Jingjie Li

Ph.D. Candidate · University of Wisconsin–Madison

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Education

University of Wisconsin–Madison *Madison*

Ph.D. Computer Engineering *09.2017-05.2023 (Expected)*

- Department of Electrical and Computer Engineering
- Major Area: Computer Engineering, Minor Area: Computer Science
- Advisors: Prof. Younghyun Kim and Prof. Kassem Fawaz
- Research Interest: Usable Security and Privacy, Human-Centered Computing, Augmented/Virtual Reality, Internet of Things

University of Wisconsin–Madison *Madison*

M.Sc. Computer Engineering *09.2017-05.2019*

- Department of Electrical and Computer Engineering

Australian National University *Canberra*

B.Eng. (Research and Development) (Honours) *07.2015-07.2017*

- Research School of Engineering
- Major: Electronic and Communication Systems | First Class Honours

Beijing Institute of Technology *Beijing*

B.Sc. (Joint Degree with ANU) *09.2013-07.2015*

- IT Advanced Class, School of Information and Electronics
- Major: Electronic Information Engineering

Professional Experience

2017-Present	**Research Assistant**, UW–Madison, USA
2022	**Research Intern**, Visa Research – Security, USA
2021	**Visiting Ph.D. Scholar**, Max Planck Institute for Security and Privacy, Germany (Virtual)
2016-2017	**Research Intern**, Commonwealth Scientific and Industrial Research Organisation, Australia
2015-2017	**Research Student**, ANU, Australia

Awards & Honors

2022	**CPS (Cyber-Physical Systems) Rising Star**, CPS-VO@National Science Foundation
	Norton Labs Graduate Fellowship Finalist, NortonLifeLock
2021	**IEEE Micro Top Picks from the Computer Architecture Conferences**, IEEE
	Qualcomm Innovation Fellowship Finalist, Qualcomm
2020	**Chancellor's Opportunity Fellowship**, UW-Madison
	'Smart Cities - Smart Futures' Competition Finalist, Foxconn
2019	**Chancellor's Opportunity Fellowship**, UW-Madison
	'Smart Cities - Smart Futures' Competition Final Winner, Foxconn
	Qualcomm Innovation Fellowship Finalist, Qualcomm
	ACM CHI Best Paper Award, ACM
2018	**ACM/IEEE ISLPED Low-Power Design Contest Award**, ACM/IEEE
	A. Richard Newton Young Student Fellowship, Design Automation Conference (DAC)
2016	**Undergraduate International Partnership Scholarship**, ANU
2015	**Undergraduate International Partnership Scholarship**, ANU

Publications

Under Review

Jingjie Li, Sunpreet Singh Arora, Kassem Fawaz, Younghyun Kim, Can Liu, Sebastian Meiser, Mohsen Minaei, Maliheh Shirvanian, Kim Wagner. **"I Want the Payment Process to be Cool": Understanding How Interaction Factors into Security and Privacy Perception of Authentication in Virtual Reality**. USENIX Security Symposium, 2023 (under review)

Kaiwen Sun, **Jingjie Li**, Yixin Zou, Jenny Radesky, Christopher Brooks, Florian Schaub. **Unfulfilled Promises of Child Safety and Privacy: Portrayals and Use of Children in Smart Home Marketing**. ACM CHI (Conference on Human Factors in Computing Systems), 2023 (under review)

Security and Privacy

Jingjie Li, Kaiwen Sun, Brittany Huff, Anna Bierley, Younghyun Kim, Florian Schaub, Kassem Fawaz. **"It's up to the Consumer to be Smart": Understanding the Security and Privacy Attitudes of Smart Home Users on Reddit**. Accepted at IEEE Symposium on Security and Privacy (S&P), 2023.

Kaiwen Sun, **Jingjie Li**, Yixin Zou, Florian Schaub and Chris Brooks. **The Portrayal of Children in Smart Home Marketing**. Workshop on Kids' Online Privacy and Safety (KOPS)@Symposium on Usable Privacy and Security, 2022.

Jingjie Li, Amrita Roy Chowdhury, Kassem Fawaz, Younghyun Kim. **Kalεido: Real-Time Privacy Control for Eye-Tracking Systems**. USENIX Security Symposium, 2021. (Acceptance Rate: 18.8%)

Yongwoo Lee, **Jingjie Li**, Younghyun Kim. **MicPrint: Acoustic Sensor Fingerprinting for Spoof-Resistant Mobile Device Authentication**. EAI MobiQuitous (International Conference on Mobile and Ubiquitous Systems: Computing, Networking and Services), 2019.

Jingjie Li, Kassem Fawaz, Younghyun Kim. **Velody: Nonlinear Vibration Challenge-Response for Resilient User Authentication**. ACM CCS (Conference on Computer and Communications Security), 2019. (Acceptance Rate: 16%)

Affective Computing

Roneel V. Sharan, Shlomo Berkovsky, Ronnie Taib, Irena Koprinska, **Jingjie Li**. **Detecting Personality Traits Using Inter-Hemispheric Asynchrony of the Brainwaves**. IEEE EMBC (Conference of Engineering in Medicine and Biology Society), 2020.

Ronnie Taib, Shlomo Berkovsky, Irena Koprinska, Eileen Wang, Yucheng Zeng, **Jingjie Li**. **Personality Sensing: Detection of Personality Traits Using Physiological Responses to Image and Video Stimuli**. ACM TIIS (Transactions on Interactive Intelligent Systems), 2020.

Shlomo Berkovsky, Ronnie Taib, Irena Koprinska, Eileen Wang, Yucheng Zeng, **Jingjie Li**, Sabina Kleitman. **Detecting Personality Traits Using Eye-Tracking Data**. ACM CHI (Conference on Human Factors in Computing Systems), 2019. (Best Paper)

Power-Efficient Design

Di Wu, **Jingjie Li**, Zhewen Pan, Younghyun Kim, Joshua San Miguel. **A Unary Brain Computer Interface**. International Symposium on Computer Architecture (ISCA), 2022. (Acceptance Rate: 16%)

Di Wu, **Jingjie Li**, Hsuan Hsiao, Younghyun Kim, Joshua San Miguel. **uGEMM: Unary Computing for GEMM Applications**. IEEE Micro (Special Issue on IEEE Micro Top Picks), 2021.

Di Wu, **Jingjie Li**, Setareh Behroozi, Younghyun Kim, Joshua San Miguel. **UNO: Virtualizing and Unifying Nonlinear Operations for Emerging Neural Networks**. ACM/IEEE ISLPED (International Symposium on Low Power Electronics and Design), 2021.

Di Wu, **Jingjie Li**, Hsuan Hsiao, Younghyun Kim, Joshua San Miguel. **uGEMM: Unary Computing Architecture for GEMM Applications**. ACM/IEEE ISCA (International Symposium on Computer Architecture), 2020. (Acceptance Rate: 18%)

Hanwook Chung, **Jingjie Li**, Younghyun Kim, Jennifer M.C. Van Os, Sabrina H. Brounts, and Christopher Y. Choi. **Using Implantable Biosensors and Wearable Scanners to Monitor Dairy Cattle's Core Body Temperature in Real-Time**. Computers and Electronics in Agriculture, 2020.

Younghyun Kim, Joshua San Miguel, Setareh Behroozi, Tianen Chen, Kyuin Lee, Yongwoo Lee, **Jingjie Li**, Di Wu. **Approximate Hardware Techniques for Energy-Quality Scaling Across the System**. ICEIC (International Conference on Electronics, Information, and Communication), 2020.

Jackson Melchert, Setareh Behroozi, **Jingjie Li**, Younghyun Kim. **SAADI-EC: A Quality-Configurable Approximate Divider for Energy Efficiency**. IEEE TVLSI (Transactions on Very Large Scale Integration Systems), 2019.

Setareh Behroozi, **Jingjie Li**, Jackson Melchert, Younghyun Kim. **SAADI: A Scalable Accuracy Approximate Divider for Dynamic Energy-Quality Scaling**. ASP-DAC (Asia South Pacific Design Automation Conference), 2019.

Hanwook Chung, **Jingjie Li**, Younghyun Kim, Christopher Y. Choi. **Continuous and Wireless Skin Contact and Ear Implant Temperature Measurements and Relations to the Core Body Temperature of Heat Stressed Dairy Cows**. ASABE ILES (International Livestock Environment Symposium), 2018.

Selected Research Projects

Understanding Smart Device Users' Security and Privacy Considerations via Online Media *UW–Madison & UMich*

- Leveraged Reddit to study smart home consumers' attitudes on security and privacy through their online discussion
- Analyzing the implications in smart home marketing materials regarding children's privacy, security, and safety

Usable Privacy Communication for Smart Device Users *UW–Madison*

- Designing communication interfaces for smart device users to facilitate privacy decision by machine learning and mixed reality
- Building natural language model for privacy document comprehension and user communication
- Leading a team of six pre-law students in building up an annotated dataset of smart home companies' privacy documents

Human Factors in Hardware Reverse Engineering *UW–Madison & MPI*

- Studying the psychological factors and cognitive processes that contribute to hardware reverse engineering
- Conducted eye-tracking studies to understand human behaviors in hardware reverse engineering under a gamified setting

User Experience of Payment in Virtual Reality *Visa Research*

- Designed payment interfaces and conducted user studies to study user experience of payment in a virtual reality game context

Privacy Enhancing Technologies for Augmented/Virtual Reality *UW–Madison*

- Contributing to Meta's award project on "Trustworthy Products in AR, VR, and Smart Devices"
- Designed Kalɛido, a privacy-utility control knob to protect real-time eye gaze data by local differential privacy
- Integrated Kalɛido as a Unity plugin for an eye-tracking game

Balancing Usability, Security, and Privacy for Biometric Authentication *UW–Madison*

- Exploring biometric modalities to balance usability, security, and privacy of user authentication in various interactive contexts
- Designed Velody, a system that uses nonlinear vibration biomtrics to generate cancelable authentication challenge-responses

Power-Efficient Design for Emerging Intelligent Systems *UW–Madison*

- Designing low-power systems for emerging computing and interactive applications such as brain-computer interfaces

Industrial Internet of Things in Precision Agriculture and Dairy Industry *UW–Madison*

- Developed low-power wearable/implantable sensing and communication systems to monitor dairy cattle's health

Automated Detection of Personality Traits Using Physiological Signals *ANU & CSIRO*

- Researched on classifying users' personality traits using multiple physiological signals (eye gaze, EEG, skin conductance, etc.) during multi-media experience and driving simulation

Indoor Localization by Software Defined Radio (SDR) *ANU*

- Designed a received signal strength-based indoor localization scheme that reduces the calibration effort on SDR platform

Grant Application

Usable Privacy Control for Real-time Eye Tracking in AR/VR

Award: Towards Trustworthy Products in AR, VR, and Smart Devices (Sponsor: Meta Inc.)

- Grant amount: $75,000.00 USD
- Responsibility: proposal writing and lead student contributor

Teaching & Mentoring Experience

Fall 2022 **CS 642 Introduction to Information Security**, Guest Lecturer, UW–Madison
2021-Present **NSF Research Experiences for Undergraduates Program**, Research Mentor, UW–Madison
2021-2022 **ECE 399 Independent Study**, Research Mentor, UW–Madison
2020-2021 **Undergraduate Research Scholars Program**, Research Mentor, UW–Madison
Spring 2019 **CS 354 Machine Organization and Programming**, Teaching Assistant, UW–Madison
2018 **Undergraduate Summer Research**, Research Mentor, UW–Madison

Professional Development

2022 **CDIS Workshop (NSF Funding: Why, What and How)**, UW–Madison, USA
2022 **CPS Rising Stars Workshop (Academic Career Development)**, University of Virginia, USA

Services

Peer Review

IEEE Transactions on Mobile Computing, Reviewer
IEEE Pervasive Computing, Reviewer
IEEE Transactions on Computers, Reviewer
USENIX Security Symposium, External Reviewer
IEEE Symposium on Security & Privacy, External Reviewer
ACM Conference on Computer and Communications Security, External Reviewer
Design Automation Conference, External Reviewer
Asia and South Pacific Design Automation Conference, External Reviewer
International Symposium on Low Power Electronics and Design, External Reviewer
Symposium on Applied Computing, External Reviewer
International Conference on VLSI Design, External Reviewer

Community Service

2022-Present **Madison Tech Clinic**, Volunteer
• Providing services to prevent technology abuse in intimate partner violence
2016-2017 **Robogals**, Volunteer
• Organized educational events for Australian children to prompt diversity in STEM majors
2014-2015 **Student Union at School of Information and Electronics, BIT**, Director of Publicity
• Designed publicity materials for student events