Backend Software Engineer (Python) Backend Software Engineer (Python) Software Engineer pursuing new opportunities | Graduate Research Assistant New York, NY I recently graduated from Northeastern University with a Master's degree in Computer Science. At Northeastern, I am working as a Graduate Research Assistant in the Networked Systems Research Group under the supervision of Professor David Choffnes. My work focuses on developing new systems and software related to Internet Measurements, Privacy and applying Machine Learning in Computer Networks. Now, I'm seeking full-time roles in Software Development and Engineering. I'm open to relocation to any city within United States. With roughly 3 years of Research and Development experience in Distributed Systems, Networks, Back-end Development and Machine Learning, I'm open looking for exciting opportunities in Software Engineering. Please visit my past research projects, related websites, source codes, and code documentations on my personal website at: http://www.ccs.neu.edu/home/muzammil/ Authorized to work in the US for any employer Work Experience Backend Software Engineer (Python) Northeastern University - Boston, MA September 2015 to Present Passport: 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 classi?ers 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 principles of software development, web development and research. Deployed a website with a REST API using Python, uWSGI, Flask, Django ORM, D3.js, HTML, Javascript, CSS, JSON, CSV, scikit-learn, NumPy, MySQL. See the website at https://passport.ccs.neu.edu/ Student Researcher LUMS - Lahore, Pakistan June 2014 to July 2015 Cyclone: 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. Xen Resource Management Formulated a scheme to extend Xen Hypervisor to support load-balancing between different

heterogeneous resources. Teaching Assistant (TA) Lahore University of Management Sciences - Lahore, VA August 2014 to December 2014 Graduate/Undergraduate Computer Networks course Educated graduate students about the basics of networks and evaluated their weekly performance. Python Developer NEWT Lab, LUMS - Lahore, VA October 2012 to March 2013 Disease Surveillance using Twitter Analyzed the reliability of twitter as a source of disease surveillance by removing noise in the data and applying machine learning to classify tweets and used this information for Dengue epidemic prediction using Python, Twitter OAuth API, NLP and machine learning. Education MS in Computer Science Northeastern University - Boston, MA September 2015 to August 2017 BS in Computer Science Lahore University of Management Sciences 2011 to 2015 Skills Python (3 years), Java (1 year), Javascript (Less than 1 year), C++ (1 year), MySQL (2 years), Matlab (Less than 1 year), Python-Flask (1 year), Python-Django (1 year), Scikit-Learn (Python) (2 years), Machine Learning (2 years), TCP/IP (2 years), Software Development (3 years), Cloud Computing (1 year), Networking (2 years), Agile (1 year), Internet Research (1 year), Network Security (1 year), Web Development (1 year), Hadoop (Less than 1 year), Mentoring (Less than 1 year) Links https://www.linkedin.com/in/muzammil-abdul-rehman http://www.ccs.neu.edu/home/muzammil/ http://github.com/muzammilar https://passport.ccs.neu.edu Awards Dean's Fellowship Award 2015-09 Awarded to the admitted PhD students at Northeastern University. Dean's Honor List 2015-06 Awarded to students for achieving academic excellence in the undergraduate at LUMS for four academic years; 2011-2012, 2012-2013, 2013-2014, 2014-2015 Groups IEEE October 2016 to August 2017 * Graduate Student Member of IEEE Publications RPC is Not Dead: Rise, Fall and the Rise of Remote Procedure Calls http://dist-prog-book.com/chapter/1/rpc.html 2016-12 "The definition of RPC has evolved over the decades. It has moved on from a simple client-server design to a group of inter-connected services. While the initial RPC implementations were designed as tools for outsourcing computation to a server in a distributed system, however, RPC has evolved over the years to build language-agnostic ecosystem of applications." Additional Information Selected 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. Using PageRank for graph clustering and identifying different types of Twitter communities.

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