Yuqi Zhou

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OBJECTIVE

CS Ph.D. candidate in Virtual, Augmented, and Mixed Reality; Human-Computer Interaction; Haptics; Robotics

EDUCATION

***Ph.D. in Computer Science**, advisor: Dr. Voicu Popescu, GPA: 3.97* — Sep. 2020 – May 2026
Department of Computer Science, Purdue University — in progress

***B.E. in Computer Science,** GPA: 3.73* — Sep. 2016 – May 2020
Department of Computer Science, Rose-Hulman Institute of Technology

PUBLICATIONS

1. **Zhou, Yuqi**, and Voicu Popescu. “Dynamic Redirection for Safe Interaction with ETHD-Simulated Virtual Objects.” Conditionally Accepted in the Journal Track of IEEE Virtual Reality and 3D User Interfaces, VR 2025. To Appear.
2. **Zhou, Yuqi**, and Voicu Popescu. "Detectability of ETHD Position and Speed Redirection for VR Haptics." 2024 IEEE International Symposium on Mixed and Augmented Reality (ISMAR). IEEE, 2024.
3. **Zhou, Yuqi**, and Voicu Popescu. “CloVR: Fast-Startup Low-Latency Cloud VR.” IEEE Transactions on Visualization and Computer Graphics. Journal track of IEEE Virtual Reality and 3D User Interfaces, VR 2024.
4. **Zhou, Yuqi**, and Voicu Popescu, “Look-Over-There: Real-World Co-Located Cross-Referencing Using Augmented Reality”, 19th International Conference on Human Computer Interaction Theory and Applications, HUCAPP 2024.
5. **Zhou, Yuqi**, and Voicu Popescu, “Meet Me Half-Way: Concerted Physical and Virtual World Manipulations for Effective Haptic Feedback in VR”, IEEE VR 2024 Workshop on Novel Input Devices and Interaction Techniques (NIDIT) 2024.
6. **Zhou, Yuqi**, and Voicu Popescu. "Dynamic Redirection for VR Haptics with a Handheld Stick." IEEE Transactions on Visual. and Computer Graphics 29.5 (2023): 2753-2762. Journal track of IEEE Virtual Reality and 3D User Interfaces, VR 2023.
7. Liao, Shuqi, **Yuqi Zhou**, and Voicu Popescu. "AR Interfaces for Disocclusion-A Comparative Study." 2023 IEEE Conference Virtual Reality and 3D User Interfaces (VR). IEEE, 2023.
8. **Zhou, Yuqi**, and Voicu Popescu. "Tapping with a handheld stick in VR: Redirection detection thresholds for passive haptic feedback." 2022 IEEE Conference on Virtual Reality and 3D User Interfaces (VR). IEEE, 2022.

RESEARCH PROJECTS

Thesis Research: Haptic Feedback for Virtual Reality — Jan. 2021 – Present

- Haptic feedback for VR using novel redirection algorithms and a custom encountered type haptic device (ETHD).
- Developed redirection algorithms for stationary and dynamic virtual objects to bridge position, speed, and shape virtual to physical differences in a way that is undetectable to the user.
- Quantified detectability thresholds using two-alternative forced choice (2AFC) psychophysical experiments.
- Designed and implemented a $300 60cm x 60cm x 40cm Cartesian robot ETHD for physical haptic redirection.
- Developed hybrid virtual and physical redirection algorithms for believable and safe haptic feedback.
- Ongoing work: haptic feedback with wearable devices and encountered-type haptic displays (ETHD).

Distributed Virtual Reality — Jun. 2022 – Present

- Porting complex virtual environments to thin VR clients in distributed collaborative VR applications.
- Developed a near-far virtual environment partitioning scheme to limit the client rendering load while preserving visual continuity between the near and far regions.
- Support for fast loading with continuous progressive refinement, and scalability with the number of clients.

Attention Guidance with Augmented Reality — Nov. 2021 – May 2022

- Developed a collaborative Augmented Reality application for user A to point a real-world landmark to user B.
- The A and B devices (tablets or phones) are connected through a homography built on shared scene features, and accurate directional guidance is given through a transparent display paradigm.

Undergraduate Thesis Research: Micro-expression Recognition (Advisor: Dr. Jason Yoder) — Sep. 2019 – Apr. 2020

- Developed a dataset-agnostic method for combining micro-expressions datasets based on the Facial Action Coding System (FACS).
- Received a larger f1 score than the state-of-the-art on the task of micro-expression recognition using deep learning and CNN.

LANGUAGE AND TOOLS

Languages: C#, Python, C++, Java
Tools: Unity, Arduino, ARCore, OpenCV