

Mubashir Adnan Qureshi

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Education

University Of Texas at Austin Ph.D. in Computer Science	AUSTIN TX, USA 2019
University Of Texas at Austin M.S. in Computer Science	AUSTIN TX, USA 2016
LUMS B.S. in Electrical Engineering	LAHORE, PAKISTAN 2009 – 2013

Experience

University Of Texas at Austin Researcher	AUSTIN, TX 2013 – Present
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My research spans the area of networked systems and general applications surrounding them.

- Designed a framework *Reflection* to diagnose performance issues in heterogeneous networks upon software/hardware upgrades.
- Invented a new scheduler *Concord* for upgrading nodes in a network while minimizing completion time of overall process and service impact on connected users.
- Designed an efficient approach to do multidimensional anomaly detection and localization of performance issues in networks where search space can be exponential.
- Modified DASH protocol to improve video transmission in wireline and wireless networks. Implemented the approaches in VLC media player and smartphone.
- Developed a new codec *Jigsaw* using commodity CPU and GPU to improve video transmission over 60GHz networks(5G).

Google Software Engineering Intern	MOUNTAIN VIEW, CA Summer 2016
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Worked on incremental expansion of Jupiter fabric in Google data centers.

- Formulated the problem of placement of additional nodes in a cluster as an optimization problem.
- Tailored a *Linear Program* in an optimization engine while minimizing rerouting configuration.
- Wrote extensive tests to classify performance upon addition of different nodes.

AT&T Labs Research Intern	BEDMINSTER, NJ Summer 2014, 2015
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Worked on improving performance predictability upon application of upgrades in cellular networks.

- Designed a statistical tool to capture performance anomalies in the network.
- Implemented a scheme for incremental testing of a new software upgrade.
- Worked on a simulator for rolling out new upgrades in a dense heterogeneous network.
- Implemented an upgrade scheduler on small scale LTE nodes in laboratory settings.

University Of Texas at Austin Teaching Assistant	AUSTIN, TX 2013 – 2017
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Led discussion sections and managed projects/assignments for the multiple undergraduate and graduate courses.

LUMS Research Assistant	LAHORE, PAKISTAN 2011 – 2012
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- Optimized JVM compiler for memory and CPU cycles for small embedded systems.
 - Worked on an optimization problem to re-route voice calls in order to keep network in low power profile mode.
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Skills & Experience

Programming Languages C, C++, Python, Java, Perl, bash, awk, x86-assembly, CUDA, LaTeX.

Software/Hardware: MATLAB, ns-3, Arduino, Cavium LTE small cell, Keras, Cplex, pytorch.

Skills: Problem Solving, Optimization, Data Analytics, Machine Learning, Software Engineering, Statistical Modeling.

System Experience: Following is a representative list relevant projects that I have worked on

- Developed a simulator to schedule upgrades in cellular networks(*Python/C++/Cplex*).
- Multi-dimensional anomaly detection and performance diagnosis in networked systems(*Python*).
- Modified playback and DASH streaming module in VLC media player codebase(*C++*).
- Developed a new video codec *Jigsaw* for next generation networks with GPU support enabled(*C++*).
- Experience implementing distributed system protocols: 3-Phase Commit, Paxos, Bayou etc(*C++*).

Coursework: Distributed Systems, Database Systems, Advanced Networking Protocols, Machine Learning, Linear Programming, Non-linear Programming, Wireless Networks, Computing Cryptographic Data, Computer Networks, Operating Systems, Algorithms, Datacenters.

Publications

Ghufran Baig, Jian He, **Mubashir Adnan Qureshi**, Lili Qiu, Peng Chen, Yinliang Hu.

“Jigsaw: Robust Live 4K Video Streaming”, accepted to appear in *ACM MobiCom 2019*.

Jian He, **Mubashir Adnan Qureshi**, Lili Qiu, Jin li, Feng Li and Lei Han.

“Rubiks: Practical 360-Degree Video Streaming for Smartphones”, in *ACM MobiSys 2018*.

Jian He, **Mubashir Adnan Qureshi**, Lili Qiu, Jin Li, Feng Li and Lei Han.

“Favor: Fine-Grained Video Rate Adaptation”, in *ACM MMSys 2018*.

Mubashir Adnan Qureshi, Ajay Mahimkar, Lili Qiu, Zihui Ge, Max Zhang, Ioannis Broustis.

“Coordinating Rolling Software Upgrades for Cellular Networks”, in *IEEE ICNP 2017*. **Best Paper Award**

Mubashir Adnan Qureshi, Ajay Mahimkar, Lili Qiu, Zihui Ge, Sarat Puthenpura, Nabeel Mir, Sanjeev Ahuja.

“Reflection: Automated Test Location Selection for Cellular Network Upgrades”, in *IEEE ICNP 2017*.

Mubashir Adnan Qureshi, Ajay Mahimkar, Lili Qiu, Zihui Ge, Sarat Puthenpura, Nabeel Mir, Sanjeev Ahuja.

“Automated Test Location Selection for Cellular Network Upgrades”(Poster), in *ACM SIGMETRICS 2016*.

M.S. Ilyas, G. Baig, **M.A.Qureshi**, Q.U.A. Nadeem, A. Raza, M.A. Qazi, B. Rassool.

“Low-Carb: Reducing Energy Consumption in Operational Cellular Networks”, in *IEEE Globecom 2013*.

Faisal Aslam, Ghufran Baig, **Mubashir Adnan Qureshi**, Zartash Afzal Uzmi, Luminous Fennell, Peter Thiemann, Christian Schindelbauer, Elmar Haussmann.

“Rethinking Java Call Stack Design for Tiny Embedded Devices”, in *ACM LCTES 2012*.

Patents

Change Rollout in Wireless Networks. *Patent Number :10299140*

Scheduler for upgrading access point devices efficiently. *Patent Number :10374888*

Awards And Honors

- Best paper Award, IEEE ICNP 2017
- MCD Fellowship awarded by UT Austin, 2013-2016
- TPC Member: ACM S³ Workshop 2018 (colocated with MobiCom)
- Dean’s Honor Scholar
- Academic Distinction