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.

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, Xiaoan 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. *(Will be publically available in Mar 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.

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 *2022 – Present*

IEEE ISMAR, VR

Student Volunteer

IEEE ISMAR 2021

ACM SIGGRAPH 2018, 2020

Workshop Organizor

IEEE VR 2024

- XRMEMORY: THE FUTURE OF MEMORY CAPTURE AND REPLAY THROUGH XR AND AI

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 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*