

Chien-Ying Chen

Ph.D. Candidate in Computer Science at UIUC

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Objective

Expecting to graduate in May 2020. Seeking a **full time position** in Computer Security and System Development to extend and apply my skills based on my academic background in both Electronic Engineering (EE) and Computer Science (CS), 3-year work experience in smartphone industry and many years of research collaborations with top researchers.

Work Experience

- 2014 - Present **University of Illinois, Urbana-Champaign (UIUC, USA)**
Research Assistant, Information Trust Institute
- Participated in NSF ongoing research projects: SaTC-1718952 and CPS-1544901.
 - Research focused on real-time systems, smart manufacturing and security.
- 2019 Spring **University of Illinois, Urbana-Champaign (UIUC, USA)**
Teaching Assistant, Communication Networks CS438 in Computer Science
- Developed and maintained the auto-grader programs for this 68-student class.
- 2016 Summer **SRI International (USA)**
2017 Summer **Student Associate**, Internet of Things Security and Privacy Center
- Research focused on security in Internet-of-things applications.
- 2017 Fall **Urbana Middle School (USA)**
2018 Spring **Volunteer Teacher**, SPASH Program
- Taught the middle school students how to code with using Scratch.
- 2009 - 2013 **HTC Corporation (Taiwan)**
Senior Engineer & Project Leader, IA RD Logic Department
- Participated in smartphone product development:
T-Mobile G2, HTC Wildfire S CDMA, HTC One V, and HTC Desire VT.
 - Designed schematics for logic blocks (CPU-related) and sensors.
 - Supported sensor and LCD drivers porting and debugging.

Education

- 2014 - Present **University of Illinois, Urbana-Champaign (UIUC, USA)**
Ph.D. Candidate Computer Science (CS)
- Concentrating on Systems, Networking and Security
 - GPA: 3.96/4.0 (overall GPA by 2019 Spring)
- 2007 - 2009 **National Tsing Hua University (NTHU, Taiwan)**
M.S. Computer Science (CS)
- Sole designer of EcoSpire (WSN platform) and DuraCap (energy harvester).
 - Graduation Average Grade: 91.65/100
- 2003 - 2007 **National Yunlin University of Science and Technology (NYUST, Taiwan)**
B.S. Electronic Engineering (EE)
- Received College Student Research Award.
 - GPA: 3.82/4.0 (top of the class)

Publications

- 2019 “A Unified Digital Twin Framework for Real-time Monitoring and Evaluation of Smart Manufacturing Systems,” to appear in *IEEE 15th International Conference on Automation Science and Engineering (CASE)*, Aug. 2019.
- 2019 “Towards Automated Safety Vetting of PLC Code in Real-World Plants,” in *IEEE Symposium on Security & Privacy (S&P)*, May 2019.
- 2019 “A Novel Side-Channel in Real-Time Schedulers,” in *IEEE Real-Time and Embedded Technology and Applications Symposium (RTAS)*, Apr. 2019.

- 2018 "Preserving Physical Safety Under Cyber Attacks," in *IEEE Internet of Things Journal*, Dec. 2018.
- 2018 "Securing real-time internet-of-things," in *MDPI Sensors*, Dec. 2018.
- 2018 "SDCWorks: A Formal Framework for Software-Defined Control of Smart Manufacturing Systems," in *ACM/IEEE International Conference on Cyber-Physical Systems (ICCPS)*, Apr. 2018.
- 2018 "Guaranteed Physical Security with Restart-Based Design for Cyber-Physical Systems," in *ACM/IEEE International Conference on Cyber-Physical Systems (ICCPS)*, Apr. 2018.
- 2017 "Jumping the Air Gap: Modeling Cyber-Physical Attack Paths in the Internet-of-Things," in *ACM Workshop on Cyber-Physical Systems Security & Privacy (CPS-SPC)*, Nov. 2017.
- 2016 "TaskShuffler: A Schedule Randomization Protocol for Obfuscation Against Timing Inference Attacks in Real-Time Systems," in *IEEE Real-Time and Embedded Technology and Applications Symposium (RTAS)*, Apr. 2016.
- 2016 "Scheduleleak: An algorithm for reconstructing task schedules in fixed-priority hard real-time systems," (abstract only) in *IEEE RTSS Workshop on Security and Dependability of Critical Embedded Real-Time Systems (CERTS)*, Nov. 2016.
- 2010 "DuraCap: a Supercapacitor-Based, Power-Bootstrapping Maximum Power Point Tracking Energy-Harvesting System," in *ACM/IEEE International Symposium on Low Power Electronics and Design (ISLPED)*, Aug. 2010.
- 2010 "EcoSpire: An Application Development Kit for an Ultra-Compact Wireless Sensing System," in *IEEE Embedded Systems Letters*, Oct. 2009.
- 2009 "Privacy Preserving Association Rules by Using Greedy Approach," in *the World Congress on Computer Science and Information Engineering*, Mar. 2009.

NSF Projects

- 2017 - Present SaTC-1718952, "An Exploration of Schedule-Based Vulnerabilities in Real-Time Embedded Systems"
- 2016 - Present CPS-1544901, "Software Defined Control for Smart Manufacturing Systems"

Patents

- 2012 US Patent NO.8188703 (B2), "Energy Harvesting System"
- 2013 Taiwanese Patent NO.99100899, "Energy Harvesting System"

Awards & Honors

- 2005 **Champion:** Nissan Design Contest of automotive electronics design
- Work: "A Driver Consciousness-level Detection and Alarm System"
 - Responsibilities: team leader and system designer
 - Invited to present our work at *Nissan's* headquarters in Japan.
- 2009 **Silver Medal:** Embedded System Design Contest by *Taiwan Ministry of Education*
- Work: "EcoSpire Wireless Sensor Platform, System Kernel and Tool Kit"
 - Responsibilities: team leader and platform designer
- 2009 **Bronze Medal:** Telecom Innovation & Application Contest by *Chunghwa Telecom*
- Work: "Intelligent Home Wireless Sensor Network and Controller"
 - Responsibility: platform co-designer
- 2007 **College Student Research Award:** Conducted by *Taiwan National Science Council*
- Undergraduate thesis: "Design and Implementation of a Robot Capable of Building a Map and Identifying Positions in an Indoor Environment"
- 2003 - 2007 **Presidential Awards:** by *National Yunlin University of Science and Technology*
- Received 7 Presidential Awards throughout the college