Chun-**Y**u (Daniel) **C**hen

CSE Ph.D. Student

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RESEARCH INTERESTS

Mobile Sensing, Automobile Systems, Privacy and Security,
Wireless Communications, Networking, Internet of Things, Localization/Positioning, Multimedia Processing

RESEARCH PROJECTS

Keep Others from Peeking at Your Mobile Device Screen! 09/2017 – 02/2018
| Real-Time Computing Lab (RTCL)
Advisor: Prof. Kang G. Shin
Developed *HideScreen* to protect general on-screen information (e.g., texts and images) shown on our mobile devices

- Proposal of grid-based display for on-screen information protection based on optical system properties and human vision characteristics
- Development of text protection, *HideText*, and demonstration of its effectiveness in protecting texts at a low rate of information leakage (≤ 3.8%)
- Development of image protection, *HideImage* and *SelImage*, and demonstration of their effectiveness in hiding images at a low rate of information leakage (≤ 0.9%)
- Demonstration of *HideScreen*'s practical usability by evaluating its latency, readability, energy consumption, and users' feedback
- Submitted to *the 27th USENIX Security Symposium (Sec '18)*

Is the Phone in a Moving Car's Driver Seat? 10/2016 – 08/2017
| Real-Time Computing Lab (RTCL)
Advisor: Prof. Kang G. Shin
Developed an in-car phone localization scheme, *DAPL* (Detection and Alarming of Phone Location), to locate smartphones in moving cars for prevention of distracted driving

- Development of a real-time phone localization scheme without requiring any additional customized device and direct communication with subsystems in a car.
- Proposal of an energy-saving mechanism for practical usage scenarios
- Demonstration of *DAPL*'s accuracy via extensive experiments in real driving scenarios with 91.77% localization accuracy, 4.23% false positive, and 4.00% false negative rate
- Submitted to *ACM MobiSys'18*

Large Scale Reliable Mesh Network (Chief Engineer) | Smart X Lab 05/2015 – 06/2016
Developed and commercially deployed large scale IoT systems based on IEEE 802.15.4

- Implemented a IoT network system from end devices, gateways, to cloud
- Designed and implemented indoor positioning system, and deployed to multiple commercial sites in Taiwan
- Designed and implemented secure network entry mechanisms for large scale mesh networks
- Designed and implemented reliable all-to-one report mechanisms for large scale mesh networks

Green Context-Aware Platform for Smart Living (Team Leader) 02/2012 – 01/2014
| Next Generation Wireless Networking Lab
Advisor: Prof. Chun-Ting Chou
Developed a context-aware platform that integrates heterogeneous sensors and actuators in smart living environments

- Designed a three-layer platform that connects heterogeneous devices with different network technologies
- Designed automatic configuration mechanisms that enable the devices to set up control links and conduct self-configuration automatically
- Designed self-powered wireless sensors and radio sniffers to detect user behaviors without interfering the original user habits and intruding user privacies
- Designed and implemented indoor positioning mechanism based on multi-dimensional scaling (MDS)
- Designed user-friendly control mechanisms that enable users to control and configure the devices intuitively
- Published in *IEEE International Conference on Service-Oriented Computing and Applications (SOCA)*, Dec. 2013

Cooperative Localization (Team Member) | Next Generation Wireless Networking Lab 09/2010 – 01/2012
Advisor: Prof. Chun-Ting Chou
Developed a cooperative localization scheme that enhances localization accuracy

- Designed a localization scheme that adopts additional distance information to enhance the localization accuracy of multiple devices
- Published in *IEEE International Wireless Communications and Mobile Computing Conference (IWCMC)*, July 2011

Privacy Protection of Location-based Services (Team Member) 09/2010 – 01/2011
| Next Generation Wireless Networking Lab
Advisor: Prof. Chun-Ting Chou
Identified identity leak issues when using anonymous location-based services

- Proposed a scheme based on clustering algorithms to reveal user identities in anonymous data set

EDUCATION

CSE Ph.D. Student (Candidate) 09/2016 – present

- Computer Science and Engineering, University of Michigan, Ann Arbor, U.S.
- GPA: 4.0/4.0

Master of Science Degree 02/2012 - 01/2014

- Institute of Communication Engineering, National Taiwan University (NTU), Taiwan
- GPA: 4.26/4.30 (Converted GPA: 3.98/4.0)
- Rank: 11th among 104 students

Bachelor of Science Degree (Graduated in only 3.5 years) 09/2008 - 01/2012

- Department of Electrical Engineering, National Taiwan University (NTU), Taiwan
- GPA: 88.18/100 (Converted GPA: 3.94/4.0)
- Rank: 47th among 226 students

Working And Teaching Experiences

Chief Engineer (Full Time)
| Smart X Lab (http://smartxlab.com) 06/2015 – 06/2016

Substitute Military Services (Educational Services)
| Office of General Affairs at Tainan Municipal WunSian Junior High School 04/2014 – 04/2015

Graduate Assistant
| Next Generation Wireless Networking Lab (http://nxg.ee.ntu.edu.tw) 02/2012 - 01/2014

Teaching Assistant (Course: Design of Wireless Communication Networks)
| Graduate Institute of Communication Engineering, National Taiwan University 09/2013 - 01/2014

Publications And Awards

Chun-Yu Chen, Bo-Yao Lin, Junding Wang and Kang G. Shin
"Keep Others from Peeking at Your Mobile Device Screen!"
Submitted to *the 27th USENIX Security Symposium (Sec '18)*

Chun-Yu Chen and Kang G. Shin
"Is the Phone in a Moving Car's Driver Seat?"
Submitted to *ACM MobiSys'18*

Master Thesis
"A Green Context-Aware Platform for Smart Living," Jan. 2014

Chun-Yu Chen, Yu-Jen Ku, Chih-Wei Ho, Yan-Ze Lin, and Chun-Ting Chou
"A Green Context-Aware Platform for Smart Living,"
IEEE International Conference on Service-Oriented Computing and Applications (SOCA), Dec. 2013

Yu-Chung Chen, Chun-Ting Chou and **Chun-Yu Chen**
"Cooperative localization for wireless and mobile social networking service (SNS),"
IEEE International Wireless Communications and Mobile Computing Conference (IWCMC), July 2011

National Taiwan University Presidential Award (1st Semester of 2011-2012 School Year)
- Awarded to the top 5% of students in the Department of Electrical Engineering each semester

Skills And Languages

Programming: Android Programming, C/C++, C#, Java, JavaScript, PHP, Verilog
Script: UNIX Shell Script, Matlab, AWK
Database: MySQL, MongoDB
Other: MQTT, HTML
Languages: Chinese (Mandarin), English, Taiwanese