Jingjie Li

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https://jingjieli95.github.io/

EDUCATION

University of Wisconsin–Madison   **Madison**

Ph.D. Candidate   *09.2017–Present*

M.Sc degree conferred in 05.2019

Department of Electrical and Computer Engineering

Major: Computer Engineering | GPA: 3.96/4.00

Research interest: human-centered computing, security and privacy, Internet of Things, mixed reality

Australian National University (ANU)   **Canberra**

Bachelor of Engineering (Research and Development) (First Class Honours)   *07.2015–07.2017*

Research School of Engineering

Major: Electronics and Communication Systems | GPA: 6.80/7.00

Beijing Institute of Technology (BIT)   **Beijing**

Bachelor of Science (Joint Degree with ANU)   *09.2013–07.2015*

IT Advanced Class, School of Information and Electronics

Major: Electronic Information Engineering

HONORS & AWARDS

Chancellor's Opportunity Fellowship (COF) of UW–Madison, 2019 & 2020

Foxconn 'Smart Cities - Smart Futures' Competition Finalist and Final Winner, 2019 & 2020

Qualcomm Innovation Fellowship Finalist, 2019

ACM CHI Best Paper Award, 2019

ACM/IEEE ISLPED Low-Power Design Contest Award, 2018

A. Richard Newton Young Student Fellowship, 2018

Undergraduate International Partnership Scholarship of ANU, 2015 & 2016

First Prize Scholarship of BIT, Fall 2013 & Fall 2014

Second Prize Scholarship for Outstanding Student of BIT, 2015

PUBLICATIONS

Conference

○ **Kalεido: Real-Time Privacy Control for Eye-Tracking Systems**
  Jingjie Li, Amrita Roy Chowdhury, Kassem Fawaz, Younghyun Kim
  USENIX Security Symposium, 2021 (Accepted, Acceptance Rate: 12%)

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

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

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

○ **MicPrint: Acoustic Sensor Fingerprinting for Spoof-Resistant Mobile Device Authentication**
  Yongwoo Lee, **Jingjie Li**, Younghyun Kim

EAI MobiQuitous (International Conference on Mobile and Ubiquitous Systems: Computing, Networking and Services), 2019

- **Velody: Nonlinear Vibration Challenge-Response for Resilient User Authentication**
  Jingjie Li, Kassem Fawaz, Younghyun Kim
  ACM CCS (Conference on Computer and Communications Security), 2019 (Acceptance Rate: 16%)
- **Detecting Personality Traits Using Eye-Tracking Data**
  Shlomo Berkovsky, Ronnie Taib, Irena Koprinska, Eileen Wang, Yucheng Zeng, **Jingjie Li**, Sabina Kleitman
  ACM CHI (Conference on Human Factors in Computing Systems), 2019 (Best Paper, Top 1%)
- **SAADI: A Scalable Accuracy Approximate Divider for Dynamic Energy-Quality Scaling**
  Setareh Behroozi, **Jingjie Li**, Jackson Melchert, Younghyun Kim
  ASP-DAC (Asia South Pacific Design Automation Conference), 2019
- **Continuous and Wireless Skin Contact and Ear Implant Temperature Measurements and Relations to the Core Body Temperature of Heat Stressed Dairy Cows**
  Hanwook Chung, **Jingjie Li**, Younghyun Kim, Christopher Y. Choi
  ASABE ILES (International Livestock Environment Symposium), 2018

Journal

- **Using Implantable Biosensors and Wearable Scanners to Monitor Dairy Cattle's Core Body Temperature in Real-Time**
  Hanwook Chung, **Jingjie Li**, Younghyun Kim, Jennifer M.C. Van Os, Sabrina H. Brounts, and Christopher Y. Choi
  Computers and Electronics in Agriculture, 2020 (IF: 3.17)
- **Personality Sensing: Detection of Personality Traits Using Physiological Responses to Image and Video Stimuli**
  Ronnie Taib, Shlomo Berkovsky, Irena Koprinska, Eileen Wang, Yucheng Zeng, **Jingjie Li**
  ACM TIIS (Transactions on Interactive Intelligent Systems), 2020 (IF: 3.20)
- **SAADI-EC: A Quality-Configurable Approximate Divider for Energy Efficiency**
  Jackson Melchert, Setareh Behroozi, **Jingjie Li**, Younghyun Kim
  IEEE TVLSI (Transactions on Very Large Scale Integration Systems), 2019 (IF: 1.95)

RESEARCH EXPERIENCE

Usable Privacy Notification for the Internet of Things (IoT)   **UW–Madison**
07.2020–Present

Supervisor: Prof. Younghyun Kim, Prof. Kassem Fawaz

- Applying natural language processing (NLP) for automatically evaluating privacy policies of IoT devices
- Designing framework to discover privacy norms and concerns of IoT applications
- Developing AI- and mixed reality-powered user interface for privacy information presentation

Privacy Enhancing Techniques for Mixed Reality   **UW–Madison**
08.2019–Present

Supervisor: Prof. Younghyun Kim, Prof. Kassem Fawaz

- Investigating the implication of various privacy threats in mixed reality
- Designed protocols by local differential privacy to control the privacy of real-time eye gaze streams
- Integrated the privacy control system, Kalεido, as a Unity plugin for eye tracking
- Investigated user experience of Kalεido by eye-tracking games and Qualtrics survey in the wild
- Demonstrated Kaleido's capability in thwarting attacks that breach users' interest and biometrics in MR

Usable Challenge-Response Biometrics for User Authentication   **UW–Madison**
08.2018–Present

Supervisor: Prof. Younghyun Kim, Prof. Kassem Fawaz

- Exploring feasibility of nonlinear challenge-response biometrics for resilient and usable authentication

- Designed a user authentication system (Velody) that utilizes distinct nonlinear vibration responses for user authentication and defending various sophisticated attacks
- Designed a user-friendly interface and conducted user studies for Velody
- Developed a processing and evaluation framework to assess usability and security properties of Velody

Low Power Design for Emerging Intelligences UW–Madison
01.2018–Present

Supervisor: Prof. Younghyun Kim, Prof. Joshua San Miguel

- Designing flexible low power processing elements of emerging neural network paradigms such as neural machine translation and brain-computer interfaces
- Applying system optimization approaches such as approximate computing to achieve optimal trade-offs of accuracy and energy

Industrial Internet of Things (IIOT) in Precision Agriculture and Dairy Science UW–Madison
09.2017–08.2018

Supervisor: Prof. Younghyun Kim, Prof. Christopher Y. Choi

- Developed a IoT framework to wirelessly monitor the core body temperature of dairy cows for decision-making of cooling systems and reducing heat stress of cows
- Designed and manufactured customized PCB wearable sensors
- Designed hardware/software interface between wireless low power sensor nodes and implantable sensors
- Facilitated in in-lab and animal studies to evaluate the usability of the wearable sensors for dairy cattle

Automated Personality Detection in Driving Simulation ANU
07.2016–06.2017

Supervisor: Prof. Tom Gedeon

- Researched on estimating driver personality using physiological signals during driving simulation
- Conducted human subject experiment and collected physiological signals, such as galvanic skin response (GSR), electroencephalogram (EEG), blood volume pulse (BVP), eye gaze, etc., from multiple subjects during driving simulation
- Predicted drivers' personality traits with physiological features that correlated with driving events with high accuracy by machine learning

Behavioral Analysis of Personality Traits CSIRO
11.2016–02.2017

* CSIRO: Commonwealth Scientific and Industrial Research Organization
Supervisor: Prof. Shlomo Berkovsky and Mr. Ronnie Taib

- Designed automated personality detection framework using physiological signals and behavioral indicators without the personality modeling that relies on questionnaire
- Conducted user studies during which visual stimuli are applied to the participants and collected multiple physiological signals (EEG, BVP, GSR, eye gaze)
- Predicted users' personality traits accurately by learning from physiological features

Application of Software Defined Radio (SDR) in Localization ANU
07.2015–06.2016

Supervisor: Prof. Changbin (Brad) Yu and Dr. Junming Wei

- Designed a RSS-based localization scheme that reduces the calibration effort of localization
- Verified the proposed algorithm by both simulated and collected data from USRP experiments
- Developed a user interface for real-time localization

MENTORING EXPERIENCE

- **Research Mentor** – Undergraduate Research Scholars Program (UW–Madison), 2020
- **Teaching Assistant** – CS 354 Machine Organization and Programming (UW–Madison), Spring 2019

INTERNSHIP EXPERIENCE

Summer Scholar at Data61, CSIRO **Sydney, Australia**
Analytics *11.2016–02.2017*

- Received training on scientific user research
- Conducted research project on behavioral analysis of personality traits
- Practiced in paper writing and publication process

Test Assistant at Fujian Wanrun New Energy Technology Co., Ltd **Fujian, China**
Department of Technology *01.2016–02.2016*

- Familiarized with the industrial process of development, testing, and assembly of electric motor controller
- Facilitated in testing the motor controllers of electric buses

SERVICES

- **External Reviewer** – USENIX Security
- **External Reviewer** – IEEE Symposium on Security & Privacy
- **External Reviewer** – ACM Conference on Computer and Communications Security
- **External Reviewer** – Asia and South Pacific Design Automation Conference
- **External Reviewer** – International Symposium on Low Power Electronics and Design
- **External Reviewer** – Design Automation Conference
- **External Reviewer** – Symposium on Applied Computing

EXTRACURRICULAR ACTIVITIES

Robogals **ANU**
Student Volunteer *01.2016–06.2017*

Director of the Publicity Department **BIT**
Student Union at School of Information and Electronics *09.2014–07.2015*

OTHER SKILLS

Python, MATLAB, C/C++/C#, HTML5
PyTorch, Unity, Xilinx, Altium, GNU Radio, Multisim, LTspice