

Fengyuan Zhu

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Education

University of Toronto

Toronto, Canada

Ph.D. in Human Computer Interaction, Department of Computer Science

Sep 2018 - Jun 2025

- Thesis: [Exploring Bidirectional Interfaces and Precise Input with Personal Devices in Extended Reality](#).
- Advisor: [Tovi Grossman](#). (NSERC Fellow, NSERC/Autodesk Industrial Research Chair in Human-Computer Interaction).
- Recipient of the *Doctoral Completion Award* in 2023 & 2024.

New York University

New York, USA

Master in Interactive Telecommunications Program, Tisch School of the Arts

Sep 2015 - Jun 2017

- Advisor: [Ken Perlin](#) (*Academy Award for Technical Achievement*) and [Daniel Rozin](#).
- Researched interactive art installations, physical computing, and multi-person VR experiences.
- Led the open-source project "Holokit" for mixed reality devices.
- Research works were featured in prominent media outlets, including [Forbes Tech](#) and [Vice](#).
- Received departmental scholarships for academic excellence in 2016 and 2017.

Peking University

Beijing, China

Bachelor of Science in Physics, School of Physics

Sep 2011 - Jun 2015

- Major in Physics, GPA: 3.7; Minor in Arts, GPA: 3.8.
- Directed the film "The Transformation of Li Qun," which earned a rating of 8.2 on [Douban](#).
- Awarded the Peking University Departmental Scholarship in 2012 and 2013.

Professional Experience

Google Labs

San Francisco, CA, May-Sep 2023

Student Researcher

Toronto, ON, Oct 2023-Mar 2024

- Supervised by [Ruofei Du](#) and [David Kim](#).
- Led research and development of cross-device interaction techniques for Android XR.
- Demo video for the project: <https://youtu.be/vSjj8C-d4qo>.

Nvidia Research

Durham, NC

Research Intern

Apr 2018 - Sep 2018

- Supervised by [Josef Spjut](#), [Morgan McGuire](#), [David Luebke](#), and [Turner Whitted](#).
- Designed and deployed ARSIM, an optical see-through AR device simulator.
- Demo video for the project: <https://youtu.be/fUINFV1vJeE>.
- Arxiv paper for the demo: <https://arxiv.org/pdf/2202.06726.pdf>.

Holojam Inc.

New York, NY

Research Engineer

Sep 2017 - Apr 2018

- Invented, designed, and deployed a co-located multi-person VR experience, led by [Ken Perlin](#) from NYU.
- Demo video for the project: <https://youtu.be/kEkL0nT3TN4>.
- Designed and deployed a mobile phone spectator system using mixed reality techniques. [Introduction webpage](#), [Demo video](#).

Project Holokit

New York, NY

Inventor

Released in May 2017

- Developed and open-sourced HoloKit, a low-cost optical see-through HMD with 6-DOF tracking, featured by TechCrunch, Gizmodo, and others.
- After being licensed to NetEase for further development, the new version—HoloKit X—was launched as a startup entirely independent of me. Although it carries the HoloKit brand, I am not involved in any capacity.
- Demo videos: [Overview](#), [Promotion](#) (over 3.6k views).

Publications

FULL PAPER

- Fengyuan Zhu**, Xun Qian, Daniel Kalmar, Mahdi Tayarani, Eric J Gonzalez, Mar Gonzalez-Franco, David Kim, Ruofei Du “Beyond the Phone: Exploring Phone-XR Integration through Multi-View Transitions for Real-World Applications” *2025 IEEE Conference Virtual Reality and 3D User Interfaces (VR '25)*, Saint Malo, France, 2025, pp. 770-780, doi:[10.1109/VR59515.2025.00099](https://doi.org/10.1109/VR59515.2025.00099).
- Fengyuan Zhu**, Mauricio Sousa, Ludwig Sidenmark, Tovi Grossman. “PhoneInVR: An Evaluation of Spatial Anchoring and Interaction Techniques for Smartphone Usage in Virtual Reality.” *In Proceedings of the 2024 CHI Conference on Human Factors in Computing Systems (CHI '24)*. Association for Computing Machinery, 14 pages. doi:[10.1145/3313831.3376233](https://doi.org/10.1145/3313831.3376233).
- Fengyuan Zhu**, Ludwig Sidenmark, Mauricio Sousa, and Tovi Grossman. “PinchLens: Applying Spatial Magnification and Adaptive Control Display Gain for Precise Selection in Virtual Reality.” *2023 IEEE International Symposium on Mixed and Augmented Reality (ISMAR '23)*, Sydney, Australia, 2023, pp. 1221-1230, doi:[10.1109/ISMAR59233.2023.00139](https://doi.org/10.1109/ISMAR59233.2023.00139).
- Fengyuan Zhu**, Zhuoyue Lyu, Mauricio Sousa, and Tovi Grossman. “Touching the Droid: Understanding and Improving Touch Precision with Mobile Devices in Virtual Reality.” *2022 IEEE International Symposium on Mixed and Augmented Reality (ISMAR '22)*, Singapore, Singapore, 2022, pp. 807-816, doi:[10.1109/ISMAR55827.2022.00099](https://doi.org/10.1109/ISMAR55827.2022.00099).
- Fengyuan Zhu** and Tovi Grossman. “BISHARE: Exploring Bidirectional Interactions Between Smartphones and Head-Mounted Augmented Reality.” *In Proceedings of the 2020 CHI Conference on Human Factors in Computing Systems (CHI '20)*. Association for Computing Machinery, 1–14. doi:[10.1145/3313831.3376233](https://doi.org/10.1145/3313831.3376233).
- Peiliang Li, Tong Qin, Botao Hu, **Fengyuan Zhu**, and Shaojie Shen. “Monocular visual-inertial state estimation for mobile augmented reality.” *2017 IEEE international symposium on mixed and augmented reality (ISMAR '17)*, Nantes, France, 2017 pp. 11-21. doi:[10.1109/ISMAR.2017.18](https://doi.org/10.1109/ISMAR.2017.18).
- Xiaojuan Ma, Ke Fang, and **Fengyuan Zhu**. “From Breakage to Icebreaker: Inspiration for Designing Technological Support for Human-Human Interaction.” *In Proceedings of the 2016 ACM Conference on Designing Interactive Systems (DIS '16)*. Association for Computing Machinery, New York, NY, USA, 403–414. doi:[10.1145/2901790.2901800](https://doi.org/10.1145/2901790.2901800).

EXTENDED ABSTRACTS

- Zhenyi He, **Fengyuan Zhu**, and Ken Perlin. “PhyShare: Sharing Physical Interaction in Virtual Reality.” *In Adjunct Publication of the 30th Annual ACM Symposium on User Interface Software and Technology (UIST '17)*. Association for Computing Machinery, New York, NY, USA, 17–19. doi:[10.1145/3131785.3131795](https://doi.org/10.1145/3131785.3131795).
- Perlin, Ken, Zhenyi He, and **Fengyuan Zhu**. “Chalktalk vr/ar.” *International SERIES on Information Systems and Management in Creative eMedia (CreMedia) 2017/2 (2018)*: 30-31.
- Fengyuan Zhu**, Ke Fang, and Xiaojuan Ma. “Exploring the Effects of Strategy and Arousal of Cueing in Computer-Human Persuasion.” *In Proceedings of the 2017 CHI Conference Extended Abstracts on Human Factors in Computing Systems (CHI EA '17)*. Association for Computing Machinery, New York, NY, USA, 2276–2283. doi:[10.1145/3027063.3053122](https://doi.org/10.1145/3027063.3053122).
- Fengyuan Zhu**, Wangshu Sun, Carrie Zhang, and Rebecca Ricks. “BoomChaCha: a rhythm-based, physical role-playing game that facilitates cooperation among players.” *In proceedings of the 2016 CHI conference extended abstracts on human factors in computing systems (CHI EA '16)*, pp. 184-187. 2016. doi:[10.1145/2851581.2890368](https://doi.org/10.1145/2851581.2890368).

PATENTS

- Ruofei Du, David Kim, **Fengyuan Zhu**, and Daniel Kalmar. “Determining input modality of head-mounted device based on input modality of handheld device.” US Patent App. 18/884,920
- Ken Perlin and **Fengyuan Zhu**. “Head Mounted Display and Method.” US Patent 11,635,627
- Ken Perlin and **Fengyuan Zhu**. “System for a Spectator to View a Virtual Reality of a Performer and Method.” US Patent 11,836,285

Awards, Fellowships, & Grants

- 2023, 2024 **Doctoral Completion Award**, University of Toronto
2017 **Distinguish Represent for the 2017 China-US Young Maker Summit**, New York University
Annual Departmental Scholarship for Outstanding Academic Works, Tisch School of the Arts, New York University
2016, 2017
2016 **Annual NYU Prototype Funding for Academic Works**, New York University
Annual Departmental Scholarship for Outstanding Academic Works, School of Physics, Peking University
2012, 2013
2012 **Annual Social Work Award**, Peking University

Teaching

- Fall 2023 **The Design of Interactive Computational Media**, Teaching Assistant. University of Toronto
Fall 2022 **Topics in intellectual property**, Teaching Assistant. University of Toronto
Fall 2022 **Topics in Interactive Computing**, Teaching Assistant. University of Toronto
Fall 2021 **Introduction to Human Computer Interaction**, Teaching Assistant. University of Toronto
Fall 2020 **Introduction to Human Computer Interaction**, Teaching Assistant. University of Toronto
Fall 2019 **Introduction to Human Computer Interaction**, Teaching Assistant. University of Toronto
Fall 2019 **Topics in Blockchain Technology**, Teaching Assistant. University of Toronto

Mentoring

- 2024-2025 **Harry Wang**, Student Researcher, University of Toronto.
2023-2024 **Grace Xu**, Student Researcher, University of Toronto.
2019-2021 **Zhuoyue Lyu**, Student Researcher, University of Toronto.
2016-2017 **Wangshu Sun**, Student Researcher, New York University
2014-2015 **Xu Tongda, Luo Yang, Wang Anqi, Zhang Cunjun**, Project [STAR](#), Tsinghua University

Academic/Public Service

- 2025 **IEEE Virtual Reality Conference**, Invited Reviewer
IEEE International Symposium on Mixed and Augmented Reality, Invited Reviewer
ACM CHI Conference on Human Factors in Computing Systems, Invited Reviewer
ACM SIGGRAPH Conference, Invited Reviewer
2024 **IEEE International Symposium on Mixed and Augmented Reality**, Invited Reviewer
ACM Symposium on User Interface Software and Technology, Invited Reviewer
ACM CHI Conference on Human Factors in Computing Systems, Invited Reviewer
Pacific Graphics Conference, Invited Reviewer
ACM SIGGRAPH Asia Conference, Invited Reviewer
2023 **IEEE International Symposium on Mixed and Augmented Reality**, Invited Reviewer
ACM Symposium on User Interface Software and Technology, Invited Reviewer
ACM CHI Conference on Human Factors in Computing Systems, Invited Reviewer
2022 **IEEE International Symposium on Mixed and Augmented Reality**, Invited Reviewer
ACM Symposium on User Interface Software and Technology, Invited Reviewer
ACM CHI Conference on Human Factors in Computing Systems, Invited Reviewer
2021 **ACM Symposium on Virtual Reality Software Technology**, Invited Reviewer
ACM Symposium on User Interface Software and Technology, Invited Reviewer
IEEE International Symposium on Mixed and Augmented Reality, Invited Reviewer
2020 **ACM CHI Conference on Human Factors in Computing Systems**, Invited Reviewer
IEEE International Symposium on Mixed and Augmented Reality, Invited Reviewer