Zafar Ayyub Qazi

Assistant Professor of Computer Science, SBASSE, LUMS
Director: 5G and Beyond Lab
Co-Director: Networks and Systems Group
Co-PI: National Center for Big Data and Cloud Computing

SBASSE 9–G24A
Department of Computer Science
Lahore University of Management Sciences (LUMS)
D.H.A, Lahore Cantt, 54792, Lahore, Pakistan

Tel: +92 42 3560 8312
Fax: +92 42 3589 8315
Email: zafar.qazi@lums.edu.pk
Web: https://web.lums.edu.pk/~zafar

RESEARCH INTERESTS

My research aims to improve the user experience, affordability, and privacy of *networked systems*. My current research centers on two broad themes: (1) Rethinking the architecture and design of next-generation *cellular networks* to enable emerging real-time applications and (2) Rethinking the *design of the Web* for improving affordability, user experience, and privacy.

EDUCATION

Ph.D. Computer Science 2010 – 2015
Stony Brook University, New York, USA

- *Advisors:* Prof. Samir Das (Stony Brook University) and Prof. Vyas Sekar (Carnegie Mellon University)

BSc (Honors), Major in Computer Science and Minor in Mathematics 2005 – 2009
LUMS, Pakistan

PROFESSIONAL EXPERIENCE

Lahore University of Management Sciences (LUMS), Pakistan

- Assistant Professor, Department of Computer Science, SBASSE 2018-Present
- Adjunct Faculty, Suleman Dawood School of Business 2022

University of California, Berkeley, USA

- Post-doctoral Scholar, EECS Department, UC Berkeley, USA 2016-2017
  - *Supervisors:* Prof. Sylvia Ratnasamy (UC Berkeley) and Prof. Scott Shenker (UC Berkeley)

SELECTED AWARDS

- Vice Chancellor's University-Wide Teaching Excellence Award 2023
- Google exploreCSR Award 2023
- Google Faculty Research Award, 2018
- AI 2000 Most Influential Scholar (Honorable Mention) in the Area of Computer Networking
  - *I was recognized by AI 2000 in their list of the hundred most influential scholars in the area of Computer Networks between 2011 and 2020.*

SELECTED TALKS

- ACM CoNEXT 2022 Conference, Rome, Italy (December 2022)
- Purdue University, USA (April 2021)
- The Web Conference (formerly, WWW), Taipei, Taiwan, (April 2020)
- Harvard University, Cambridge, USA (May 2019)
- ACM SIGCOMM 2019, Preview Session on Cellular Networks, Beijing, China (August 2019)
- ACM SIGCOMM 2017 Conference, LA, USA (August 2017)
- UC Berkeley, Berkeley, USA (2016)

- Duke University, Durham, USA (2016)
- University of Southern California, LA, USA (2016)
- Bell Labs, NJ, USA (2015)
- HP Labs, Palo Alto, USA (2015)
- ACM SIGCOMM 2013 Conference, Hong Kong (2013)

REFEREED PUBLICATIONS

*Note: I have marked the names of my LUMS advisees (**UG** for my undergraduate students, **G** for my graduate students) in the publications below. The CS department at LUMS follows the Australian CORE ranking of workshops, conferences, and journals. I have indicated these rankings beside each publication.*

1. **[Conference]** ***A Framework for Improving Web Affordability and Inclusion***
   Rumaisa Habib[UG], Sarah Tanveer[UG], Aimen Inam[G], Haseeb Ahmed[UG], Ayesha Ali, Zartash Uzmi, Zafar Ayyub Qazi, Ihsan Ayyub Qazi
   In Proceedings of ACM SIGCOMM 2023 (Pages 592–607)**,** New York, USA, September 2023
   https://doi.org/10.1145/3603269.3604872
   [CORE RANK: A*, Acceptance Rate= 22%]

2. **[Conference]** ***Learning Fast and Slow: Towards Inclusive Federated Learning***
   M. Tahir Munir[G], M. Mustansar Saeed[G], Mahad Ali[UG], Zafar Ayyub Qazi, Ihsan A. Qazi, A. A. Raza
   In Proceedings of the European Conference on Machine Learning & Principles and Practice of Knowledge Discovery in Databases (ECML-PKDD) 2023 (Pages 384-401), Torino, Italy, September 2023. https://doi.org/10.1007/978-3-031-43415-0_23
   [CORE Rank A; Acceptance rate = 24%]

3. **[Conference]** ***A First Look at Public Service Websites from the Affordability Lens***
   Rumaisa Habib[UG], Aimen Inam[G], Ayesha Ali, Ihsan Ayyub Qazi, and Zafar Ayyub Qazi
   In Proceedings of the ACM Web Conference 2023 (WWW '23) (Pages 2731–2741), Austin, USA, May 2023. https://dl.acm.org/doi/abs/10.1145/3543507.3583415
   [CORE Rank A*; Acceptance Rate = 19.2%]

4. **[Conference]** ***Enabling Emerging Edge Applications Through a 5G Control Plane Intervention***
   Mukhtiar Ahmad[G], Ali Nawazish[G], Taimoor Tariq[UG], Basit Iqbal[UG], Taqi Raza, Zafar Ayyub Qazi
   In Proceedings of ACM CoNEXT 2022 (Pages 386-400), Italy, December 2022
   https://dl.acm.org/doi/pdf/10.1145/3555050.3569130
   [CORE Rank A; Acceptance Rate = 19.2%]

5. **[Conference]** ***Coal Not Diamonds: How Memory Pressure Falters Mobile Video QoE***
   Talha Waheed[UG], Zahaib Akhtar, Ihsan Ayyub Qazi, Zafar Ayyub Qazi
   In Proceedings of ACM CoNEXT 2022 (Pages 307-320), Italy, December 2022
   https://dl.acm.org/doi/10.1145/3555050.3569120
   [CORE Rank A; Acceptance Rate = 19.2%]

6. **[Conference]** ***Causal Impact of Android Go on Mobile Web Performance***
   Muhammad Abdullah[G], Zafar Ayyub Qazi, Ihsan Ayyub Qazi
   In Proceedings of ACM IMC 2022 (Pages 113–129)**,** Nice, France, October 2022
   https://dl.acm.org/doi/abs/10.1145/3517745.3561456
   [CORE Rank A; Acceptance rate = 26.4%]

7. **[Journal]** ***Neutrino: A Fast and Consistent Edge-based Cellular Control Plane***
   Mukhtiar Ahmad[G], Ali Nawazish[G], Taimoor Tariq[UG], Usman Jafr[UG]i, Adnan Abbas[UG], Mashal

Abbas[UG], Basit Iqbal[UG], Zartash Uzmi, Zafar Qazi
IEEE/ACM Transactions on Networking 2022 (Pages 754 - 769)
(https://ieeexplore.ieee.org/document/9885031)
[CORE Rank A*; Impact Factor 3.796]

8. **[Workshop]** ***Rethinking Web for Affordability and Inclusion***
Ihsan Ayyub Qazi, Zafar Ayyub Qazi, Ayesha Ali, Muhammad Abdullah[G], Rumaisa Habib[UG]
In Proceedings of ACM HotNets 2021 (Pages 9–15), November 2021
https://dl.acm.org/doi/10.1145/3484266.3487376
[CORE Rank A; Acceptance rate = 30.7%]

9. **[Journal]** ***Mobile Web Browsing Under Memory Pressure***
Ihsan A. Qazi, Zafar Ayyub Qazi, T. Benson, E. Latif, A. Manan[UG], G. Murtaza[UG], M. Abrar Tariq[UG]
ACM SIGCOMM Computer Communication Review (CCR) (Pages 35- 48), October 2020
https://dl.acm.org/doi/10.1145/3431832.3431837
[Impact Factor: 1.937; Citations: 14+]

10. **[Conference]** ***Low Latency and Consistent Cellular Control Plane***
Mukhtiar Ahmad[G], U. Jafri[UG], A. Ikram, W. Qasmi[G], A. Nawazish[G], Zartash Uzmi, Zafar Ayyub Qazi
In Proceedings of ACM SIGCOMM 2020 (Pages 648–661), New York, USA, August 2020
https://dl.acm.org/doi/10.1145/3387514.3406218
[CORE Rank A*; Acceptance Rate = 19.2%, Citations: 36+; *First SIGCOMM paper from Pakistan, with a PhD student as the lead author*]

11. **[Conference]** ***A High Performance Packet Core for Next Generation Cellular Networks***
Zafar Ayyub Qazi, Melvin Walls, Aurojit Panda, Vyas Sekar, Sylvia Ratnasamy, Scott Shenker
In Proceedings of ACM SIGCOMM 2017 (Pages 348–361), Los Angeles, USA, August 2017
https://dl.acm.org/doi/10.1145/3098822.3098848
[CORE Rank A*; Acceptance Rate = 19.2%, Citations: 109+]

12. **[Conference]** ***The View from the Other Side: Understanding Mobile Phone Characteristics in the Developing World***
Sohaib Ahmad, Abdul L. Haamid, Zhenyu Zhou, Zafar Ayyub Qazi, T. Benson, Ihsan A. Qazi
In Proceedings of ACM IMC 2016 (CORE RANK: A) (Pages 319–325), Los Angeles, USA, August 2017. https://dl.acm.org/doi/10.1145/2987443.2987470
[CORE Rank A; Acceptance Rate = 25%, Citations: 46+]

13. **[Conference]** ***KLEIN: A Minimally Disruptive Design for an Elastic Cellular Core***
Zafar Ayyub Qazi, Phani Krishna, Vyas Sekar, Vijay Gopalakrishnan, Kaustubh Joshi, Samir Das
In Proceedings of ACM SIGCOMM Symposium on SDN Research 2016 (Pages 1-12), Santa Clara, USA 2016. https://doi.org/10.1145/2890955.2890961
[CORE Rank A; Acceptance Rate = 19%, Citations: 72+]

14. **[Conference]** ***FireFly: A Reconfigurable Wireless Datacenter Fabric using Free-Space Optics***
Navid H. Azimi, Zafar Ayyub Qazi, Himanshu Gupta, Vyas Sekar, Samir Das, H. Shah, A.Tanwer
In Proceedings of ACM SIGCOMM 2014 (Pages 319-330), Chicago, USA, August 2014
https://doi.org/10.1145/2740070.2626328
[CORE Rank A*; Acceptance Rate = 19%, Citations: 360+]

15. **[Conference]** ***SIMPLE-fying Middlebox Policy Enforcement Using SDN***
Zafar Ayyub Qazi, Cheng-chun Tu, Luis Chiang, Rui Miao, Vyas Sekar, Minlan Yu
In Proceedings of ACM SIGCOMM 2013 (Pages 27-38), Hong Kong, August 2013

https://dl.acm.org/doi/10.1145/2534169.248602
[CORE Rank A*; Acceptance Rate = 14%, Citations: 978+]

16. **[Workshop]** ***MRMV: Design and Evaluation of Multi-Radio Multi-Vehicle System for Metro-WiFi Access***
Zafar Ayyub Qazi, Cheng-chun Tu, Luis Chiang, Rui Miao, Vyas Sekar, Minlan Yu
In Proceedings of the tenth ACM international workshop on Vehicular inter-networking, systems, and applications (**VANET'13)** (Pages 77-86)**,** Taipei, Taiwan, 2013
https://dl.acm.org/doi/10.1145/2482967.2482969

17. **[Workshop]** ***Practical and Incremental Convergence between SDN and Middleboxes***
Zafar Ayyub Qazi, Cheng-chun Tu, Luis Chiang, Rui Miao, Vyas Sekar, Minlan Yu
Open Networking Summit (ONS) 2013, CA, USA, 2013
[Acceptance Rate = 23%, Citations: 31+]

18. **[Journal]*Application-Awareness in SDN***
Zafar Ayyub Qazi, Jeongkeun Lee, Gowtham Bellala, Tao Jin, Manfred Arndt
In **ACM SIGCOMM Computer Communication Review (CCR)** (Pages 487- 488), October 2013
https://doi.org/10.1145/2534169.2491700
[Impact Factor: 1.937; Citations: 221+]

Peer Reviewed Extended Abstracts and Posters/Demos

19. ***Fast-EPC: A Low Latency Cellular Control Plane***
Mukhtiar Ahmad, W. Qasmi[G], S. Usman Jafri[UG], Ridah Naseem[G], Ali Nawazish[G], Azam Ikram[G], Zartash Uzmi, Zafar Ayyub Qazi
In Proceedings of the ACM SIGCOMM 2019 Conference Posters and Demos (SIGCOMM Posters and Demos '19). 107-109, China, August 2019 (poster)
https://doi.org/10.1145/3342280.3342324 **[CORE Rank A*]**

20. ***Device-Aware Adaptive Video Streaming***
Arsalan Ali Jumani[G], Fizza Zafar[UG], Zafar Ayyub Qazi, Ihsan Ayyub Qazi
In Proceedings of the ACM SIGCOMM 2019 Conference Posters and Demos (SIGCOMM Posters and Demos '19). 98–100, China, August 2019 (poster)
https://doi.org/10.1145/3342280.3342321 **[CORE Rank A*]**

21. ***Unraveling Poor Video Streaming Experiences in the Developing World***
Arsalan Ali Jumani[G], Fizza Zafar[UG], Zafar Ayyub Qazi, Ihsan Ayyub Qazi
ACM IMC 2018, Boston, USA, November 2018 (poster) **[CORE Rank A]** [Link]

22. ***Untangling Web Browsing on Low–end Mobile Devices***
Ihsan Ayyub Qazi, Zafar A. Qazi, T. Benson, Z. Farooq, A. Haamid, Sohaib Ahmad, Bismah Babar
ACM IMC 2018, Boston, USA, November 2018 (poster) **[CORE Rank A]** [Link]

23. ***DRIBS: Flow Scheduling over Asymmetric Datacenter Topologies***
Tooba Ahsen, Fatima Tariq, M. Tirmazi, Ifrah Idrees, Zafar Qazi, Ihsan Qazi, Zartash Uzmi
NSDI 2017, Boston, MA, USA, March 2017 (poster) [Link]

Under-Review Papers

24. **[Journal]** ***Enabling Emerging Edge Applications Through a 5G Control Plane Intervention***

Mukhtiar Ahmad[G], Ali Nawazish[G], Taimoor Tariq[UG], Muhammad Ahmed[UG], Basit Iqbal[UG], Taqi Raza, Zafar Ayyub Qazi
Under review at IEEE/ACM Transactions on Networking

25. **[Journal]** ***A Causal Analysis of Android Go's Impact on Web Quality Experience Amidst Missing Data***
Muhammad Abdullah[G], Fatim Sohail[UG], Ihsan Ayyub Qazi, Zafar Ayyub Qazi
Under review at IEEE/ACM Transactions on Networking

26. **[Conference]** ***EdgeCAT: A New System Architecture for Enabling Stateful Mobile Edge Applications over 5G***
Mukhtiar Ahmad[G], Faiq Bilal [UG], Ali Nawazish[G], Mutahar Ali[UG], Fawad Ahmad, Zafar Ayyub Qazi
Under review at ACM CoNEXT 2024

27. **[Conference]** ***Analyzing Ad Exposure and Content in Child-Oriented Videos on YouTube***
Emaan Bilal[UG], Nida Tanveer[UG], Aima Shahid[UG], Jaffer Iqbal[UG], Ihsan A. Qazi, Zafar Ayyub Qazi
Under review at The Web Conference 2024

28. **[Conference]** ***Uncovering the Hidden Data Costs of Mobile YouTube Video Ads***
Emaan Attique[UG], Saad Sher Alam[UG], Harris Ahmed[UG], Ihsan A. Qazi, Zafar Ayyub Qazi
Under review at The Web Conference 2024

TEACHING EXPERIENCE

LUMS

- **CS 382: Network-Centric Computing** (Spring 2020—2023) [undergraduate–level, core]
  - Average instructor ratings (most recent first): 4.44/5 (72/112), 4.13/5(130/172), 4.42/5 (124/161), 4.31/5 (152/177)
- **CS582: Distributed Systems** (Fall 2018—2023) [graduate–level, breadth-core]
  - Average instructor ratings: 4.54/5 (48/54), 4.39/5 (43/49), 4.75/5 (29/34), 4.81/5 (45/45), 4.61/5 (33/33)
- **CS678: Topics in Internet Research** (Spring 2012—2023) [graduate–level]
  - Average instructor ratings: 4.59/5 (36/46), 4.91 (16/16), 4.68 (29/29), 4.68 (8/8), 4.75 (6/6), 4.45 (11/11)
- **CS6312: Privacy in the Digital Age** (Fall 2019) [graduate–level]
  - Average instructor ratings: 4.5/5 (102/102)
- **CS4713: Introduction to the Internet** (Fall 2018) [undergraduate–level]
  - Average instructor ratings: 4.46/5 (45/45)
- **MBAS6012: Business After 5G** (Fall 2022) [second year MBA students, SDSB]
  - Average instructor ratings: 4.39/5 (35)

Semester	Course Code and Title	Class Enrollment	Instructor Evaluation (Out of 5)	Course Evaluation (Out of 5)
Fall 2023	CS 582: Distributed Systems	86	4.41	4.37
Spring 2023	CS678/EE672: Topics in Internet Research	46	4.59	4.61
Spring 2023	CS382/EE475: Network-Centric Computing	112	4.44	4.27

Fall 2022	CS 582: Distributed Systems	54	4.54	4.46
Spring 2022	CS678/EE672: Topics in Internet Research	16	4.91	4.89
Spring 2022	CS382/EE475: Network-Centric Computing	172	4.13	4.00
Fall 2021	CS 582: Distributed Systems	49	4.39	4.37
Spring 2021	CS678/EE672: Topics in Internet Research	29	4.68	4.60
Spring 2021	CS382/EE475: Network-Centric Computing	161	4.42	4.31
Fall 2020	CS 582: Distributed Systems	34	4.75	4.68
Spring 2020	CS678/EE672: Topics in Internet Research	8	4.68	4.75
Spring 2020	CS382/EE475: Network-Centric Computing	177	4.31	4.24
Fall 2019	CS 582: Distributed Systems	45	4.81	4.58
Fall 2019	CS6312: Privacy in the Digital Age	102	4.5	4.47
Spring 2019	CS678/EE672: Topics in Internet Research	6	4.75	4.71
Fall 2018	CS 582: Distributed Systems	33	4.61	4.41
Fall 2018	CS4713: Introduction to the Internet	45	4.46	4.12
Spring 2018	CS678/EE672: Topics in Internet Research	11	4.45	4.41

Guest Lectures

- CS 536: Data Communication and Computer Networks, *Purdue University*, USA (Spring 2021)
- CS 5721: Introduction to the Internet of Things, *LUMS* (Summer 2020)
- CS471: Computer Networks: Principles and Practices, *LUMS* (Fall 2018)
- CSE 570: Wireless and Mobile Networking, *Stony Brook University* (Fall 2014)

RESEARCH FUNDING AND GRANTS

1. **HEC NRPU**, "*Redesigning Cellular Control Plane for Emerging Edge Applications*" **(PI)**, 2022–2024.
2. **Google exploreCSR Award (Co-PI),** 2023-2024
3. **Google Faculty Research Award (PI)**, 2018–2019
4. **Distributed Cloud Computing Lab (Co-PI)**, National Centre in Big Data & Cloud Computing, 2018–2021
5. **Establishment of National Centre in Big Data & Cloud Computing (Co-PI)**, 2018–2021
6. **PHC-PERIDOT Mobility Grant Program (Co-PI)**
7. **LUMS Faculty Initiative Fund (FIF) Grant**
   i. PI, March 2020 – Feb 2021
   ii. PI, Feb 2019 – Jan 2020
   iii. Co–PI, Feb 2018 – Jan 2019
8. **LUMS Faculty Startup Grant (PI)**, LUMS, 2011–2013

RESEARCH SUPERVISION EXPERIENCE

Ph.D. Student

1. Mukhtiar Ahmed. Ph.D. Advisee, LUMS, 2018–2023 (Cellular Networks)
    - Thesis: *"Rethinking Cellular Networks for Latency Sensitive Edge Applications"*
    - SBARA Research Award Recipient, LUMS (October 2021)
    - Invited Talk: ACM SIGCOMM, NY, USA, August 2020
    - *"First author of a paper in ACM SIGCOMM 2020. For the first time, a PhD student from a Pakistani University had a first-author paper in ACM SIGCOMM"*
    - Ph.D. Defense: August 24, 2023
    - Current Position: *Team Lead, National Center for Big Data & Cloud Computing, LUMS.*

MS Thesis/Project Students

1. Muhammad Ali Nawazish (MS CS, 2021)
    - Thesis: "*A Hierarchical Anomaly Detector for Cellular Control Plane*", SBASSE, LUMS, Pakistan
    - Now a PhD Student at the University of Utah, USA

2. Azam Ikram (MS CS, 2020)
    - Thesis: "*Low Latency Congestion Control for 5G*", SBASSE, LUMS, Pakistan
    - Now a PhD Student at Purdue University, USA

3. Wasiq Noor Qasmi (MS CS, 2021)
    - Thesis: "*Understanding Signaling Based Attacks in Cellular Networks*", SBASSE, LUMS, Pakistan
    - Now a Software Engineer at Stealth Startup

4. Ridah Naseem
    - Thesis: "*Scaling the Processing of Signaling Traffic for Next Generation Cellular Networks*", SBASSE, LUMS, Pakistan.
    - Now Security Analyst at ArenaLabs

5. Muhammad Abdullah (MS CS, 2021)
    - Thesis: "*Impact of Client Operating System on Mobile Web Performance on Entry–Level Devices*" SBASSE, LUMS, Pakistan
    - Now a PhD Student at EPFL, Switzerland

6. Muhammad Mustansar Saeed (MS CS, 2021)
    - Thesis: "*Privacy-Preserving Machine Learning under Client Heterogeneity,*" SBASSE, LUMS, Pakistan
    - Head of Mobile, RLTSQuare

7. Muhammad Tahir Munir (MS CS, 2020)
    - Thesis: "*The Impact of Device Heterogeneity on Privacy Preserving Machine Learning,*" SBASSE, LUMS, Pakistan
    - Senior Research Associate, LUMS

8. Arsalan Ali Gohar Jumani (MS CS, 2019)
    - Thesis: "*Understanding Mobile Video Performance on Low–End Devices,*" SBASSE, LUMS, Pakistan
    - Senior Software Engineer, Apple, Canada

9. Syeda Fatima Naqvi (MS CS, 2018)
    - Thesis: "*Understanding Memory Bottlenecks in Low–End Devices*" SBASSE, LUMS, Pakistan

Undergraduate Research Students

1. Rumaisa Habib. Undergraduate RA, LUMS, 2022–2023 (Web Affordability)
    - PhD Student in CS, Stanford University, USA (2023)

- Fully–funded Ph.D. admission offers from MIT, UC Berkeley, Stanford University, and CMU (All Ranked 1st in Computer Science per the US News University Rankings)

2. Taimoor Tariq. Undergraduate RA, 2020–2022 LUMS (Cellular Networks)
   - Ph.D. student in CS, UIUC, USA

3. Talha Waheed. Undergraduate RA, LUMS, 2020–2022 (Mobile Video)
   - Ph.D. student in CS, UIUC, USA

4. Adnan Abbas. Undergraduate RA, LUMS, 2020–2022 (Cellular Networks)
   - Ph.D. student in CS, Virginia Tech, USA

5. Syed Vafa Batool. Undergraduate RA, LUMS, 2020–2022 (Cellular Networks)
   - Ph.D. student in CS, Dartmouth, USA

6. Ahmed Hassan. Undergraduate RA, LUMS, 2020–2021 (Cellular Networks)
   - Ph.D. student in CS, University of Southern California, USA

7. Muhammad Basit Iqbal Awan. Undergraduate RA, LUMS, 2020-22 (Cellular Networks)
   - Ph.D. student in CS, University of Utah, USA

8. Syed Usman Jafri. Undergraduate RA, LUMS, 2020-21 (Cellular Networks)
   - Ph.D. student in CS, Purdue University, USA

9. Ammar Tahir. Undergraduate RA, LUMS, 2020–2021 (Mobile Web)
   - Ph.D. student in CS, UIUC, USA

10. Maleeha Masood. Undergraduate RA, LUMS, 2020–2021 (Privacy-Preserving Machine Learning)
    - Ph.D. student in CS, UIUC, USA

11. Faaiq Bilal. Undergraduate RA, LUMS, 2022–2023 (Cellular Networks)
    - Ph.D. student in CS, University of Minnesota, USA

12. Mashal Abbas. Undergraduate RA, LUMS, 2021-2022 (Cellular Networks)
    - MS in CS, Waterloo University, Canada
    - Fully funded MS with RAship

13. Haseeb Ahmed. Undergraduate RA, LUMS, 2021-2022 (Mobile Video)
    - MS in CS, Waterloo University, Canada
    - Fully funded MS with RAship

14. Ghulam Murtaza. Research Student, LUMS, 2018–2019 (Mobile Web)
    - Ph.D. student at Brown University, USA

15. Fizza Zafar. Research Student, LUMS, 2018–2019 (Mobile Video)
    - MS, ETH Zurich, USA

16. Osama Khurshid. Research Student, LUMS, 2018–2019 (Mobile Web)
    - Member Of Technical Staff, Qumulo
    - MS CS, Georgia Institute of Technology, USA

17. Abdul Mannan. Research Assistant, LUMS, 2018–20 (Mobile Web)
    - Ph.D. student at Brown University, USA
    - Winner: Summer Research Programme (SRP) 2019–2020 Award

18. Muhammad Abrar Tariq. Research Assistant, LUMS, 2018–20 (Mobile Web)
    - Ph.D. student at the University of Illinois Chicago, USA
    - Winner: Summer Research Programme (SRP) 2019–2020 Award

19. Ahmad Faraz Khan. Research Student, LUMS, 2019 (Mobile Video)
    - Ph.D. student at Virginia Tech, USA

20. Salman Munaf. Research Student, LUMS, 2018–19 (Mobile Video)
    - MS student at Wisconsin Madison, USA

21. Ehsan Latif. Research Assistant, LUMS, 2019–20 (Mobile Web)
    - Ph.D. student at University of Georgia, USA

22. Anna Mazhar. Research Assistant, LUMS, 2020–22 (Mobile Web)
    - MS student at UIUC, USA
    - Fully funded MS with RAship

23. Mahad Ali. Research Assistant, LUMS, 2020–22 (Privacy–Preserving ML)
    - MS student at University of Central Florida, USA

24. Muhammad Taha. Research Assistant, LUMS, 2021–22 (Privacy–Preserving ML)
    - MS student at Purdue Univesity, USA

25. Ahmad Mahmood, Research Advisee, LUMS, 2022–23 (Privacy–Preserving ML)
    - MS student at ETH Zurich

26. Fahad Touseef, Research Advisee, LUMS, 2022–23 (Privacy–Preserving ML)
    - MS student at the University of Wisconsin Madison, USA

27. Laiba Abid, Research Advisee, LUMS, 2021 (Mobile Web)
    - MS student University of Toronto, Canada

28. Mutahar Ahmed, Research Advisee, LUMS, 2022-24 (Cellular Networks)

29. Fatima Sohail, Research Advisee, LUMS, 2022-24 (Privacy Preserving ML)

30. Muhammad Ahmed, Research Advisee, LUMS, 2022-24 (Cellular Networks)

31. Muhammad Jazlan, Research Advisee, LUMS, 2022-24 (Cellular Networks)

32. Mughees Ur Rehman, Research Advisee, LUMS, 2022-24 (Cellular Networks)

33. Emaan Atique, Research Advisee, LUMS, 2022-24 (Mobile Video)

34. Saad Sher Alam, Research Advisee, LUMS, 2022-24 (Mobile Video)

35. Harris Ahmed, Research Advisee, LUMS, 2022-24 (Mobile Video)

36. Emaan Bilal, Research Advisee, LUMS, 2022-24 (Online Privacy)

37. Nida Tanveer, Research Advisee, LUMS, 2022-24 (Online Privacy)

38. Aima Shahid, Research Advisee, LUMS, 2022-24 (Online Privacy)

39. Shazer Ali, Research Advisee, LUMS, 2023-24 (Privacy Preserving ML)

40. Muhammad Hamza Khawaja, Research Advisee, LUMS, 2023-24 (Privacy Preserving ML)

41. Mustafa Bin Amir, Research Advisee, LUMS, 2022-24 (ML Applications)

42. Nameer Anjum, Research Advisee, LUMS, 2023-24 (ML Applications)

43. Azmeer Faisal, Research Advisee, LUMS, 2023-24 (ML Applications)

Independent Study/Directed Research/Internship Advisees

CS497 — Directed Research Project (2 Credits)

- Saad Sher Alam (Fall 2023 & Fall 2022)
- Muhammad Jazlan (Fall 2023 & Spring 2023)
- Mughees Ur Rehman (Fall 2023)
- Emaan Bilal (Summer 2023)
- Firas Abdullah (Spring 2023)
- Harris Ahmed (Spring 2023)
- Muhammad Ahmed (Spring 2023)
- Muhammad Hamza Khawaja (Spring 2023)
- Aima Shahid (Spring 2023)
- Nida Tanveer (Spring 2023)
- Sarah Tanveer (Spring 2023)
- Shazer Ali (Spring 2023)
- Emaan Atique (Fall 2022)
- Talha Waheed (Fall 2021 & Spring 2022)
- Anna Mazhar (Fall 2021 & Spring 2021)
- Taimoor Tariq (Spring 2021)
- Abdullah Khan (Spring 2021)
- Ahmad Faraz Khan (Fall 2019)
- Abdul Manan (Fall 2019)
- Muhammad Abrar Tariq (Fall 2019)

CS497A —Directed Course Work (1 Credit)

- Haseeb Ahmed (Spring 2023)
- Muhammad Nameer Anjum (Spring 2023)
- Muhammad Sarim (Summer 2021)

Summer Research Interns

- Hafsa Akbar, Danish Ather, Muhammad Ayain Fida Rana, Roshnik Rahat, Ahmed Jan Farooqi, Khwaja Gul, Hamna Shafqat, Waijha Naveed, Emad Sarwar, Muhammad Rahil. LUMS (Summer 2023).
- Muhammad Sarim, Mughees Ur Rehaman, Muawiz Ahmed. LUMS (Summer 2022)

- Rumaisa Habib, Sarah Tanveer, Faaiq Bilal, Mutahar Ahmed. LUMS (Summer 2021)
- Taimoor Tariq, Mashal Abbas, Adnan Abass, Talal Touseef, Talha Waheed, Vafa Batool, Anna Mazhar. LUMS (Summer 2020)

THESIS COMMITTEE SERVICE

1. [**Dissertation Committee Member**] Abdul Azeemi (Ph.D. CS, 2024)
   Thesis: *"Enabling efficient speech and language processing using data selection and pruning"*
   LUMS, Pakistan
   Ph.D. Advisor: Prof. Agha Ali Raza

2. [**Dissertation Committee Member**] Kausar Jamal (Ph.D. CS, 2026)
   Thesis: *"Saga Frameworks for Distributed Transactions in Event Driven Microservices"*
   LUMS, Pakistan
   Ph.D. Advisor: Prof. Tariq Jadoon

SENIOR PROJECTS SUPERVISED

1. Muhammad Ahmed and Firas Abdullah (BS 2024, LUMS)
   Project: Enabling SLAM Applications in Multi-Edge Computing

2. Muhammad Jazlan and Mughees Ur Rehman (BS 2024, LUMS)
   Project: An Edge Data Store for Highly Mobile Applications

3. Emaan Atique, Saad Sher Alam, and Harris Ahmed (BS 2024, LUMS)
   Project: Uncovering the Hidden Data Costs of Mobile YouTube Video Ads

4. Emaan Bilal, Nida Tanveer, and Aima Shahid (BS 2024, LUMS)
   Project: Analyzing Ad Exposure and Content in Child-Oriented Video on YouTube

5. Muhammad Hamza Khawaja and Shazer Ali (BS 2024, LUMS)
   Project: Impact of Device Heterogeneity on the Federated Learning Process

6. Muhamamd Nameer Anjum, Azmeer Faisal and Mustafa Bin Amir (BS 2024, LUMS)
   Project: Pothole Detection Using Machine Learning

7. Rumaisa Habib and Sarah Tanveer (BS 2023, LUMS)
   Project: Rethinking Affordability of the Web

8. Faaiq Bilal (BS 2023, LUMS)
   Project: Mobility Prediction in 5G Networks

9. Haseeb Ahmed (BS 2023, LUMS)
   Project: Measurement and Analysis of Affordability of Internet Services

10. Ahmad Mahmood, Fahad Touseef, Fatima Sohail, and Muhammad Taha (BS 2023, LUMS)
    Project: Robust Federated Learning

11. Abdullah Khan (BS 2022, LUMS)
    Project: Adaptive Bit Rate Algorithms for Mobile Video Streaming on Entry-Level Smartphones

12. Talha Waheed (BS 2022, LUMS)
    Project: Impact of Memory Pressure on Mobile Video QoE

13. Taimoor Tariq (BS 2022, LUMS)
    Project: Fast Failure Detector for 5G Networks

14. Anna Mazhar (BS 2022, LUMS)
    Project: Slimming Webpages for Improving Mobile Web Performance in Developing Countries

15. Adnan Abbas and Khawaja Saad Munir (BS 2022, LUMS)
    Project: Mobile Edge Application Design

16. Maleeha Masood and Mahad Ali (BS 2021, LUMS)
    Project: Privacy–Preserving Machine Learning

17. Ahmed Hassan, Basit Iqbal, Talha Aamir, and Taha Ahmed (BS 2020, LUMS)
    Project: Congestion Control for Cellular Networks

18. Moughees Ahmed and Zainab Hameed (BS 2020, LUMS)
    Project: Generative ML for Audio

19. Abdul Manan, Muhammad Abrar Tariq, Ammar Tahir, Ahmad Faraz Khan (BS 2020, LUMS)
    Project: A Device–Aware Web for the Developing World

20. Fizza Zafar (BS 2019, LUMS)
    Project: Device–Aware Adaptive Video Bitrate Algorithms for the Developing World

21. Muhammad Salman Munaf (BS 2019, LUMS)
    Project: Understanding Video Streaming Performance in Developing Countries

22. Ghulam Murtaza (BS 2019, LUMS)
    Project: Deconstructing Memory Bottlenecks in Low–Cost Mobile Devices

23. Muhammad Ammar and Alina Sarwar (BS 2019, LUMS)
    Project: Detecting Middleboxes on Internet Paths

24. Osama Khurshid (BS 2019, LUMS)
    Project: On Metrics for Capturing Mobile QoE

TALKS/SEMINARS

Industry

- Intel, Portland, Oregan, USA, 2016
- HP Labs, Palo Alto, CA, USA, January 2015
- Bells Labs, New Jersey, US, December 2015

Universities

- Purdue University, Virtual, April 2021
- Harvard University, Cambridge, MA, USA, May 2019
- Duke University, USA, December 2015
- UC Berkeley, Berkeley, CA, USA, January 2016
- University of Southern California (USC), Los Angeles, CA, January 2016

PROFESSIONAL ACTIVITIES

Organizing Committee

- Session Chair, ACM SIGCOMM 2019

Technical Program Committee (TPC) Member

- ACM SIGCOMM 2024
- ACM CoNEXT 2023
- ACM SIGCOMM SNIP2+ Workshop
- ACM HotNets 2022
- ACM HotNets 2021
- ACM SIGCOMM 2021
- ACM COMSNETS 2021
- ACM SIGCOMM 2019
- ACM CoNEXT Student Workshop 2018

Invited Referee for Conferences and Journals (each listed only once)

- IEEE/ACM Transactions on Networking, IEEE Internet Computing Journal, ACM SIGCOMM Computer Communications Review (CCR), IEEE Transactions on Network and Service Management, ACM HotNets 2020 (external reviewer), ACM IMC 2023 (external reviewer)

Other Activities

- Served in the Pakistan Education and Research Network (PERN) Working Committee in November 2023

DEPARTMENT AND UNIVERSITY SERVICE

- Convenor, Graduate Program Committee in CS Department (DPGC), LUMS (2021–Present)
- Member, School-Wide Graduate Program Committee, LUMS (2021–Present)
- Member, Undergraduate Program Committee, LUMS (2019-20)
- Member, Graduate Program Committee, LUMS (2019-21)
- Member, Graduate Assessment Committee, LUMS (2021–Present)
- Member, Signature Events Committee (2019-20)
- Member, Council on Belonging and Equity, SBASSE, LUMS (2023–Present)

HONORS AND AWARDS

- Vice Chancellor's University-Wide Teaching Excellence Award 2023
- Google exploreCSR Award 2023
- Google Faculty Research Award, 2018
- AI 2000 Most Influential Scholar in the Area of Computer Networking in the Decade 2010-2020
  - *For my contributions in the field of Computer Networks between 2011 and 2020 recognized as the AI 2000 Most Influential Scholar (Honorable Mention). Ranked 17 in the list that includes researchers from Stanford, MIT, UC Berkeley, CMU, Google, and Microsoft Research*
- Stony Brook Graduate Fellowship (2010-11)
- Dean's Honor List (2006-07), LUMS

TRAVEL GRANTS

- GeoDiversity Travel Grant, ACM SIGCOMM 2013, Hong Kong, USA
- GeoDiversity Travel Grant, ACM SIGCOMM 2014, LA, USA
- GeoDiversity Travel Grant, ACM CoNEXT 2014, Santa Barbara, USA
- NSF NeTS Early-Career Investigators Workshop Grant, USA, 2016
- Stony Brook Graduate Fellowship (2010-11)

- NSF NeTS Early-Career Investigators Workshop Grant, Virginia, USA, 2015
- LUMS Faculty Travel Grants
  - FTG 2023 for ACM SIGCOMM 2023,
  - FTG 2022 for ACM CoNEXT 2022
  - FTG 2022 for ACM IMC 2022
  - FTG 2020 for USENIX NSDI 2020
  - FTG 2019 for ACM SIGCOMM 2019