ADAM Yuzhen Zhang

Adamyuzhenzhang.github.io
yz869@cornell.edu
607-262-3859
1 E Loop Rd, New York, NY, 10044

Research Interests

My cross-disciplinary background in design and technology kindled my passion for designing, building and navigating the interaction around us. Trained in XR development, digital fabrication, and hardware prototyping, I aim to investigate how virtual augmentation could extend physical experiences in a hybrid reality.

Education

2021 - Present **Cornell University** - Cornell Tech - Jacobs Technion
Dual Master of Science Degrees:
Information Systems (Cornell); Applied Information Science (Technion)
Cumulative GPA 4.111/4.0; expected completion: May, 2023.

2016 - 2021 **Cornell University** - College of Architecture, Art, and Planning
Bachelor of Architecture; Computer Science Minor.
Cumulative GPA 3.856/4.0.

Academic Experiences

2022 Apr - Present **Research Assistant; Future Automation Research Laboratory at Cornell, NYC**
Advisor: Wendy Ju; In preparation for CHI 2023

- Collaborated with Postdoctoral Associate Sharon Ayalon on the Roosevelt Island Digital Twin Project that visually narrates global warming and water level rise. Conducted experiment to over 60 participants along the circular Red Bus ride.
- Developed three Unity applications:
    - A panoramic video renderer with cinematic representation of flooding scenarios and realistic model of the Roosevelt Island.
    - An Android app that broadcasts the phone's geolocation to the MQTT broker.
    - An Oculus Quest app that syncs the virtual experience with physical movement through playing the panoramic video according to the geodata from the broker.

2022 Jun - Present **Research Intern; XR Collaboratory at Cornell, NYC**

- Assisted Director Harald Haraldsson on the development of the course CS5650 Virtual and Augmented Reality.
- Designed and developed a custom Unity XR package from scratch based on OpenXR.
- Implemented tracking, locomotion, and interaction for Oculus VR.
- Created unit tests, documentation, and guidelines for student use.

2022 May - Jun **Graduate Student Lecturer, Cornell University, Ithaca**

- Designed and taught ARCH1510 Introduction to Virtual and Augmented Reality, 3 credits.
- Lectured and guided individual projects to help students explore VR's role in an iterative design workflow using Gravity Sketch and Unreal Engine 4.
- Developed a template VR project in Unreal to support students' designs, coupled with documentation.
- Curated a VR exhibition to showcase the applications built by students.

2020 Jun - Aug **Research Associate; Virtual Places VR Research Lab at Cornell AAP, Ithaca**
Advisor: Henry Richardson

- Worked in a team of three to extend the city generation plugins WREN and Vitruvio in Unreal Engine 4.
- Developed a Section plugin for creating and displaying cuts through meshes; and an AI Pedestrian Simulation plugin for studying pedestrian circulation in urban environments.
- Implemented 2D and spatial interfaces for both tools to be used in VR.

Selected Design and Research Projects

2022 Jan - Present **MR Heavy Machine Prototyping, Specialization Project at Cornell Tech**
Advisors: Alexandra Bremers, David Goedicke, Wendy Ju
Collaborators: Hongju Wu and Yifu Liu
Funder: the AMADA Group
Prototyped the operation of AMADA's press brake product through multimedia approaches to improve training and prevent accidents. Experimented with head-mounted AR, spatial projection, and Arduino devices.

2022 Jan - May **The Cube – An Interactive XR Device, HCI Graduate Studio at Cornell**
Advisor: Wendy Ju
Proposed the Cube, an interactive device that redefines the manipulation of virtual objects. Created cardboard and video studies. Developed a virtual prototype in Oculus Quest with see-through and hand tracking and a physical prototype with 3D printed structure and Raspberry Pi. Finalized an AR application that bridged the virtual with the physical to study multimodal interactions based on the Cube.

2022 Jan - May **Continuous Movement Using Blurred Vignettes in VR, XR Collaboratory at Cornell**
Advisor: Harald Haraldsson
Collaborators: Hoyoung Jun and Yujie Shao
Proposed a VR locomotion method that restricted a user's peripheral view with gradual gaussian blurs. Implemented a testing task in Unity. Conducted experiments with 12 participants. Analyzed the method's effectiveness on vection reduction.

2021 Jan - May **VR Anthropocene – Spatial Composition Through Virtual Locomotion**
B. Arch Thesis Project, Cornell University
Advisors: Jenny Sabin and Sasa Zivkovic
Investigated *Redirected Walking*'s impact on the formation of virtual habitable spaces. Designed an augmented urban housing unit to study how the unfolding virtual addition could reform physical boundaries and redefine programs. Generated a prototype for the future way of living.

Honors

2021 - 2023 **Cornell Tech Merit Fellowship**

2021 **Clifton Beckwith Brown Memorial Medal**
This medal is awarded to one graduating student who has attained the highest cumulative average grade in architectural design over the entire course of study.

2019 - 2021 **Dean's List**
Spring 19, Fall 19, Fall 20, Spring 21

2020 - 2021 **Cornell Guorong Jiang Merit Scholarship & Cornell International Scholarship**

2017 **Winner; Cornell Architecture Baird Prize**
Nature-watching-station design competition at Cornell AAP.

Technical Skills

Interaction Engines Unity, Unreal Engine, Twinmotion

Computer Languages C# for Unity, C++ for Unreal Engine, Python, Java, Javascript

Design Tools 2D: Adobe Creative Suite, AutoCAD
3D: Rhinoceros, Grasshopper, Blender, V-Ray, Lumion
VR: Arkio, Gravity Sketch, Tilt Brush

Prototyping Tools Raspberry Pi, Arduino, 3D Printer, Laser Cutter, CNC

References

Wendy Ju
Associate Professor, Information Science
Jacobs Cornell-Technion Institute, Cornell Tech
wendyju@cornell.edu

Jenny Sabin
Associate Dean, Design Initiatives
Associate Professor, Architecture
Cornell University
jes557@cornell.edu

Henry Richardson
Professor, Architecture
Cornell University
hwr1@cornell.edu

Harald Haraldsson
Director, XR Collaboratory
Cornell Tech
hh586@cornell.edu