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

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

2023
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, **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

2022   1. **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

2. 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 Realitys**
         USENIX Security (2023.8)

2023   **Exploring User Reactions and Mental Models Towards Perceptual Manipulation Attacks in Mixed Realitys**
         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

2022	**CSE 484 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*)
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