaluation, CMU

2022 **05-685: Prototyping Algorithm Experience**, CMU

Skills

Programming: C, C#, Javascript/Typescript, Java, Python
Design/Modeling Tools: Figma, Adobe Creative Cloud, Rhino/AutoCAD, QGIS, Unity, Blender
Design Knowledge: Design Thinking & Research, User Research and Evaluation (Usability Test, Contextual Interview, Survey, Participatory Design), Prototyping (Physical/Wireframe/Piggyback Prototyping)
Programming Knowledge: Data visualization, XR Development, Web Application Development, Computer System/Network, Cloud Computing, Machine Learning/Prompt Engineering, Physical Computing (Arduino, Raspberry Pi)
Language: Mandarin (native), English (fluent), German (intermediate), French (intermediate)