MUZAMMIL ABDUL REHMAN

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EDUCATION

Northeastern University – Boston, MA — Sept. 2015 – Aug. 2017
M.S. Computer Science — CGPA: 3.63

Lahore University of Management Sciences (LUMS) – Pakistan — Aug. 2011 – June 2015
B.S. Computer Science — CGPA: 3.72

WORK EXPERIENCE

Graduate Research Assistant – Northeastern University — Sept. 2015 – present
Advisor: Dr. David Choffnes

Country-level Router Geolocation

- Developed a system to outperform best geolocation services for country-level router geolocation by up to 15%.
- Designed a suite of Machine Learning classifiers to accurately predict country locations for 96.5% of routers.
- Discovered cases and quantified the impact of previously-unknown international routing detours between continents.
- Mentored undergraduates in software development and lead the team in developing a web application for our system.

Student Researcher – LUMS — June 2014 – June 2015
Advisor: Dr. Fareed Zaffar

Dynamic Cloud Virtualization

- Designed a system to secure the cloud by eliminating sources of non-determinism in virtual machines.
- Leveraged system resources, program analysis and partial execution of code to ensure cost-effective cloud replay.

Distributed Software Defined Network (SDN)

- Devised a scheme to extend an SDN to support distributed network virtualization between mutually untrusting parties.

COURSE PROJECTS

- Engineering a **CDN** system using Amazon EC2 servers with location and DNS-based rerouting, and LRU caching.
- Implementing a Linux **TCP/IP Stack** using raw sockets with flow control and TCP Reno congestion control.
- Creating a fault-tolerant, scalable, **Distributed Key-Value Store** to efficiently process millions of records in C++.
- Coding a Chord algorithm as a **BitTorrent DHT** for balancing the storage and retrieval of files shared between peers.
- Programming a cache-enable **OS File System** to implement open, read, write, create, remove and truncate system calls in C.
- Securing a server against SQL Injection and Stack Overflows, and developing a **Firewall** for stateful network inspection.

RELEVANT COURSES

- Advanced Algorithms
- Advanced Programming in Java
- Data Structures in C++
- Data Mining & Machine Learning
- Intensive Operating Systems
- Programming Languages in Distributed Systems
- Services Oriented Computing
- Software Engineering
- Software Vulnerabilities & Sec.
- Topics in Distributed Systems
- Topics in Network Security

ADDITIONAL EXPERIENCE AND AWARDS

- **Dean's Fellowship Award (2015-2016):** Awarded to admitted PhD students at Northeastern University.
- **Dean's Honor List Award (2011-2015):** Awarded to students achieving academic excellence in undergraduate at LUMS.
- **Teaching Assistant:** Educated graduate students in the Computer Networks course and evaluated their performance.
- **IEEE Student Member (2016-2017):** Graduate Student Member of IEEE.

TECHNICAL SKILLS

Skills: Python, Java, C++, MySQL, JavaScript, HTML/CSS, MATLAB.
Others: Unix, Software Development, Networking, TCP/IP, Virtualization, Cloud Computing, Concurrent Programming, Databases, SQL, NoSQL, SDLC, Network Security, Big Data, Data Analysis, REST API, Backend Development, Docker, Nginx.