

Kaiming Cheng

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RESEARCH AREAS

Security and privacy of emerging technologies, with a focus in Augmented/Mixed Reality.

EDUCATION

- 2020–Present **Ph.D. in Computer Science and Engineering**
University of Washington, Seattle, WA
Co-advisors: Tadayoshi Kohno, Franziska Roesner
- 2019–2020 **M.S. in Computer Science**
University of Virginia, Charlottesville, VA
Advisor: Yuan Tian
- 2015–2019 **B.A. in Computer Science & Music**
University of Virginia, Charlottesville, VA
Distinguished majors with high honors in CS and Music

PROFESSIONAL EXPERIENCES

- 2024 **JP Morgan Chase**, AR/VR Research Associate
with Blair MacIntyre & Mengyu Chen
- 2020– **University of Washington**, Research Assistant
with Tadayoshi Kohno & Franziska Roesner
- 2020 **Amazon**, Software Developer Intern
- 2019–20 **University of Virginia**, Research Assistant
with Yuan Tian
- 2017–19 **University of Virginia**, Research Assistant
with Matthew Burtner & Mark Sherriff

PUBLICATIONS

- 2024 1. **Kaiming Cheng**, Arka Bhattacharya, Michelle Lin, Jaewook Lee, Jeffery Tian, Aroosh Kumar, Tadayoshi Kohno, and Franziska Roesner. When the User Is Inside the User Interface: An Empirical Study of UI Security Properties in Augmented Reality. In *33rd USENIX Security Symposium (USENIX Security 24)*, 2024

2. Xia Su, Han Zhang, **Kaiming Cheng**, Jaewook Lee, Yueqian Zhang, and Jon E. Froehlich. Rassar: Room accessibility and safety scanning in augmented reality. *ACM Conference on Human Factors in Computing Systems (CHI)*, 2023
- 2023
1. Xia Su, **Kaiming Cheng**, Han Zhang, Jaewook Lee, Yueqian Zhang, and Jon E. Froehlich. A demonstration of rassar: Room accessibility and safety scanning in augmented reality. *ACM SIGACCESS Conference on Computers and Accessibility*, 2023
 2. **Kaiming Cheng**, Jeffery Tian, Tadayoshi Kohno, and Franziska Roesner. Exploring User Reactions and Mental Models Towards Perceptual Manipulation Attacks in Mixed Reality. In *32st USENIX Security Symposium (USENIX Security 23)*, 2023
- 2022
1. Xia Su, **Kaiming Cheng**, Han Zhang, Jaewook Lee, Yueqian Zhang, and Jon E. Froehlich. Towards semi-automatic detection and localization of indoor accessibility issues using mobile depth scanning and computer vision. *1st ASSETS'22 Workshop on The Future of Urban Accessibility*, 2023
- Prior PhD
1. Faysal Hossain Shezan, **Kaiming Cheng**, Zhang Zhen, Yinzhi Cao, and Yuan Tian. Tkperm: Cross-platform permission knowledge transfer to detect overprivileged third-party applications. In *Network and Distributed Systems Security (NDSS) Symposium*, 2020
 2. **Kaiming Cheng**. Melodypainter: Draw the melody in virtual reality. *New Interfaces for Musical Expression (NIME)*, 2018

SELECTED HONORS AND AWARDS

- 2020 Corin Anderson Endowed Research Fellowship (UW)
 Data Science Institute Research Fellowship (University of Chicago)
- 2019 Department of Computer Science Graduate Academic Excellence Fellowship (UVA)
- 2017–19 J. Sanford Miller Family Arts Scholarship (UVA)

INVITED TALKS

- 2023 **Exploring User Reactions and Mental Models Towards Perceptual Manipulation Attacks in Mixed Reality**
 USENIX Security (2023.8)
- 2023 **Exploring User Reactions and Mental Models Towards Perceptual Manipulation Attacks in Mixed Reality**
 UIUC (2023.5)
- 2021 **Mixed Reality Output Attacks: An Experimental Investigation with Real Users**
 Phishing for Knowledge (Pfk) session, Facebook (2021.9)

PROFESSIONAL SERVICE

Paper Reviewing

- 2024 **CHI '24: Conference on Human Factors in Computing Systems**

- 2023 **CSCW '24: Computer-Supported Cooperative Work and Social Computing**
SP '24: IEEE Security & Privacy: Security and Privacy for the Metaverse:
- 2023 **CHI '23: Conference on Human Factors in Computing Systems**
- 2022 **The Eighteenth Symposium on Usable Privacy and Security (SOUPS)–Workshop**
- 2021 **ACM Conference on Computer and Communications Security (CCS)–Workshop**

Community Service

- 2021-23 **Co-organizer**, UW CSE PhD New Grad Mentor Program
- 2020-21 **Mentor**, UW CSE PhD program Pre-Application Review Service (PARS)

TEACHING EXPERIENCE

- 2024 **CSE 484 Computer Security**
Teaching Assistant for Tadayoshi Kohno, University of Washington
- 2022 **CSE 481s Computer Security Capstone**
Teaching Assistant for Tadayoshi Kohno, University of Washington
- 2019 **CS 5010 Programming and Systems for Data Science**
Teaching Assistant for Nada Basit, University of Virginia
- 2018 **CS 2150 Program and Data Representation**
Teaching Assistant for Mark Floryan, University of Virginia

MENTORING EXPERIENCE

- 2021–23 **Arka Bhattacharya** (PhD Student, Cornell University)
Co-supervised with Tadayoshi Kohno & Franziska Roesner
- Michelle Lin** (Now at Microsoft)
Co-supervised with Tadayoshi Kohno & Franziska Roesner
- Aroosh Kumar** (Now at Salesforce)
Co-supervised with Tadayoshi Kohno & Franziska Roesner
- 2020–23 **Jeffery Tian** (Now at Meta)
Co-supervised with Tadayoshi Kohno & Franziska Roesner

REFERENCES

Franziska Roesner (*doctoral advisor*)

Associate Professor

Paul G. Allen School of Computer Science and Engineering, University of Washington

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Tadayoshi Kohno (*doctoral advisor*)

Professor

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