

Haoyu Tan

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EDUCATION

University of Minnesota, Twin Cities

PhD in Computer Science | Advisor: Dr. Victoria Interrante

Minneapolis, MN, USA

Sep 2023 - May 2028 (expected)

○ GPA: 4.0/4.0

University of Minnesota, Twin Cities

M.S in Computer Science | Advisor: Dr. Evan Suma Rosenberg (PhD co-advise)

Minneapolis, MN, USA

Sep 2020 - May 2026

○ GPA: 4.0/4.0

State University of New York at Stony Brook (Stony Brook University)

B.S in Computer Science

Stony Brook, NY, USA

Aug 2015 - Dec 2019

○ GPA: 3.77/4.0

RESEARCH INTERESTS

Augmented reality (AR) and virtual reality (VR); cybersickness in VR; user interface design for AR/VR; human computer interaction (HCI) in AR/VR;

Publication

- [1] **Haoyu Tan**, Tongyu Nie, Evan Suma Rosenberg. *Invisible Mesh: Effects of X-Ray Vision Metaphors on Depth Perception in Optical-See-Through Augmented Reality*. 2024 IEEE Conference Virtual Reality and 3D User Interfaces (VR), Orlando, FL, USA, 2024, pp. 376-386, doi: 10.1109/VR58804.2024.00059. [[website](#)]
- [2] Ville Cantory, Darya Biparva, **Haoyu Tan**, Tongyu Nie, John Schroeder, Ruofei Du, Victoria Interrante, and Piotr Didyk. *Enhancing Foveated Rendering with Weighted Reservoir Sampling*. In The 18th ACM SIGGRAPH Conference on Motion, Interaction, and Games (MIG '25), December 03–05, 2025, Zurich, Switzerland. ACM, New York, NY, USA, 12 pages. [[arXiv version](#)]

Other Research Experience

Using Motion Vectors for Cybersickness Mitigation

Mar 2024 - Present

- Compared and analyzed the difference between dense-optical flow and motion vectors
- Conducted pixel analysis along motion vectors in an HLSL shader
- Designed and implemented multiple post-processing visual effects based on pixel analysis results to mitigate cybersickness using Unity C# and compute shaders
- Plan to conduct a user study to evaluate the effectiveness of visual effects in mitigating cybersickness
- Expected paper to be submitted to ISMAR 2026

Meta-Analysis of Carryover Effects in Cybersickness Research

June 2024 - May 2025

- Collaborated in defining literature review goals, formulating research questions, and determining the criteria for paper selection
- Performed an exhaustive search and selected papers meeting the criteria from leading journals and conferences (e.g., IEEE VR, ISMAR, ACM CHI, IEEE TVCG).
- Participated in data processing and analysis in R
- Paper in submission to TVCG, **dataset access**

Paxos Algorithm

Advisor: Prof. Paul Fodor

Aug 2018 - Dec 2018

- Took part in group research of Paxos algorithm, a family of protocols that solves consensus issue on distributed system
- Brainstormed and suggested potential research topics and questions
- Discussed and assisted in the implementation of various types of Paxos algorithms in Java and Python

Peer Reviews

- IEEE VR 2024, 2025, 2026
- IEEE ISMAR 2025

Volunteer

- IEEE VR 2024 student volunteer

OTHER EXPERIENCE

Software Developer Intern

Information Department, Iron & Steel Group Co., LTD, Liuzhou, Guangxi, China

Jul 2017 - Aug 2017

- Added methods to retrieve and store data between front-end and back-end database in Java
- Participated in the implementation of front-end user interface using vue.js framework

SKILLS

Programming Languages: C#, C++, CSS, HTML, Java, JavaScript, Python, Perl, \LaTeX

Tools: Unity, Phaser, Processing, OpenGL, Blender, Android Studio, Git