Jingjie Li

Ph.D. Candidate · University of Wisconsin–Madison

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Education

University of Wisconsin–Madison (UW-Madison) — *Madison*

Ph.D. Computer Engineering — *09.2017-08.2023 (Expected)*

- Department of Electrical and Computer Engineering
- Major Area: Computer Engineering, Minor Area: Computer Science | GPA: 3.96/4.00
- Research Interest: Usable Security and Privacy, Human-Centered Computing, Mixed Reality, Internet of Things

University of Wisconsin–Madison (UW-Madison) — *Madison*

M.Sc. Computer Engineering — *09.2017-05.2019*

- Department of Electrical and Computer Engineering

Australian National University (ANU) — *Canberra*

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

- Research School of Engineering
- Major: Electronic and Communication Systems | GPA: 6.80/7.00 | First Class Honours

Beijing Institute of Technology (BIT) — *Beijing*

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

- IT Advanced Class, School of Information and Electronics
- Major: Electronic Information Engineering | GPA: 3.73/4.00

Professional Experience

2017-Present **Research Assistant**, UW–Madison, USA

2021 **Visiting Ph.D. Scholar**, Max Planck Institute for Security and Privacy (MPI-SP), Germany (Virtual)

2016-2017 **Undergraduate Scholar**, Commonwealth Scientific and Industrial Research Organisation (CSIRO), Australia

2015-2017 **Research Student**, ANU, Australia

Awards & Honors

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

2015 **Second Prize Scholarship for Outstanding Student**, BIT

2014 **First Class Scholarship**, BIT

2013 **First Class Scholarship**, BIT

Publications

Under Review

• Title changed for anonymity

Jingjie Li, Kaiwen Sun, Brittany Huff, Anna Bierley, Younghyun Kim, Florian Schaub, Kassem Fawaz. **Demystifying Smart Home Users' Security and Privacy Attitudes on Social Media**. IEEE Symposium on Security and Privacy (S&P), 2022.

Di Wu, **Jingjie Li**, Zhewen Pan, Younghyun Kim, Joshua San Miguel. **Unary Computing for Brain Computer Interface**. International Symposium on Computer Architecture (ISCA), 2022.

Conference

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%).

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.

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.

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%).

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.

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%).

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, Top 1%).

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.

Journal

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.

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.

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.

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.

Selected Research Projects

Security and Privacy Attitudes from Social Media Data *UW–Madison & UMich*

- Leveraging social media data to study consumers', e.g., smart home users', attitudes on security and privacy

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

- Studying the psychological factors and cognitive processes that contribute to hardware reverse engineering

Privacy Enhancing Techniques for Mixed Reality *UW–Madison*

- Identifying and addressing the emerging privacy threats, including those on biometrics data, in mixed reality systems
- Designed Kalɛido, a privacy-utility control knob to protect real-time eye gaze data by local differential privacy via Unity engine

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 flexible low power systems and architectures of 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

Teaching & Mentoring Experience

2021-Present **ECE 399 Independent Study**, Research Mentor, UW–Madison
2021-Present **NSF Research Experiences for Undergraduates Program**, 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

Services

Peer Review

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

Extracurricular Activities

2016-2017 **Robogals**, Student Volunteer
2014-2015 **Student Union at School of Information and Electronics, BIT**, Director of Publicity

Skills

Programming Language

Python, MATLAB, C, C#, Verilog, HTML

Design tool

PyTorch, Unity, Altium Designer, Xilinx, GNU Radio, Multisim, LTspice

References

Prof. Younghyun Kim (younghyun.kim@wisc.edu), UW–Madison
Prof. Kassem Fawaz (kfawaz@wisc.edu), UW–Madison