

Keru Wang

MIXED REALITY · AI · HCI · HAPTICS · PRECEPTION

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Summary

PhD candidate at NYU Courant with broad interests in mixed reality, computer graphics, AI, and robotics to prototype the future of interaction and collaboration. Specialized in developing multimodal interfaces and haptic interactions. Experienced in interdisciplinary collaboration across art, technology, and perception studies, excelling in teamwork with diverse groups. A fast learner with a proactive approach to exploring new areas and transforming ideas into detailed, actionable research plans. My work has led to demos and publications at top-tier conferences, including SIGGRAPH, UIST, VRST, TEI, 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

Aug. 2021 – 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.
- Explored audio-based pseudo-haptics with audio and perception researchers to enhance virtual experiences via perception modeling.
- Developed robotic interfaces for mixed reality experiences, enabling haptic feedback and the actuation of passive objects. | Demo1 | Demo2

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.

Selected Publication

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

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

Academic Service

Reviewer ACM SIGGRAPH ASIA, UIST, CHI, IUI, ETRA, TEI, ICMI, ECIS IEEE ISMAR, VR	2022 – Present
Student Volunteer IEEE ISMAR 2021 ACM SIGGRAPH 2018, 2020	

Talks and Exhibitions

2024	Talk on Collaborative XR , ACM SIGGRAPH ASIA	Tokyo, Japan
2024	Talk on Art, Science, and Research , 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 ASSISTED PROFESSORS IN LECTURE PREPARATION, TUTORIALS, DEMOS, OFFICE HOURS, ASSIGNMENT EVALUATIONS, AND EXAM.	NYU Courant Institute
• 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