

Muhammad Taqi Raza

CONTACT INFORMATION	WiNG Research Laboratory Room 396, Engineering VI Computer Science Department, UCLA	web: http://web.cs.ucla.edu/~taqi/ mobile: +1 424-279-2626 e-mail: taqi@cs.ucla.edu
RESEARCH INTERESTS	Network Function Virtualization, Cloud Computing, Network and System Security, System Fault Tolerance, 4G and 5G Networks, Mobile Computing.	
EDUCATION	University of California Los Angeles, United States <i>Doctor of Philosophy of Computer Science (CGPA: 4/4)</i> September 2013 – present <ul style="list-style-type: none">Advisors: Professor Songwu Lu and Mario GerlaThesis (expected): Low Latency and High Reliability of Virtualized Mobile Networks <i>Master of Computer Science (CGPA: 4/4)</i> September 2017 <ul style="list-style-type: none">Thesis: On the Security Vulnerabilities of Cross-Layer LTE Protocol Design Ajou University, South Korea <i>Master of Information and Communication Engineering</i> September 2006 – August 2008 <ul style="list-style-type: none">Advisors: Professor Ki-Hyung Kim and Seung-Wha YooThesis: Design and Implementation of Sensor Service Portals (SSPs) National University of Sciences and Technology, Pakistan <i>Bachelor of Information Technology</i> September 2002 – August 2006 <ul style="list-style-type: none">Advisors: Professor N.D. Gohar and Michael Fiddy (UNCC)Thesis: Target Detection, Prediction and Tracking in Wireless Sensor Networks	
HONOURS AND AWARDS	<ul style="list-style-type: none">- Finalist: Qualcomm Innovation Fellowship Award, 2015- Promoted to Teaching Fellow in Computer Science Department, 2015 – present- Recipient of PhD Fellowship from the Computer Science Department, 2013- MC President Award, LG Electronics, for contribution in LTE platform, 2012- Outstanding Performance Award for contributions in LTE protocols, 2011- Outstanding Performance Award for contributions in LTE protocols, 2010- Korean Government Scholarship Award, 2006 - 2008- Ajou University Tuition Fee Scholarship Award, 2006 - 2008	
SELECTED PUBLICATIONS (SINCE 2017)	<p>Muhammad Taqi Raza, Dongho Kim, Kyu-Han Kim, Songwu Lu and Mario Gerla, “Rethinking LTE Network Functions Virtualization”, In <i>25th IEEE International Conference on Network Protocols, IEEE ICNP, 2017</i>. acceptance rate: 18.8%</p> <p>Muhammad Taqi Raza, and Songwu Lu, “Enabling Low Latency and High Reliability for IMS-NFV”, In <i>13th ACM/IEEE International Conference on Network and Service Management, ACM/IEEE CNSM, 2017</i>. acceptance rate: 17.6%</p> <p>Muhammad Taqi Raza, Fatima Muhammad Anwar, and Songwu Lu, “Exposing LTE Security Weaknesses at Protocol Inter-Layer, and Inter-Radio Interactions”, In <i>13th International Conference on Security and Privacy in Communication Networks, SecureComm, 2017</i>. acceptance rate: 29.5%</p> <p>Muhammad Taqi Raza, Hsiao-Yun Tseng, ChangLong Li, and Songwu Lu, “Modular Redundancy for Cloud based IMS Robustness”, In <i>15th ACM International Symposium on Mobility Management and Wireless Access, ACM MobiWac, 2017</i>. (best paper award nominee). acceptance rate: 28%</p>	

TEACHING
EXPERIENCE
(MORE THAN 3
YEARS)

University of California Los Angeles, United States

Teaching Fellow

September 2015 – present

CS33 – Introduction to Computer Organization

Assembly level machine organization, functional organization, Memory management, and more

CS219 – Cloud Computing

Data center networking, systems software, service platforms and applications, and related topics

CS118 – Computer Networks

Layered network architecture, network protocols, routing protocols, network security, and more

CS111 – Operating Systems

Concurrency, scheduling, file systems, resource allocation, distributed systems, and related topics

PROFESSIONAL
EXPERIENCE
(MORE THAN 5
YEARS)

Hewlett Packard Labs, Palo Alto, United States

Intern

May 2016 – August 2016

Intern

June 2015 – September 2015

- Led first study and implementation efforts to virtualizes LTE Network Functions (NFs).
- Provided fault tolerance schemes in Virtualized LTE NFs.
- Designed novel solutions to reduce data access latencies in NFV of 4G LTE.
- Addressed concurrency and scheduling issues in state-of-the-art LTE Mobile Edge Compute design.

Qualcomm Research Center, San Diego, United States

Intern

June 2014 – September 2014

- Resolved dependencies between Fusion and Peregrine platforms of LTE Acolyte project.
- Implemented message passing schemes between kernel and user space.
- Worked on Acolyte hardware prototype and resolved timing issues to cater DC offset.
- Prototyped patent ideas to and beyond Acolyte project.

Mobile Communications R&D Center, LG Electronics, Seoul, South Korea

Senior Software Engineer

June 2010 – September 2013

- In depth understanding of 3GPP LTE standardization, especially LTE Protocols.
- Implementing part of System Determination and System Selection procedures LTE module.
- Implementation of call control and event notification services of Call Manager of LTE module.
- In depth understanding of QUALCOMMs LTE chipset implementation.
- On site debugging and fixture of LTE firmware issues as raised during Interoperability Testing (IoT).
- Issue debugging by analyzing logs from the network, i.e. the core network and the LTE base station.
- Responsible for developing test plans, interpreting product specifications, and debugging failures.
- Managed LGE project called, Xenon, and supervised the group of four engineers.

Electronics and Telecommunication Research Institute, ETRI, Daejeon, South Korea

Member of Technical Staff

August 2008 – June 2010

- R&D on TDMA and channel hopping MAC schemes of Wireless Sensor Network project, S-MoRe.
- Asynchronous Multi-threaded MAC (M-MAC) for Wireless Sensor Network.
- Worked on Acolyte hardware prototype and resolved timing issues to cater DC offset.
- Participating in standardization activities of IEEE 802.15.4 and IETF 6LoWPAN working groups.

SK Telecom, Seoul, South Korea

Intern

December 2007 – February 2008

Intern

December 2006 – February 2007

- Implemented part of Interactive Learning System, and Sentence Recognition System for SK telecom.
- Worked on the implementation of “T-Ecosystem” for SK telecoms mobile platform “T-PAK”.
- Feasibility study on T-PAK Ecosystem to replace Qualcoms BREW and Nokias NCD.

PROGRAMMING

C, C++, Matlab, Linux shell scripting, Network simulators, Python, L^AT_EX 2_ε, SQL, Java, .NET.