

Keru Wang

MIXED REALITY · AI · HCI · ROBOTICS · MIXED-METHOD RESEARCH

☎ (+1) 646-660-3753 | ✉ keru.wang@nyu.edu | 🏠 keruwang.github.io | 🎓 google scholar

Summary

I am a fourth-year Ph.D. candidate at NYU Courant's Future Reality Lab, with research interests evolving from mixed reality and multimodal interaction design toward human-AI collaboration and understanding alignment. My current work investigates proactive AI agents that interpret user needs from interaction context. I envision a future where intelligent systems share mutual understanding with humans and engage as collaborative partners rather than passive tools.

Building on my background in mixed reality, AI, robotics, and mixed-method research, I bring strong skills in prototyping and evaluating interactive systems. I have extensive experience in interdisciplinary collaboration across art and technology, and excel at transforming open-ended ideas into rigorous, actionable research. My work has led to demos and publications at top-tier venues including SIGGRAPH, UIST, VRST, TEL, and DIS.

Skills: JavaScript, C/C++, Python, WebGL, WebXR, Unity, Unreal Engine, Matlab, Arduino.

Professional Experience

New York University, Future Reality Lab

Supervisor: Prof. Ken Perlin

STUDENT RESEARCHER

Sept. 2022 – present

- Developed a WebXR-based collaborative mixed reality platform with a customized shader and multimodal interfaces, deployed in research projects and graduate-level VR courses at NYU and KAIST. | Github | Demo
- Built 3D content creation tools in VR using data-driven generative model, with the project receiving the Best Paper Award at ACM VRST 2024.
- Developed robotic interfaces for mixed reality experiences, enabling haptic feedback and the actuation of passive objects. | Demo1 | Demo2
- Lead research on proactive LLM-based agents for group discussion and the evaluation of human-AI mutual understanding.

MIT Media Lab, Tangible Media Group

Supervisor: Prof. Hiroshi Ishii

RESEARCH INTERN

Jun. 2021 – Dec. 2021

- Led the design and development of a new version of SandScape for permanent exhibition in the MIT Museum—a tangible interface for designing and exploring landscapes by manipulating sand with real-time simulations projected onto the sandbox. | Gallery
- Utilized openFrameworks (C++) and libigl to reconstruct the 3D mesh of the SandScape sandbox in real-time. Developed dynamic simulations to visualize features such as elevation, slope, and water drainage. | Github

MiSynth

CEO: Senaida Ng

SOFTWARE ENGINEER

Sep. 2020 – Jan. 2021

- MiSynth is a startup company that uses synaptic technology and brain-computer interfaces for music creation. | Website
- Created data steaming pipeline from Emotive brainwave collecting headset to front-end music creation software in JavaScript
- Developed web-based user interaction interfaces for EEG-based music creation in JavaScript.
- Won the Most Impact Award in NYC Media Lab and ASCAP Immersive Studio Challenge. | News

Harvard Medical School

Supervisor: Dr. Michael Chou

DATA VISUALIZATION DESIGNER

Sep. 2020 – Jan. 2021

- Modeled and visualized the impact of mask-wearing and social distancing on the spread of COVID-19.
- Visualized the results using JavaScript in a web-based program.

Publication

- [C.1] Hushen Hu, **Keru Wang**, Yuli Shao, Jan Plass, Zhu Wang, Ken Perlin. *Generative Terrain Authoring with Mid-air Hand Sketching in Virtual Reality*. ACM VRST, 2024. 🏆 **Best Paper Award**
- [C.2] **Keru Wang**, Zhu Wang, Ken Nakagaki, Ken Perlin. "Push-That-There": *Tabletop Multi-robot Object Manipulation via Multimodal 'Object-level Instruction'*. ACM DIS, 2024.
- [C.3] Zhenyi He, **Keru Wang**, Yushan (Brandon) Feng, Ruofei Du, Ken Perlin. *GazeChat: Enhancing Virtual Conferences with Gaze-aware 3D Photos*. ACM UIST, 2021.
- [C.4] **Keru Wang**, Zhu Wang, Karl Rosenberg, Zhenyi He, Dong Woo Yoo, Un Joo Christopher, Ken Perlin. *Mixed Reality Collaboration for Complementary Working Styles*. ACM SIGGRAPH Immersive Pavilion, 2022.
- [C.5] **Keru Wang**, Zhu Wang, Ken Perlin. *Asymmetrical VR for Education*. ACM SIGGRAPH Immersive Pavilion, 2023.
- [C.6] **Keru Wang**, Pincun Liu, Hushen Hu, Xiaohan Liu, Zhu Wang, Ken Perlin. *A Collaborative Multimodal XR Physical Design Environment*. ACM SIGGRAPH ASIA XR Exhibition, 2024.

- [C.7] Yuhan Wang, **Keru Wang**, Zhu Wang, Ken Perlin. *Robotecture: A Modular Shape-changing Interface Using Actuated Support Beams*. ACM TEI, 2025.
- [C.8] Hushen Hu, **Keru Wang**, Zhu Wang, Ken Perlin. *Generative Terrain Fast Prototyping in Virtual Reality with Freehand Sketching Interface*. ACM SIGGRAPH ASIA XR Exhibition, 2024.
- [C.9] Yi Wu, Agnieszka Roginska, **Keru Wang**, Zhu Wang, Ken Perlin. *A Spatial Audio System for Co-located Multi-participant Extended Reality Experiences*. ICAD, 2024.
- [C.10] **Keru Wang**, Yi Wu, Pincun Liu, Zhu Wang, Agnieszka Roginska, Qi Sun, Ken Perlin. *Audio-influenced Pseudo-patics: A Review of Effects, Applications, and Research Directions*. AM.ICAD, 2025.
- [C.11] **Keru Wang**, Pincun Liu, Ken Perlin. *Exploring Tangible and Graphical Interfaces for Large Virtual Object Manipulation* ACM Siggraph I3D, 2025

WORK IN PROGRESS

- [P.1] **Keru Wang**, Pincun Liu, Saining Xie, Ken Perlin. *An Investigation of Proactive AI Agents for Reducing Idea Stagnation in Group Brainstorming* (Under review)
- [P.2] **Keru Wang**, Pincun Liu, Saining Xie, Ken Perlin. *Should I Speak Up? Aligning Proactive AI Interventions with Human Expectations in Group Brainstorming* (Under review)
- [P.3] Lou De Bel-Air, Luca Morando, Ruitao Chen, **Keru Wang**, Benjamin Jarvis, Charbel Toumieh, Yang Zhou, Ken Perlin, Dario Floreano, Giuseppe Loianno *Flying Together: Human-Guided Immersive Shared Control for Aerial Robot Teams in Unknown Environments* (Under review))

Honors & Awards

- 2024 **Best Paper Award**, ACM VRST
- 2021 **Dean's Undergraduate Research Fund**, NYU Courant Institute
- 2021 **Most Impact Award**, NYC Media Lab and ASCAP Immersive Studio Challenge
- 2019 **HKSAR Government Scholarship**, City University of Hong Kong

Education

New York University, Courant Institute

PH.D. CANDIDATE IN COMPUTER SCIENCE, SUPERVISED BY **PROF. KEN PERLIN**

2022 – Present

New York University, Courant Institute

B.A IN COMPUTER SCIENCE, DEAN'S LIST 2019 - 2022

2019 – 2022

New York University, Tisch School of the Arts

B.A IN INTERACTIVE MEDIA ARTS, DEAN'S LIST 2019 - 2022

2019 – 2022

Talks and Exhibitions

- 2024 **Talk on Mixed Reality Workspace**, ACM SIGGRAPH ASIA *Tokyo, Japan*
- 2024 **Turning Ideas into Impact: How to start your journey in HCI**, Center for Digital Media *Vancouver, Canada*
- 2022 **Permanent Exhibition for SandScape**, MIT Museum *Boston, USA*
- 2022 **Panel discussion on VR for Education**, ACM SIGGRAPH *Vancouver, Canada*

Teaching Experience

Teaching Assistant

NYU Courant Institute

ASSISTED PROFESSORS IN LECTURE PREPARATION, TUTORIALS, DEMOS, OFFICE HOURS, ASSIGNMENT EVALUATIONS, AND EXAM.

- CSCI-GA.2270 Computer Graphics (Graduate level) *Fall 2025*
- CSCI-GA.2270 Computer Graphics (Graduate level) *Fall 2024*
- CSCI-GA.2274 AI Graphics (Graduate level) *Spring 2024*
- CSCI-GA.3033 Virtual Reality (Graduate level) *Spring 2022*
- CSCI-UA.0480 Computer Graphics (Undergraduate level) *Fall 2021, Fall 2022, Fall 2023*
- CSCI-UA.0310 Basic Algorithm (Undergraduate level) *Fall 2020, Spring 2021, Spring 2023*