

Zafar Ayyub Qazi

+92 302729997
✉ zafar.qazi@lums.edu.pk
🌐 <http://web.lums.edu.pk/~zaqazi>

Research Interests

My research interests are in networked systems. My current research spans cellular networks, datacenters, middleboxes, and ICT for developing regions.

Academics

- 2010–2016 **Ph.D. Computer Science**, *Stony Brook University*, NY, USA.
 - Advisors: Samir Das (Stony Brook University) and Vyas Sekar (Carnegie Mellon University)
- 2005–2009 **BSc Computer Science**, *LUMS*, Pakistan.

Professional Experience

- 2018–present **Assistant Professor**, *Department of Computer Science, LUMS*, Lahore, Pakistan.
- 2016–2017 **Postdoctoral Scholar**, *UC Berkeley*, CA, USA.
- 2014 **Researcher**, *AT&T Labs–Research*, Bedminster, NJ, USA.
- 2013 **Researcher**, *Hewlett-Packard (HP) Labs*, Palo Alto, CA, USA.

Publications

- Mukhtiar Ahmad, Syed Usman Jafri, Azam Ikram, Wasiq Ahmad Qasmi, Syed Ali Nawazish, Zartash Uzmi, Zafar Ayyub Qazi
[A Low Latency and Consistent Cellular Control Plane](#)
ACM SIGCOMM 2020 (CORE RANK: A*), NY, USA. (accept. rate=22%)
- Ammar Tahir, Muhammad Tahir Munir, Shaiq Munir Malik, Zafar Ayyub Qazi, Ihsan Ayyub Qazi
[Deconstructing Google's Web Light Service](#)
WWW 2020 (CORE RANK: A*), Taipei, Taiwan. (accept. rate=19%)
- Mukhtiar Ahmad, Wasiq Qasmi, Syed Usman Jafri, Ridah Naseem, Ali Nawazish, Azam Ikram, Zartash Uzmi, Zafar Ayyub Qazi
[Fast EPC: A Low Latency Cellular Control Plane](#) (poster)
ACM SIGCOMM 2019 (CORE RANK: A*), Beijing, China.
- Arsalan Ali Gohar Jumani, Fizza Zafar, Zafar Qazi, Ihsan Ayyub Qazi
[Device-Aware Adaptive Video Streaming](#) (poster)
ACM SIGCOMM 2019 (CORE RANK: A*), Beijing, China.
- Arsalan Ali Gohar Jumani, Fizza Zafar, Zafar Qazi, Ihsan Ayyub Qazi
[Unraveling Poor Video Streaming Experiences in the Developing World](#) (poster)
ACM IMC 2018 (CORE RANK: A), Boston, USA.
- Ihsan Ayyub Qazi, Zafar Qazi, Theophilus Benson, Zaid Ahmed Farooq, Abdul Lateef Haamid, Sohaib Ahmad, Bismah Babar, Syeda Fatima Naqvi (LUMS)
[Forward to the Past: Untangling Web Browsing on Low-end Mobile Devices](#) (poster)
ACM IMC 2018 (CORE RANK: A), Boston, USA.

- Zafar Qazi, Melvin Walls, Aurojit Panda, Vyas Sekar, Sylvia Ratnasamy, Scott Shenker
[A High Performance Packet Core for Next Generation Cellular Networks](#)
ACM SIGCOMM 2017 (CORE RANK: A*), Los Angeles, CA, USA, (accept. rate=14%, **Citations: 45+**)
- Tooba Ahsen, Fatima Tariq, M. Tirmazi, I. Idrees, Zafar Ayyub Qazi, Ihsan Qazi, Zartash Uzmi
[DRIBS: Flow Scheduling over Asymmetric Datacenter Topologies](#)
USENIX NSDI 2017, Boston, USA (poster/demo session)
- Sohaib Ahmad, Abdul Haamid, Zhenyu Zhou, Zafar Ayyub Qazi, Theophilus Benson, Ihsan Qazi.
[A View from the Other Side: Understanding Mobile Phone Characteristics in the Developing World](#)
ACM IMC 2016 (CORE RANK: A) Santa Monica, USA, (accept. rate=25%)
- Zafar Ayyub Qazi, Phani Krishna, Vyas Sekar, Samir Das, Vijay Gopalakrishnan, Kaustubh Joshi
[KLEIN: A Minimally Disruptive Design for an Elastic Cellular Core](#)
ACM SOSR 2016, Santa Clara, USA (acceptance rate=25%, **Citations: 50+**)
- Navid H. Azimi, Zafar Ayyub Qazi, H. Gupta, Vyas Sekar, Samir Das, H. Shah, A. Tanwer
[FireFly: A Reconfigurable Wireless Datacenter Fabric using Free-Space Optics](#)
ACM SIGCOMM 2014 (CORE RANK: A*), Chicago, USA (accept. rate=19%, **Citations: 228+**)
- Zafar Ayyub Qazi, Cheng-chun Tu, Luis Chiang, Rui Miao, Vyas Sekar, Minlan Yu
[SIMPLE-fying Middlebox Policy Enforcement Using SDN](#)
ACM SIGCOMM 2013 (CORE RANK: A*), Hong Kong (accept. rate=15%, **Citations: 778+**)
- Zafar Ayyub Qazi, Jeongkeun Lee, G. Bellala, T. Jin, M. Arndt
[Application-Awareness in SDN](#)
ACM SIGCOMM 2013 (CORE RANK: A*), Hong Kong (poster/demo session, **Citations: 152+**)
- Pralhad Deshpande, Zafar Ayyub Qazi, Samir R. Das
[MRMV: Design and Evaluation of a Multi-Radio Multi-Vehicle System for Metro-WiFi Access](#)
ACM MobiSys 2013 Workshop on VANET, Taipei, Taiwan
- Zafar Ayyub Qazi, Cheng-chun Tu, Luis Chiang, Rui Miao, Vyas Sekar, Minlan Yu
[Practical and Incremental Convergence between SDN and Middleboxes](#)
Open Networking Summit (ONS) 2013, Research Track, Santa Clara, USA (accept. rate=23%)

Technical Reports

- Tooba Ahsen, Hifza Khalid, F. Tariq, Zafar Qazi, Sylvia Ratnasamy, Zartash Uzmi, Ihsan Qazi
[DRIBS: Making Backpressure Scheduling Practical in Datacenters](#)
Technical Report, LUMS, 2019.
- Nofel Yaseen, Saim Salman, Ihsan Ayyub Qazi, Zartash Afzal Uzmi, Zafar Ayyub Qazi
[SmarTor: Untangling the Latency Puzzle in Tor](#)
Technical Report, LUMS, 2018.
- Zafar Ayyub Qazi, Vyas Sekar, Samir Das
[A Framework to Quantify the Benefits of Network Functions Virtualization in Cellular Networks.](#)
Technical Report, arXiv:1406.5634, 2014
- Zafar Ayyub Qazi, Zhibin Dou, Samir R. Das,
[Modeling Transmission Capacity of Links Using Flexible Channelization over WiFi](#)
Technical Report, Stony Brook University, 2012.
- Zafar Ayyub Qazi, Saad Nadeem, Zartash Afzal Uzmi

Patents

- **Application-aware network management**
US 20160191348 A1 (Issue Date: June 30, 2016)
Jung Gun Lee, Manfred R. Arndt, Zafar Ayyub Qazi

Research Funding and Grants

- **Google Faculty Research Award, PI** 2018-2019, Amount = \$25,000
- **Distributed Computing Lab (Co-PI), National Centre in Big Data & Cloud Computing**, 2018-2021, Amount: PKR 78,467,207
 - Lead in the Application domain of 5G.
- **Establishment of National Centre in Big Data & Cloud Computing (Co-PI)**, 2018-2021, Amount: PKR 535,972,000
- **HEC NRP Grant 2020 (PI) (Under-Review)**
- **LUMS Faculty Initiative Fund (FIF) Grant**
 - **PI**, Feb 2020 - Jan 2021, Amount = PKR 960,000
 - **PI**, Feb 2019 - Jan 2020, Amount = PKR 960,000
 - **Co-PI**, Feb 2019 - Jan 2020, Amount = PKR 980,000
 - **Co-PI**, Feb 2018 - Jan 2019, Amount = PKR 960,000

Invited Talks

- 2020 **“Deconstructing Google’s Web Light Service”**.
 - The World Wide Web Conference (WWW), Virtual Event, Taipei, Taiwan, April, 2020.
- 2019 **“A Scalable Packet Core for Next Generation of Cellular Networks ”**.
 - Harvard University, May 2019, Cambridge, MA, USA
- 2016-2017 **“PEPC: A High Performance Packet Core for Next Generation Cellular Network”**.
 - Huawei-NetSys annual workshop, Fremont, CA, USA.
 - ACM SIGCOMM 2017, LA, USA.
- 2015-16 **“Minimally Disruptive Management Frameworks for Advanced Network Functions”**.
 - Duke University, Durham, NC, USA
 - HP Labs, Palo Alto, CA, USA
 - UC Berkeley, CA, USA
 - University of Southern California (USC), Los Angeles, CA, USA
 - Bell Labs, NJ, USA
- 2015 **“Towards Flexible and Efficient Networked Systems”**, *LUMS*, Lahore, Pakistan.
- 2013 **“SIMPLE-fying Middlebox Policy Enforcement Using SDN”**.
 - ACM SIGCOMM 2013, Hong Kong
 - HP Labs, Palo Alto, CA, USA
- 2013 **“Integrating SDN and Middleboxes”**, *LUMS*, Lahore, Pakistan.

Teaching Experience

- Spring 2020 **Instructor**, *Network-Centric Computing*, LUMS – Ratings: 4.31/5 (152/177).
- Spring 2020 **Instructor**, *Topics in Internet Research*, LUMS – Ratings: 4.68/5 (8/8).
- Fall 2019 **Instructor**, *Privacy in the Digital Age*, LUMS – Ratings: 4.5/5 (102/102).
- Fall 2019 **Instructor**, *Distributed Systems*, LUMS – Ratings: 4.81/5 (45/45).
- Spring 2019 **Instructor**, *Topics in Internet Research*, LUMS – Ratings: 4.75/5 (26/26).
- Fall 2018 **Instructor**, *Distributed Systems*, LUMS – Ratings: 4.61/5 (33/33).
- Fall 2018 **Instructor**, *Introduction to the Internet: Architecture and Protocols*, LUMS – Ratings: 4.46/5 (45/45).
- Spring 2018 **Instructor**, *Topics in Internet Research*, LUMS – Ratings: 4.45/5 (11/11).

Research Supervision Experience

Doctoral Students

1. Mukhtiar Ahmed (PhD candidate), "A Low Latency and Consistent Control Plane for Next Generation Cellular Networks"

Master Thesis Students

1. Syed Ali Nawazish (MS CS, 2020), "A Hierarchical Anomaly Detector for Cellular Control Plane"
2. Muhammad Azam Ikram (MS CS, 2020), "Priority-Based Transport Protocol for Next-Generation Cellular Control Plane"
3. Muhammad Tahir Munir (MS CS, 2020), "The Impact of Devices Heterogeneity on Privacy Preserving Machine Learning"
4. Syed Ridah Naseem (MS CS, 2019), "Scaling Cellular Signaling Traffic".
5. Wasiq Noor Ahmad Qasmi (MS CS, 2019), "Understanding Signaling Based Attacks in Cellular Networks"
6. Arsalan Ali Gohar Jumani (MS CS, 2019), "Understanding Mobile Video Performance on Low-End Devices"
7. Rubab Zahra Sarfraz (MS CS, 2018), "Detecting Fake News on Social Media". (Co-Supervisor)
8. Syed Fatima Naqvi (MS CS, 2018), "Improving Mobile Web Performance in the Developing World". (Co-Supervisor)

Senior Projects Supervised

1. Ammar Tahir (BS 2020, LUMS), Project: Server-side Web Transcoding
2. Abdul Manan (BS 2020, LUMS), Project: Device-aware video streaming
3. Ahmad Faraz (BS 2020, LUMS), Project: Device-aware video streaming
4. Ahmad Hassan (BS 2020, LUMS), Project: Cellular Congestion Control
5. Taha Ahmad (BS 2020, LUMS), Project: Cellular Congestion Control
6. Talha Aamir (BS 2020, LUMS), Project: Cellular Congestion Control
7. Moughees Ahmad (BS 2020, LUMS), Project: Audio Synthesis using GANs.
8. Zainab Hameed (BS 2020, LUMS), Project: Audio Synthesis using GANs.
9. Basit Iqbal (BS 2020, LUMS), Project: Latency-Aware Transport Protocol for Next Generation Cellular Control Plane
10. Fizza Zafar (BS 2019, LUMS), Project: Device-aware Adaptive Video Bitrate Algorithms for the Developing World
11. Muhammad Salman Munaf, (BS 2019, LUMS) Project: Understanding Video Streaming Performance in Developing Countries

12. Ghulam Murtaza (BS 2019, LUMS) Project: Deconstructing Memory Bottlenecks in Low-Cost Mobile Devices
13. Osama Khurshid (BS 2019, LUMS) Project: On Metrics for Capturing Mobile QoE

———— Honors and Awards

- Google Faculty Research Award 2018-2019, \$25,000
- University fellowship for Spring 2010-Fall 2010 at Stony Brook University
- Placed on the annual dean's honors list during the years (2005-06, 2006-07) at LUMS

———— Services

Technical Program Committee Membersip

- COMSNETS 2021
- ACM SIGCOMM 2019
- ACM CoNEXT 2018 student workshop

Reviewer for the following conferences and journals

- ACM HotNets 2019 (external reviewer)
- IEEE/ACM Transactions on Networking
- ACM SIGCOMM CCR
- IEEE Internet Computing
- IEEE Transactions on Network and Service Management

Grant Reviewer

- LUMS Faculty Initiative Fund (FIF) Grant, 2019.
- LUMS Faculty Initiative Fund (FIF) Grant, 2018.