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Ali Musa Iftikhar

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Education

M.Sc. **Tufts University, Medford MA** **Dec 2017**
Major: Computer Science (CGPA: 3.69)
- Graduate Tuition Scholarship, awarded to students with scholarly promise.

B.Sc. **Lahore University of Management Sciences (LUMS), Pakistan** **May 2014**
Major: Electrical Engineering (GPA: 3.51) | Minor: Computer Science (GPA: 3.7)

Relevant Coursework

Internet Scale Distributed Systems	Algorithms & Data Structures	Operating Systems	Computer Networks
Rethinking Internet Architecture	Probability & Statistics	Advanced Calculus	Network Security
Topics in Internet Research	Computation Geometry	Computation Theory	Cloud Computing

Employment

Research Asst. **Tufts University, Medford MA** **Fall 2014 - present**
Network Systems
- Reduced tail latency up to 10 times by using redundancy in a novel way to effectively mitigate stragglers in the Cloud.
- Demonstrated gains on Google Cloud by implementing a redundancy-aware network traffic generator.
- Published results as a first author with 2 collaborators at a top-tier workshop, ACM HotNets'2016. Publication: link

Software Intern **Microsoft, Redmond WA** **Summer 2013**
Development of Automated Test Suite
- Reduced shipping time of datamarket.azure.com by 95% by developing a tool to automate production testing in C#.
- Enabled tests to safely run in production by implementing a kill switch which turns testing off at peak loads.
- Assured reporting accuracy by marking test traffic to distinguish it from real usage (in collaboration with BI team).

Research Intern **LUMS, Lahore Pakistan** **Spring 2013**
Robotics & Computer Vision
- Facilitated autonomous land excavation with the aid of Computer Vision techniques.
- Calibrated a stereo vision camera pair for depth perception using OpenCV.
- Estimated excavated material volume by generating 3D point-clouds of the excavator bucket. Acknowledged: link

Technical Skills

Languages	C, C++, Python, C#, MATLAB, JavaScript, shell, SQL, TCL, XML, CSS, HTML, JSON, PHP, Java (familiar)
Areas	Unix, Computer Networking (TCP/IP), Research, Cloud Infrastructure, Computer Vision, Robotics
Technologies	Visual Studio, git, OpenCV, Robot Operating System (ROS), Point Cloud Library (PCL)

Project Experience

Cloud Topology • Designed a network topology to improve the availability, predictability, and efficiency of data centers. Git: link

Routing Protocol • Analyzed the feasibility of unequal cost multipath routing in data centers by comparing it with ECMP routing.

Sensor Fusion • Achieved robust control of a robotic end effector to scan an uneven terrain using sensor fusion. Report: link

Smartphone App (Microsoft Imagine Cup) • Contributed to the goal of eradicating Polio by building a phone app which monitors vaccine coverage in Pakistan.

Presentations & Teaching

Research Talks • Delivered talks on Cloud Networking: HotNets'2016, Atlanta | SIGCOMM M.M.'2015, London | NENS'2014, Boston.

Posters • Presented work on Redundancy-Aware Network Stack for Data Centers at NENS'2016 & '17 in Boston.

Matlab Workshop • Conducted a workshop for non-programmers in November 2016 at Tufts University.

Teaching Asst. • Taught Algorithms, Computer Networks, Computation Theory and Discrete Mathematics at Tufts and LUMS.