

Yuheng Wu

1205 University Avenue, Madison, WI 53706

(608) 957-5384 | yuheng.wu@wisc.edu | <https://iamwyh.com> | GitHub: [iamwyh2019](https://github.com/iamwyh2019)

RESEARCH INTERESTS

My research focuses on **Human-Computer Interaction (HCI)**, including **Augmented Reality (AR)**, **Intelligent Interactive Systems**, and **Accessibility**. I build **AI-powered AR** systems that help blind and low vision people perceive their surroundings and carry out everyday tasks in complex, dynamic environments.

EDUCATION

University of Wisconsin-Madison

Ph.D., Computer Science (HCI)

Madison, WI

Sep. 2022 - May 2027 (expected)

Advisor: Professor Yuhang Zhao

Research focus: Augmented Reality, AI-powered Interactive Systems, Accessibility

Peking University, Summa Cum Laude

B.S., Computer Science

Beijing, China

Sep. 2018 - Jul. 2022

CONFERENCE PUBLICATIONS

What to Distinguish and How? Opportunities and Challenges of Augmenting Multiple, Cluttered Objects in Complex Scenes for People with Low Vision

Yuheng Wu, Ruijia Chen, Jaewook Lee, Jia Li, Kexin Zhang, Meng Fong Lio, Weibing Wang, Sanbrita Mondal, Jon E. Froehlich, Yapeng Tian, Yuhang Zhao

To appear in ACM SIGACCESS Conference on Computers and Accessibility (ASSETS 2026)

NaviNote: Enabling In-situ Spatial Annotation Authoring to Support Exploration and Navigation for Blind and Low Vision People

Ruijia Chen*, **Yuheng Wu***, Charlie Houseago, Filipe Gaspar, Filippo Aleotti, Dorian Gálvez-López, Oliver Johnston, Diego Mazala, Guillermo Garcia-Hernando, Maryam Bandukda, Gabriel Brostow, Jessica Van Brummelen

(* Co-first authors; equal contribution)

ACM CHI Conference on Human Factors in Computing Systems (CHI 2026)

<https://dl.acm.org/doi/10.1145/3772318.3790589>

🏆 **Honorable Mention**

AskNow: An LLM-powered Interactive System for Real-Time Question Answering in Large-Scale Classrooms

Ziqi Liu, Tony Wang, Hui-Ru Ho, **Yuheng Wu**, Yuhang Zhao, Bilge Mutlu

ACM CHI Conference on Human Factors in Computing Systems (CHI 2026)

<https://dl.acm.org/doi/10.1145/3772318.3790328>

TreeVisual: Design and evaluation of a web-based visualization tool for teaching and learning tree visualization

Brendan J. O’Handley, **Yuheng Wu**, Haobin Duan, Chaoli Wang

Proceedings of American Society for Engineering Education Annual Conference (ASEE 2022)

<https://par.nsf.gov/servlets/purl/10337480>

WORKSHOP PAPERS

Preliminary Exploration on Intelligent Social Cues in Wearable Augmented Reality to Support Passing Encounters for People with Low Vision

Ben Kosa, Kexin Zhang, **Yuheng Wu**, Sanbrita Mondal, Yuhang Zhao

Workshop: Next Steps for Augmented Reality On-the-Move: Challenges & Opportunities. CHI 2026.

PROFESSIONAL EXPERIENCE

Niantic Spatial Inc., Research and Development Intern

London, UK

Advisor: Dr. Jessica Van Brummelen; Prof. Gabriel Brostow

May 2025 - Sep. 2025

- Designed and built NaviNote, a mobile AR system for open-space exploration for blind and low-vision users, supporting last-few-meters navigation and sub-meter-accuracy spatial annotation authoring.

Microsoft Research Asia, Research Intern

Beijing, China

Advisor: Dr. Yun Wang

Jan. 2022 - Jun. 2022

- Developed a web-based system for creating animated data visualization presentations using Vue.js, d3.js, and GSAP.
- Implemented components for parsing and selecting SVG elements in data visualizations, applying 40 pre-set animations to elements, binding presentation script with animated elements, and fine-tuning animation timeline.

RESEARCH PROJECTS

NaviNote: Mobile AR for Last-Few-Meters Navigation & Spatial Annotation Authoring

May 2025 – Sep. 2025

CHI 2026, Honorable Mention | U.S. Patent Pending

- Built the first mobile AR system enabling blind and low-vision (BLV) users to author and access in-situ spatial annotations and navigate the last few meters to a destination, using Niantic VPS for sub-meter localization.
- Designed an agentic LLM backend on an orchestrator pattern, routing spoken queries to six specialized agents for scene understanding, visual/web search, annotation authoring, and navigation; answered 82.8% of 605 live user queries correctly.
- Evaluated with 18 BLV participants, significantly improving last-few-meters navigation success (14/16 vs. 6/16 for the baseline) and enhancing scene understanding and community information sharing in public environments.

SceneGlance: AI-Powered Wearable AR for Multi-Object Scene Perception

Oct. 2023 – Apr. 2026

ASSETS 2026

- Built a real-time AR system on Microsoft HoloLens 2 that recognizes, localizes, and augments multiple important objects by importance level; fine-tuned RTMDet instance-segmentation models for high-accuracy, robust detection in cluttered real-world scenes.
- Engineered a real-time client-server streaming pipeline sustaining 28.56 FPS throughput at 176 ms end-to-end latency for deployable wearable AR in real-world environments.
- Conducted two studies (12 and 13 low-vision participants) showing SceneGlance guides attention toward important objects and aids complex scene perception, and surfacing design challenges for AR in cluttered, dynamic scenes.

Real-Time AR System to Support Stair Navigation for People with Low Vision

Apr. 2025 – Present

- Combining AR with depth cameras to provide real-time AR augmentations to facilitate people with low vision in safe stair navigation.
- Investigating effective visual, audio, and haptic feedback for safe stair traversal.

SERVICE

Workshop Organizer: Co-organized the ICCV 2025 workshop on the opportunities and challenges of vision foundation models and generative AI for accessibility.

Reviewer: UIST 2026; CHI 2026; ICCV 2025; ISMAR 2024; CSCW 2024.

SKILLS & OTHERS

CV / LLM: PyTorch, OpenCV, Model Fine-Tuning, Real-time Recognition/Segmentation Pipelines, Agentic LLM Systems.

AR / VR Development: Unity, MRTK (HoloLens), OpenXR, Meta XR, Niantic VPS/Lightship, ARKit, A-Frame.

Programming Languages: Python, JavaScript, C#, C/C++, Swift, HTML/CSS, SQL.

Other skills: MATLAB, R, ReactJS, VueJS, Flask, Git.

Leadership: Led a team of 41 teaching assistants in managing all non-teaching work for the largest course at UW-Madison.

Languages: Chinese Mandarin & Cantonese (Native); English (Fluent).