

# Chien-Ying Chen (CY Chen)

*Ph.D. Candidate in Computer Science at UIUC*

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## Education

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- 2014- Present    **University of Illinois at Urbana-Champaign (USA)**  
**Ph.D. Candidate** in Computer Science (CS)
- GPA: 3.96/4.0
  - Published 9 papers and 1 (pending) patent
- 2007- 2009    **National Tsing Hua University (Taiwan)**  
**M.S.** in Computer Science (CS)
- GPA: 91.65/100
  - Published 2 papers and 2 patents
  - Received 2 medals in two of the system design contests
- 2003- 2007    **National Yunlin University of Science and Technology (Taiwan)**  
**B.S.** in Electronic Engineering (EE)
- GPA: 3.82/4.0 (top of the class)
  - Received College Student Research Award
  - Received 7 Presidential Awards

## Work Experience in Industry

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- 2017 Summer    **SRI International (USA)**  
2016 Summer    **Student Associate**, Internet of Things Security and Privacy Center
- Research focused on security in IoT devices and applications
  - Hacked an iHealth wireless oximeter via Bluetooth
- 2009- 2013    **HTC Corporation (Taiwan)**  
**Senior Engineer & Project Leader**, IA RD Logic Department
- Participated in the development of Android smartphones: T-Mobile G2, HTC Wildfire S CDMA, HTC Desire VT and HTC One V (as HW project leader)
  - Designed schematics centered on Qualcomm CPU and brought up/debugged the board till mass production

## Work Experience in Academia

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- 2014- Present    **University of Illinois at Urbana-Champaign (USA)**  
**Research Assistant**, Information Trust Institute
- Research focused on security in time-critical systems, embedded systems, IoT systems
  - Participated in 2 NSF-funded research projects, advised by Prof. Sibin Mohan
- 2019 Spring    **University of Illinois at Urbana-Champaign (USA)**  
**Teaching Assistant**, Communication Networks CS438 in Computer Science
- Designed programming assignments and developed an auto-grader software suite
- 2018 Spring    **Urbana Middle School (USA)**  
2017 Fall       **Volunteer Teacher**, SPASH Program
- Taught the middle school students coding in Scratch

## Publications

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- 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 "Scheduleak: 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

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

## Patents

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- 2018 US Patent (pending), "Modeling cyber-physical attack paths in the Internet-of-things"
- 2013 Taiwanese Patent NO.99100899, "Energy Harvesting System"
- 2012 US Patent NO.8188703 (B2), "Energy Harvesting System"

## Awards & Honors

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- 2005 **Champion:** Nissan Design Contest of automotive electronics design
- Work: "A Driver Consciousness-level Detection and Alarm System"
  - Participated as the team leader and system designer
  - Invited to present our work at Nissan's headquarters in Japan (and awarded a car!)
- 2009 **Silver Medal:** Embedded System Design Contest by Taiwan Ministry of Education
- Work: "EcoSpire Wireless Sensor Platform, System Kernel and Tool Kit"
  - Participated as the team leader and platform designer
- 2009 **Bronze Medal:** Telecom Innovation & Application Contest by Chunghwa Telecom
- Work: "Intelligent Home Wireless Sensor Network and Controller"
  - Participated as a 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