Chun-Yu (Daniel) Chen

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! | 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 SeIImage, 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? | 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

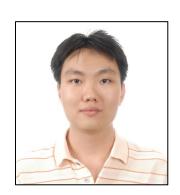
Large Scale Reliable Mesh Network (Chief Engineer) | Smart X Lab

05/2015 - 06/2016

10/2016 - 08/2017

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



09/2017 – 02/2018

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 selfconfiguration 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) | Next Generation Wireless Networking Lab

09/2010 - 01/2011

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