

Ph.D. candidate at the Department of Computer Science, University of Virginia, Charlottesville, Virginia, United States.  
My research focuses on **human-computer interaction** in AR/VR, haptic devices, computer vision, and robotics.

## RESEARCH

- Everyday Objects as Opportunistic and Adaptive Tangible User Interfaces in MR** Mar 2025 — Now
- Detecting the human-object interaction and repurposing the object as TUIs for ad-hoc convenient interactions in MR.
  - Enabling opportunistic TUIs that can adapt to different scenarios and user needs through multimodal AI techniques.
- A Dynamic Shape Display for Enhanced On-Surface Interactions in VR** Feb 2024 — May 2025
- Built a foldable shape-changing device that uses shape approximation and visuo-haptic illusions to render VR surfaces.
  - Studies showed the system improved realism, control, and performance in 3D modeling tasks over tablet and mid-air input.
- Efficient and Ergonomic Hand Interactions through Self-Haptics in Virtual Reality** Jan 2023 — Apr 2024
- Created a hand touchpad supporting efficient VR window interactions using a ML model with 92% touch detection accuracy.
  - Built applications enabling comfortable, productive knowledge-work tasks performed directly with the hands in VR.
- Safe and Efficient Cross-Reality Interactions between VR Users and Bystanders** Aug 2022 — Dec 2023
- Conducted a large-scale user study (N=80) simulating real-world, ad-hoc bystander-VR interactions, showing that attention-grabbing robotic interfaces encouraged more engagement than traditional static interruption methods.
- Effects of Different Haptic Feedback on Precise Bimanual Interactions in VR** Mar 2021 — Nov 2022
- Compared visual-only feedback, tactile+kinesthetic feedback, and physical feedback in various precision-required tasks in VR.
  - The physical surface improved selection accuracy, tracing precision, and sketch quality over other haptic conditions.

## EXPERIENCE

- Research Assistant** Sep 2020 — Now  
UVA Ultimate User Interface Lab | With Prof. Seongkook Heo Charlottesville, VA, USA
- System design/prototyping, computer vision, machine learning, signal processing, user studies, data analysis in HCI.
- Teaching Assistant** Aug 2021 — May 2024  
University of Virginia | Department of Computer Science Charlottesville, VA, USA
- Human Computer Interaction (CS 6501), Engineering Interactive Technologies (CS 4501/6501)
- Research Assistant** Sep 2019 — Jan 2021  
UVA McIntire School of Commerce | With Prof. Lanfei Shi Charlottesville, VA, USA
- Used deep learning for dating app matching, and data analysis to detect sponsorships in YouTube videos.

## EDUCATION

- University of Virginia, Master/Ph.D., USA** GPA: 3.89/4.00 Sep 2018 — Now  
**Zhejiang University, Bachelor, China,** GPA: 3.70/4.00 Sep 2014 — Jun 2018

## TECHNICAL SKILLS

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|--------------------|--|
| <b>Hardware</b>    | Interaction Technologies, Haptic Systems, Circuit/PCB Design, 3D Modeling and Printing |
| <b>Software</b>    | Unity, Meta Oculus, Autodesk Fusion 360, Arduino, OptiTrack Tracking, Generative AI    |
| <b>Programming</b> | Python, PyTorch, Java, Javascript, C#, R, C/C++, RoS, Matlab                           |

## PUBLICATIONS

1. **Ying, W.**, Kim, Y., Rahman, A., *et al.* Redirected Pinch: Efficient and Comfortable Bare-Hand Interaction for 2D Windows in VR. *Proceedings of the CHI Conference on Human Factors in Computing Systems* (April 13-17, 2026).
2. Rahman, A., **Ying, W.**, Azim, M. A. R., *et al.* "It Feels Like I am Invited to Communicate": Mediating Ad-Hoc Bystander-VR User Interruptions Through Proactive Proxies. *Proceedings of the CHI Conference on Human Factors in Computing Systems* (April 13-17, 2026).
3. **Ying, W.** & Heo, S. Enhancing VR Sketching with a Dynamic Shape Display (**Best Paper Honorable Mention**). *ACM Symposium on Virtual Reality Software and Technology* (October 9-11, 2024).
4. Zhang, P., **Ying, W.**, Riggs, S., *et al.* MoiréTag: A Low-cost Tag for High-precision Tangible Interactions Without Active Components (**Honorable Mention**). *ACM Interactive Surfaces and Spaces Conference* (October 27-30, 2024).
5. Hu, E., Grønbaek, J. E. S., **Ying, W.**, *et al.* ThingShare: Ad-Hoc Digital Copies of Physical Objects for Sharing Things in Video Meetings. *Proceedings of the CHI Conference on Human Factors in Computing Systems* (April 23-28, 2023).
6. Hildebrandt, C., **Ying, W.**, Heo, S., *et al.* Mimicking Real Forces on a Drone Through a Haptic Suit to Enable Cost-Effective Validation. *IEEE International Conference on Robotics and Automation* (May 29-June 2, 2023).