

Ellen Yiyin Gu

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Education

Purdue University Aug 2023 - May 2028
PhD Student in Computer Science (Expected)

- Advisor: Dr. Voicu Popescu
- Coursework:
 - CS 535 Interactive Computer Graphics: **A+**
 - CS 590 VRAR: **A+**

University of North Carolina at Chapel Hill Aug 2019 – May 2023

- BSc in Computer Science Honors
Minor in Mathematics and Cognitive Science
- Carolina Scholars (Full Scholarship)
 - Member of Phi Beta Kappa (Selected in Junior Year)

Research Experience

Co-located Immersive Visualization for Large Lectures May 2024 – present
Research Assistant of Associate Professor Voicu Popescu

- Designed and implemented a large-scale co-located Extended Reality system in Unity3D for interactive 3D visualizations in lectures.
- Enabled small group discussions and interactive panels, where groups of four students could collaboratively answer questions and see real-time changes made by others.
- Developed an avatar system for the instructor to remotely appear near students without requiring physical movement.
- Target Device: Meta Quest 3

Stereoscopic Real-World Perspective Sharing for Collaborative Tasks Mar 2024 – present
Research Assistant of Associate Professor Voicu Popescu

- Implemented a stereoscopic Extended Reality view-sharing algorithm without room geometry acquisition.
- Optimized task completion time by reducing the need for physical movement, making the process more efficient and accessible without inducing motion sickness.
- Target Device: Meta Quest 3

ACHIEVE: An Extended Reality System for AI Education Sep 2023 – Aug 2024
Research Assistant of Associate Professor Voicu Popescu

- Designed and implemented an Extended Reality system in Unity3D that provides users with an interactive view of a neural network, enhancing students' comprehension of abstract AI concepts.
- Target Device: Meta Quest 3

Vision Aid Eyeglasses with Deep Scene Understanding for People with Vision Impairments Dec 2020 – Feb 2022

Research Assistant of Research Assistant Professor Praneeth Chakravarthula

- Developed a voice-guided system to assist individuals with vision impairments by identifying outdoor hazards.
- Integrated real-time deep scene understanding and object detection to enhance system responsiveness and accuracy in dynamic outdoor environments.
- Target Device: Microsoft Hololens 1

Interaction with Information in Immersive Virtual Environments

June 2020 – Feb 2021

Research Assistant of Research Assistant Professor Praneeth Chakravarthula

- Developed an innovative virtual reality environment in Unity3D to enhance information retrieval.
- Target Device: Meta Quest 2

Publications

Virtual and Augmented Reality in Science, Technology, Engineering, and Mathematics (STEM) Education: An Umbrella Review

Aug 2024

Yiqun Zhang, Miguel A. Feijoo-Garcia , *Yiyin Gu*, Voicu Popescu, Bedrich Benes, Alejandra J. Magana
10.3390/info15090515

An XR Environment for AI Education: Design and First Implementation

March 2024

Yiyin Gu, Miguel A. Feijoo-Garcia, Yiqun Zhang, Alejandra J. Magana, Bedrich Benes, Voicu Popescu
10.1109/VRW62533.2024.00032

Interacting with Information in Immersive Virtual Environments

July 2021

Austin R. Ward, *Yiyin Gu*, Sandeep Avula, Praneeth Chakravarthula
10.1145/3404835.3462787

Technologies

Languages: C#, C++, C, Python, JavaScript

Tools & Frameworks: Unity3D, OpenCV, PyTorch, React

Specializations: Virtual Reality, Augmented Reality, Computer Vision