

Kexiong (Curtis) Zeng

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OBJECTIVE To apply for summer internship in 2017.

PROFILE

- Five-year research experience on building/securing computer networks and systems, especially for wireless and mobile ones.
 - Keywords: secure-localization, energy-aware, connectivity
- Programming skills including software development, application design.
- Solid math foundation including modeling and analysis.

EDUCATION

Virginia Tech
PhD student in Computer Engineering, 08/2013 - 05/2018 (expected)
Master of Science in Computer Engineering, 08/2013 - 12/2016
Advised by Dr. Yaling Yang

- GPA: 3.93/4.00

University of Electronic Science and Technology of China
Bachelor of Engineering in Communications Engineering, 09/2009 - 06/2013
Excellent Graduate from Yingcai Honors College

- GPA: 3.83/4.00, Rank: 1/110 in the third year

TECHNICAL SKILLS

Programming
Python/MATLAB (proficient), C/C++/Java (prior experience)

OS & software
Linux, Android, GNURadio, AllJoyn

WORK EXPERIENCE

Microsoft Research, Beijing, China, 06/2015 - 01/2016
Cloud & Mobile Group
Mentors: Borje Karlsson, Thomas Moscibroda, Ranveer Chandra, and Anirudh Badam

- Software Defined Batteries Project
 - Designed, simulated and evaluated charge/discharge algorithms for software defined batteries in Microsoft Surface Book.
- Smarthome Project
 - Designed and implemented smarthome Android apps in Java under AllJoyn Internet of Things framework.

RESEARCH PROJECTS

Providing Connectivity at Sea by Energy Harvesting Maritime Wireless Mesh Networks

- Leading a team of 3 professors and 7 students from ECE (Electrical & Computer Engineering) and ME (Mechanical Engineering) Departments.
- Built a software & hardware WiFi-like white space radio system on the top of an energy harvesting buoy. The system is implemented in Python & C++ under GNURadio framework on USRP (Universal Software Radio Peripheral) N210 platform.
- Built a wireless signal propagation model over sea surface and implemented it in MATLAB.

Location Spoofing and Verification for Location-Based Mobile Apps

- Proposed a practical GPS spoofing attack model, which diverts victims in road navigation scenario.
- Built a software tool in Python for real-time attack route search, which is based on real geographic information parsed from OpenStreetMap.
- Implemented a portable low-cost GPS spoofer in C on HackRF platform and demonstrated real-world GPS spoofing attacks against various location-based mobile apps (e.g., Uber, Waze, Google Maps, PokeMon Go, etc.).
- Proposed and implemented robust location verification mechanisms by machine learning the correlations between location features (e.g., intersection, stop sign, traffic light, Google Street View, etc.) and wired sensor hints (e.g., inertial sensor readings, camera images, etc.)

Location Spoofing Attack and Its Countermeasures in Database-Driven Cognitive Radio Networks

- Proposed location spoofing attacks in database-driven cognitive radio networks.
- Built a software tool in MATLAB to simulate the network and evaluate the impact of such attacks.
- Discussed possible countermeasures to defend against such attacks.

SELECTED PUBLICATIONS

- Kexiong (Curtis) Zeng, Yuanchao Shu, Shinan Liu, Yanzhi Dou, and Yaling Yang, “A Practical GPS Location Spoofing Attack in Road Navigation Scenario”, in the Proceedings of the 18th Workshop on Mobile Computing Systems and Applications (ACM HotMobile’17).
- Kexiong (Curtis) Zeng, Yanzhi Dou, Yaling Yang, and Ranveer Chandra, “Poster: Location Verification and Recovery for Mobile In-Vehicle Applications”, in the Proceedings of the 13th Annual International Conference on Mobile Systems, Applications, and Services (ACM MobiSys’15).
- Kexiong (Curtis) Zeng, Sreeraksha Kondaji Ramesh, and Yaling Yang, “Location Spoofing Attack and Its Countermeasures in Database-Driven Cognitive Radio Networks”, in the Proceedings of the IEEE Conference on Communications and Network Security (IEEE CNS’14)

SELECTED AWARDS

- National Scholarship (China’s highest-class scholarship for the top 1% students), 2010 & 2012
- Excellent graduate of UESTC, 2013
- Third Prize in the UESTC Programming Contest, 2010 & 2012
- NSF funded undergraduate intern, 09/2012 - 05/2013

TEACHING EXPERIENCE

ECE 4564: Android Network Application Design, fall 2013

- Taught pragmatic network programming skills based on Android platform.
- Received top student reviews.