

CHI-YU LI

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National Chiao Tung University
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RESEARCH INTERESTS

Wireless Networking, Mobile Systems and Networks, Network Security

EDUCATION

University of California, Los Angeles *Mar. 2015*
Ph.D. in Computer Science
Advisor: Professor Songwu Lu

University of California, Los Angeles *Jun. 2013*
M.S. in Computer Science
Advisor: Professor Songwu Lu

National Chiao Tung University *Jun. 2006*
M.S. in Computer Science and Engineering
Advisor: Professor Rong-Hong Jan

National Chiao Tung University *Jun. 2004*
B.S. in Computer and Information Science
B.S.M. in Management Science

RESEARCH EXPERIENCE

- NCTU, Computer Science Department** *Feb. 2016 - Present*
Postdoctoral Scholar - worked with Professor Kuo-Chen Wang
Hsinchu, Taiwan
- **Project I:** Security for control-plane operations in Software Defined Networking
- UCLA, Computer Science Department** *Apr. 2015 - Dec. 2015*
Postdoctoral Scholar - worked with Professor Songwu Lu
Los Angeles, CA
- **Project I:** Cellular Network Services in Peril: A Perspective on Control-Plane and Data-Plane Design
- UCLA, Computer Science Department** *Sep. 2010 - Mar. 2015*
Research Assistant - worked with Professor Songwu Lu
Los Angeles, CA
- **Project I:** Cellular Network Services in Peril: A Perspective on Control-Plane and Data-Plane Design
 - **Project II:** Secure Data Charging Architecture for Mobile Devices in 3G/4G Cellular Networks: Vulnerabilities and Solutions
 - **Project III:** Energy Efficiency for 802.11n MIMO WiFi
 - **Project IV:** Latency-Aware Rate Adaptation in 802.11n Home Networks
- NCTU, Computer Science Department** *Aug. 2008 - Jul. 2009*
Research Assistant - worked with Professor Rong-Hong Jan
Hsinchu, Taiwan
- **Project I:** iPCA: Integrated Information System for Patient Controlled Analgesia using Wireless Sensor Networks

TEACHING EXPERIENCE

(CS118) Computer Network Fundamentals, CSD, UCLA	2012, 2013
(CS32) Introduction to Computer Science II, CSD, UCLA	2012
Wireless Local Area Network (Graduate Course), CSD, NCTU, Taiwan	2006
Computer Networks (Graduate Course), CSD, NCTU, Taiwan	2005
Probability, CSD, NCTU, Taiwan	2005

WORK EXPERIENCE

Ministry of National Defense, Taiwan Second Lieutenant	Jul. 2006 - Sep. 2007
3eTI Inc., Taiwan Internship	Mar. 2006 - Jul. 2006
National Center for High-Performance Computing, Taiwan Internship	Apr. 2005 - Jul. 2005

PUBLICATIONS

Conference Papers

1. Chi-Yu Li, Guan-Hua Tu, Chunyi Peng, Zengwen Yuan, Yuanjie Li, Songwu Lu, Xinbing Wang. Insecurity of Voice Solution VoLTE in LTE Mobile Networks. *ACM CCS 2015*.
2. Guan-Hua Tu, Chi-Yu Li, Chunyi Peng, Songwu Lu. How Voice Call Technology Poses Security Threats in 4G LTE Networks. *IEEE CNS 2015*.
3. Chi-Yu Li, Chunyi Peng, Songwu Lu, Xinbing Wang, Ranveer Chandra. Latency-Aware Rate Adaptation in 802.11n Home Networks. *IEEE INFOCOM 2015*.
4. Chunyi Peng, Chi-Yu Li, Hongyi Wang, Guan-Hua Tu, Songwu Lu. Real Threats to Your Data Bills: Security Loopholes and Defense in Mobile Data Charging. *ACM CCS 2014*.
5. Guan-Hua Tu, Yuanjie Li, Chunyi Peng, Chi-Yu Li, Hongyi Wang, Songwu Lu. Control-plane Protocol Interactions in Cellular Networks. *ACM SIGCOMM 2014*.
6. Ioannis Pefkianakis, Chi-Yu Li, Chunyi Peng, Suk-Bok Lee, Songwu Lu. CMES: Collaborative Energy Save for MIMO 802.11 Wireless Networks. *IEEE ICNP 2013*.
7. Guan-Hua Tu, Chunyi Peng, Hongyi Wang, Chi-Yu Li, Songwu Lu. How Voice Calls Affect Data in Operational LTE Networks. *ACM MOBICOM 2013*.
8. Guan-Hua Tu, Chunyi Peng, Chi-Yu Li, Xingyu Ma, Songwu Lu. Accounting for Roaming Users on Mobile Data Access: Issues and Root Causes. *ACM MOBISYS 2013*.
9. Chi-Yu Li, Chunyi Peng, Songwu Lu, Xinbing Wang. Energy-based Rate Adaptation for 802.11n. *ACM MOBICOM 2012*.
10. Chunyi Peng, Chi-Yu Li, Guan-Hua Tu, Songwu Lu, Lixia Zhang. Mobile Data Charging: New Attacks and Countermeasures. *ACM CCS 2012*.

11. Chunyi Peng, Guan-Hua Tu, Chi-Yu Li, Songwu Lu.
Can We Pay for What We Get in 3G Data Access?
ACM MOBICOM 2012.
12. Chi-Yu Li, Ioannis Pefkianakis, Bojie Li, Chenghui Peng, Wei Zhang, Songwu Lu.
A Multimedia Service Migration Protocol for Single User Multiple Devices.
IEEE ICC 2012.
13. Chi-Yu Li, Ioannis Pefkianakis, Bojie Li, Chenghui Peng, Wei Zhang, Songwu Lu.
A TCP Service Migration Protocol for Single User Multiple Devices.
IARIA UBICOMM 2011.
14. Ioannis Pefkianakis, Chi-Yu Li, Songwu Lu.
What is Wrong/Right with IEEE 802.11n Spatial Multiplexing Power Save Feature?
IEEE ICNP 2011.
15. Jiangzhe Wang, Chunyi Peng, Chi-Yu Li, Eric Osterweil, Ryuji Wakikawa, Pei-Chun Cheng, Lixia Zhang.
Implementing Instant Messaging Using Named Data.
AINTEC 2010.

Journal Papers

1. Chi-Yu Li, Chunyi Peng, Peng Cheng, Songwu Lu, Xinbing Wang, Fengyuan Ren, Tao Wang.
An Energy Efficiency Perspective on Rate Adaptation for 802.11n NIC.
IEEE Transactions on Mobile Computing (TMC), 2015.
2. Guan-Hua Tu, Yuanjie Li, Chunyi Peng, Chi-Yu Li, Songwu Lu.
Detecting Problematic Control-Plane Protocol Interactions in Mobile Networks.
IEEE/ACM Transactions on Networking (TON), 2015.
3. Andy An-Kai Jeng, Rong-Hong Jan, Chi-Yu Li, Chien Chen.
Release-Time-Based Multi-Channel MAC Protocol for Wireless Mesh Networks.
Computer Networks, vol. 55, no. 9, p2176-2195, 2011.
4. Chi-Yu Li, An-Kai Jeng, Rong-Hong Jan.
A MAC Protocol for Multi-channel Multi-interface Wireless Mesh Network Using Hybrid Channel Assignment Scheme.
Journal of Information Science and Engineering, vol. 23, no. 4, p1041-1055, 2007.

Workshop Papers

1. Guan-Hua Tu*, Chi-Yu Li* (*:Co-Primary), Chunyi Peng, Zenwen Yuan, Yuanjie Li, Xiaohu Zhao, Songwu Lu.
VoLTE*: A Lightweight Voice Solution to 4G LTE Networks
ACM HotMobile 2016.
2. Chi-Yu Li, An-Kai Jeng, Rong-Hong Jan.
A Medium Access Control Protocol for Multi-channel Multi-interface Wireless Mesh Network.
Wireless, Ad Hoc and Sensor Networks (WASN) 2006. (Best Paper Award)

Patents

1. Bojie Li, Zhang Wei, Chenghui Peng, Songwu Lu, Chi-Yu Li.
Method and Apparatus for Service Migration between User Devices.
US Patent 20140258412.
2. Chunyi Peng, Guanhua Tu, Songwu Lu, Chi-Yu Li.
Apparatus and Methods against Data Overcharging for Unwanted Packets in Cellular Networks.
US Provisional Patent Application.

3. Chi-Yu Li, Songwu Lu, Ioannis Pefkianakis, Chunyi Peng, Xinbing Wang.
Auto-Configurable Speed-up and Energy-saving for WLAN MIMO Clients.
US Provisional Patent Application.

Ph.D. Dissertation

1. Chi-Yu Li.
Toward Customizable Wi-Fi.
Ph.D. Dissertation in Computer Science, University of California, Los Angeles, 2015.

PRESS COVERAGE

The Verge: Researchers discover new attacks amid VoLTE rollout	<i>Oct. 2015</i>
RCR Wireless News: Researchers hack VoLTE, get free data	<i>Oct. 2015</i>
The Verge: Your carrier may be charging you for data you didn't receive	<i>Sep. 2012</i>
MIT Technology Review: How your wireless carrier overcharges you	<i>Sep. 2012</i>

TECHNOLOGY TRANSFER

VoLTE Vulnerabilities and Remedies *Jul. 2015*

- We reported our VoLTE findings to two US carriers, T-Mobile and Verizon, and worked with them to fix the VoLTE vulnerabilities.

Secure Mobile Data Charging *Nov. 2014*

- We reported our findings to two US carriers, AT&T and T-Mobile, and worked with them to fix the security issues of mobile charging.

Service Migration between User Devices *Nov. 2012*

- We collaborated with Huawei on the design of service migration for the single-user, multi-device scenario. We published two conference papers and one international patent, as well as have two submissions of IETF drafts.

REVIEWER

IEEE/ACM Transactions on Networking	<i>2011,2013,2014,2015</i>
IEEE Transactions on Mobile Computing	<i>2012,2013,2014</i>
IEEE Transactions on Computers	<i>2014</i>
IEEE International Conference on Communications	<i>2013,2015</i>
IEEE Wireless Communications and Networking Conference	<i>2012</i>

HONORS AND AWARDS

IEEE INFOCOM'15 Student Travel Grant	<i>2015</i>
Outstanding Master of Science Graduate in Computer Science, UCLA	<i>2013</i>