

# Dr. Ihsan Ayyub Qazi

Tenured Associate Professor of Computer Science  
Director **NSG** (Networks and Systems Group)  
SBA School of Science and Engineering, LUMS, Pakistan

SBASSE 9-G14A  
Department of Computer Science  
Lahore University of Management Sciences (LUMS)  
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## Research Interests

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My research interests are in computer networks and distributed systems and span cloud computing and datacenters, mobile/wireless networking, Internet censorship, and ICT for developing regions.

## Education

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- **Ph.D. Computer Science** (August 2010)  
University of Pittsburgh, Pennsylvania, USA  
Thesis: “*An Efficient Framework of Congestion Control for Next-Generation Networks*”  
Committee: Craig Partridge, Daniel Mosse, Lachlan Andrew, Rami Melhem, and Taieb Znati
- **BSc (Honors), Double Major in Computer Science and Mathematics** (June 2005)  
LUMS, Pakistan

## Professional Experience

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- **Associate Professor with Tenure** (Sept 2017–Present)  
Department of Computer Science, LUMS
- **Visiting Research Scientist** (June 2017–Present)  
ICSI, University of California, Berkeley, USA  
Host: Prof. Vern Paxson
- **Assistant Professor** (Oct 2011–Sept 2017)  
Department of Computer Science, LUMS
- **Visiting Researcher** (July 2016–August 2016)  
RWTH Aachen University, Germany  
Host: Prof. Klaus Wehrle
- **Postdoctoral Research Fellow** (Sept 2010–Sept 2011)  
Centre for Advanced Internet Architectures (CAIA), Melbourne, Australia
- **Researcher** (June 2009–Sept 2009)  
GENI Group, BBN Technologies, Cambridge, USA
- **Course Instructor** (May 2006–Dec 2006)  
Department of Computer Science, University of Pittsburgh, USA

## Selected Invited Talks

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- [Netflix](#), Los Gatos, CA, USA, October 2017
- [UC Berkeley](#), Berkeley, CA, USA, June 2017
- [MIT](#), Cambridge, MA, USA, March 2017
- [Harvard University](#), Cambridge, MA, USA, March 2017
- [Facebook](#), Menlo Park, CA, USA, March 2017
- [Carnegie Mellon University \(CMU\)](#), Pittsburgh, PA, USA, September 2016
- [Stanford University](#), Palo Alto, CA, USA, December 2015
- [Princeton University](#), Princeton, NJ, USA, November 2015
- [Microsoft Research](#), Cambridge, UK, August 2014

## “Selected” Refereed Publications

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1. Hira Javaid, Hafiz Kamran Khalil, Zartash Afzal Uzmi, Ihsan Ayyub Qazi  
[Online Advertising under Internet Censorship](#)  
ACM HotNets 2017, Palo Alto, USA, November 2017 (acceptance rate = -21.8%)
  2. Rijurekha Sen, Sohaib Ahmad, A. Phokeer, Z. Farooq, Ihsan Qazi, David Choffnes, K. Gummadi  
[Inside the Walled Garden: Deconstructing Facebook's Free Basics Program](#)  
ACM SIGCOMM CCR, October 2017
  3. Syed M. Irteza, Hafiz Mohsin Bashir, Talal Anwar, Ihsan Ayyub Qazi, Fahad R. Dogar  
[Load Balancing Over Symmetric Virtual Topologies](#)  
IEEE INFOCOM 2017, Atlanta, USA, May 2017 (acceptance rate = 20.9%)
  4. Ali Munir, Ghufuran Baig, Syed M. Irteza, Ihsan Ayyub Qazi, Alex Liu, Fahad R. Dogar  
[PASE: Synthesizing Existing Transport Strategies for Datacenter Networks](#)  
IEEE/ACM Transactions on Networking, 25(1): 320-334, February 2017
  5. Kamran Nishat, Farrukh Javed, Saim Salman, Nofel Yaseen, Ans Fida, Ihsan Ayyub Qazi  
[SlickFi: A Service Differentiation Scheme for High-Speed WLANs using Dual Radio APs](#)  
ACM CoNEXT 2016, Irvine, USA, December 2016 (acceptance rate = -18%)
  6. Ali Musa Iftikhar, Fahad Rafique Dogar, Ihsan Ayyub Qazi  
[Towards a Redundancy Aware Network Stack](#)  
ACM HotNets 2016, Atlanta, USA, November 2016 (acceptance rate = -27.8%)
  7. Sohaib Ahmad, Abdul Haamid, Zafar A. Qazi, Zhenyu Zhou, Theophilus Benson, Ihsan A. Qazi  
[A View from the Other Side: Understanding Mobile Phone Characteristics in the Developing World](#)  
ACM IMC 2016, Santa Monica, USA, November 2016 (acceptance rate = -25%)
  8. Aqib Nisar, Aqsa Kashaf, Zartash Afzal Uzmi, Ihsan Ayyub Qazi  
[A Case for Marrying Censorship Measurements with Circumvention](#)  
ACM HotNets 2015, Philadelphia, USA, November 2015 (acceptance rate = -18%)
  9. Ali Munir, Ghufuran Baig, Syed Irteza, Ihsan Ayyub Qazi, Fahad Dogar, Alex Liu.  
[Friends, not Foes – Synthesizing Existing Data Center Transport Strategies in PASE](#)  
ACM SIGCOMM 2014, Chicago, USA, August 2014 (First SIGCOMM paper from Pakistan, acceptance rate = 19%, Citations: 63+)
  10. Ruwaifa Anwar, Kamran Nishat, Mohsin Ali, Zahaib Akhtar, Haseeb Niaz, Ihsan Ayyub Qazi.  
[Loss Differentiation: Moving onto High-Speed Wireless LANs](#)  
IEEE INFOCOM 2014, Toronto, Canada, April-May 2014 (acceptance rate = 19%, Citations: 13+)
  11. Ali Munir, Ihsan A. Qazi, Zartash Uzmi, Aisha Mushtaq, S. Ismail, Safdar Iqbal, Basma Khan.  
[Minimizing Flow Completion Times in Data Centers](#)  
IEEE INFOCOM 2013, Italy, April 2013 (acceptance rate = 17%, Citations: 83+)
  12. Ihsan Ayyub Qazi, Lachlan Andrew, Taieb Znati.  
[Congestion control with multi-packet feedback](#)  
IEEE/ACM Transactions on Networking, 20(6), pp. 1721-1733, December 2012 (Citations: 12+)
  13. Ihsan Ayyub Qazi, Lachlan Andrew, Taieb Znati.  
[Congestion Control using Efficient Explicit Feedback](#)  
IEEE INFOCOM 2009, Rio de Janeiro, Brazil, April 2009 (acceptance rate = 19%, Citations: 39+)
  14. Ihsan Ayyub Qazi and Taieb Znati.  
[On the Design of Load Factor based Congestion Control Protocols for Next-Generation Networks](#)  
IEEE INFOCOM 2008, Phoenix, USA, April 2008 (acceptance rate = 20%, Citations: 63+)
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## **“All” Refereed Publications**

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### **Peer-Reviewed Journals/Conferences/Workshops**

1. Hira Javaid, Hafiz Kamran Khalil, Zartash Afzal Uzmi, Ihsan Ayyub Qazi  
[Online Advertising under Internet Censorship](#)  
ACM HotNets 2017, Palo Alto, USA, November 2017 (acceptance rate = -21.8%)
2. Rijurekha Sen, Sohaib Ahmad, A. Phokeer, Z. Farooq, Ihsan Qazi, David Choffnes, K. Gummadi  
[Inside the Walled Garden: Deconstructing Facebook's Free Basics Program](#)  
ACM SIGCOMM CCR, October 2017
3. Rijurekha Sen, S. Singh, V. Nanda, Sohaib Ahmad, S. Sengupta, A. Phokeer, Zaid Farooq, Taslim Khan, P. Kumaraguru, Ihsan Ayyub Qazi, David Choffnes, Krishna P. Gummadi  
[An Empirical Analysis of Facebook's Free Basics Program](#)  
ACM SIGMETRICS 2017, Urbana-Champaign, USA, June 2017 (poster paper)
4. Tooba Ahsen, Fatima Tariq, M. Tirmazi, Ifrah Idrees, Zafar Qazi, Ihsan A. Qazi, Zartash Uzmi  
[DRIBS: Flow Scheduling over Asymmetric Datacenter Topologies](#)  
NSDI 2017, Boston, USA, March 2017 (poster paper)
5. Syed M. Irteza, Hafiz Mohsin Bashir, Talal Anwar, Ihsan Ayyub Qazi, Fahad R. Dogar  
[Load Balancing Over Symmetric Virtual Topologies](#)  
IEEE INFOCOM 2017, Atlanta, USA, May 2017 (acceptance rate = 20.9%)
6. Ali Munir, Ghufuran Baig, Syed M. Irteza, Ihsan Ayyub Qazi, Alex Liu, Fahad R. Dogar  
[PASE: Synthesizing Existing Transport Strategies for Datacenter Networks](#)  
IEEE/ACM Transactions on Networking, 25(1): 320-334, February 2017
7. Aadil Zia Khan and Ihsan Ayyub Qazi  
[Receiver-driven Flow Scheduling for Commodity Datacenters](#)  
IEEE ICC 2017, Paris, France, May 2017
8. Kamran Nishat, Farrukh Javed, Saim Salman, Nofel Yaseen, Ans Fida, Ihsan Ayyub Qazi  
[SlickFi: A Service Differentiation Scheme for High-Speed WLANs using Dual Radio APs](#)  
ACM CoNEXT 2016, Irvine, USA, December 2016 (acceptance rate = -18%)
9. Ali Musa Iftikhar, Fahad Rafique Dogar, Ihsan Ayyub Qazi  
[Towards a Redundancy Aware Network Stack](#)  
ACM HotNets 2016, Atlanta, USA, November 2016 (acceptance rate = -27.8%)
10. Sohaib Ahmad, Abdul Haamid, Zafar A. Qazi, Zhenyu Zhou, Theophilus Benson, Ihsan A. Qazi  
[A View from the Other Side: Understanding Mobile Phone Characteristics in the Developing World](#)  
ACM IMC 2016, Santa Monica, USA, November 2016 (acceptance rate = -25%)
11. M. Saqib Ilyas, Ihsan Ayyub Qazi, Bilal Rassool, Zartash Afzal Uzmi  
[Low-Carb: A Practical Scheme for Improving Energy Efficiency in Cellular Networks](#)  
Elsevier Computer Communications, 94: 72-84, 2016
12. Aqib Nisar, Aqsa Kashaf, Zartash Afzal Uzmi, Ihsan Ayyub Qazi  
[A Case for Marrying Censorship Measurements with Circumvention](#)  
ACM HotNets 2015, Philadelphia, USA, November 2015 (acceptance rate = ~18%)
13. Ubaid Hafeez, Aqsa Kashaf, Q. Bajwa, Aisha Mushtaq, Hassan Zaidi, Ihsan Qazi, Zartash Afzal Uzmi  
[Mitigating Datacenter Incast Congestion Using RTO Randomization](#)  
IEEE GLOBECOM 2015, San Diego, USA, December 2015
14. Hasnain Ali Pirzada, M. Raza Mahboob, Ihsan Ayyub Qazi.  
[eSDN: Rethinking Datacenter Transports Using End-Host SDN Controllers](#)  
ACM SIGCOMM 2015, London, UK, August 2015 (poster paper)

15. Ali Munir, Ghufuran Baig, Syed Irteza, Ihsan Ayyub Qazi, Fahad Dogar, Alex Liu.  
[Friends, not Foes – Synthesizing Existing Data Center Transport Strategies in PASE](#)  
ACM SIGCOMM 2014, Chicago, USA, August 2014 (First SIGCOMM paper from Pakistan, acceptance rate = 19%, Citations: 63+)
16. Aisha Mushtaq, A. K. Ismail, A. Wasay, Bilal Mahmood, Ihsan Ayyub Qazi, Zartash A. Uzmi.  
[Rethinking Buffer Management in Data Center Networks](#)  
ACM SIGCOMM 2014, Chicago, USA, August 2014 (poster paper)
17. Ruwaifa Anwar, Kamran Nishat, Mohsin Ali, Zahaib Akhtar, Haseeb Niaz, Ihsan Ayyub Qazi.  
[Loss Differentiation: Moving onto High-Speed Wireless LANs](#)  
IEEE INFOCOM 2014, Toronto, Canada, April-May 2014 (acceptance rate = 19%, Citations: 13+)
18. Kamran Nishat, Ruwaifa Anwar, Ahmed Mehfooz, Bilal Zaidi, Haris Choudhary, Ihsan Ayyub Qazi.  
[On the Effectiveness of High-Speed WLAN Standards for Long Distance Communication](#)  
IEEE INFOCOM 2014, Toronto, Canada, April-May 2014 (poster paper)
19. Syed Mohammad Irteza, Adnan Ahmed, Sana Farrukh, Babar N. Memon, Ihsan Ayyub Qazi.  
[On the Coexistence of Transport Protocols in Data Centers](#)  
IEEE ICC 2014, Sydney, Australia, June 2014
20. Suong H. Nguyen, Ihsan Ayyub Qazi, Lachlan L. H. Andrew, Hai Le Vu.  
[Rate Equilibria in WLANs with Block ACKs](#)  
IEEE LCN 2013, Sydney, Australia, October 2013 (acceptance rate = 26%)
21. Ali Munir, Ihsan A. Qazi, Zartash Uzmi, Aisha Mushtaq, S. Ismail, Safdar Iqbal, Basma Khan.  
[Minimizing Flow Completion Times in Data Centers](#)  
IEEE INFOCOM 2013, Italy, April 2013 (acceptance rate = 17%, Citations: 83+)
22. Zahaib Akhtar, Kamran Nishat, Haseeb Niaz, Ruwaifa Anwar, Mohsin Ali, Ihsan Ayyub Qazi.  
[BLMon: A Loss Differentiation Scheme for 802.11n](#)  
IEEE INFOCOM 2013, Italy, April 2013 (poster paper)
23. Shahida Jabeen, Muhammad Bilal Zafar, Ihsan Ayyub Qazi, Zartash Afzal Uzmi.  
[SplitBuff: Improving the Interaction of Heterogeneous RTT Flows on the Internet](#)  
ICC 2013, Budapest, Hungary, June 2013
24. Ali Munir, Ihsan Ayyub Qazi, S. Qaisar.  
[On Achieving Low Latency in Data Centers](#)  
ICC 2013, Budapest, Hungary, June 2013
25. Ihsan Ayyub Qazi, Lachlan Andrew, Taieb Znati.  
[Congestion control with multi-packet feedback](#)  
IEEE/ACM Transactions on Networking, 20(6), pp. 1721-1733, December 2012 (Citations: 12+)
26. Muhammad Kumail Haider, Asad Khalid Ismail, Ihsan Ayyub Qazi.  
[Markovian Models for Electrical Load Prediction in Smart Buildings](#)  
ICONIP 2012, Doha, Qatar, Nov 2012
27. Ihsan Ayyub Qazi, Taieb Znati, Daniel Mosse.  
[Improving Performance of Router-Assisted Transport Protocols over Variable Capacity Links](#)  
ICC 2012, Ottawa, Canada, June 2012

**Published before joining LUMS**

28. Ihsan Ayyub Qazi and Taieb Znati.  
[On the Design of Load Factor based Congestion Control Protocols for Next-Generation Networks](#)  
Computer Networks Journal, Elsevier, 55(1), pp. 45-60, 2011

29. Ihsan Ayyub Qazi and Rami Melhem.  
[Using GENI to Evaluate Congestion Control Protocols for Next Generation Networks](#)  
GENI Experimenters Workshop (GEW), Princeton University, NJ, June 2010
30. Ihsan Ayyub Qazi, Lachlan Andrew, Taieb Znati.  
[Congestion Control using Efficient Explicit Feedback](#)  
IEEE INFOCOM 2009, Rio de Janeiro, Brazil, April 2009 (acceptance rate = 19%, Citations: 39+)
31. Ihsan Ayyub Qazi, Lachlan Andrew, Taieb Znati.  
[Incremental deployment of new ECN-compatible congestion control](#)  
PFLDNeT, Tokyo, Japan, May 2009
32. Ihsan Ayyub Qazi, Lachlan Andrew, Taieb Znati.  
[Two bits are enough](#)  
ACM SIGCOMM 2008, Seattle, USA, August 2008 (poster paper)
33. Ihsan Ayyub Qazi and Taieb Znati.  
[On the Design of Load Factor based Congestion Control Protocols for Next-Generation Networks](#)  
IEEE INFOCOM 2008, Phoenix, USA, April 2008 (acceptance rate = 20%, Citations: 63+)

#### Ph.D. Dissertation

34. Ihsan Ayyub Qazi  
[An Efficient Framework of Congestion Control for Next-Generation Networks](#)  
Doctoral Dissertation, University of Pittsburgh, Pittsburgh, PA USA, August 2010

#### Technical Reports/Other Articles

35. Ihsan Ayyub Qazi and Daniel Mosse. “*Insights into the Design of Congestion Control Protocols for Multi-Hop Wireless Mesh Networks*”. Tech. Report TR-09-164, University of Pittsburgh
36. Ihsan Ayyub Qazi and Pratik Gandhi. “*Performance Evaluation of Wireless Network Coding under Practical Settings*”. Tech. Report TR-07-150, University of Pittsburgh
37. Ihsan Ayyub Qazi and Taieb Znati. “*Sizing of Router Buffers in the presence of Bi-directional Traffic*”. Tech. Report TR-07-149, University of Pittsburgh

#### Teaching Experience

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- **LUMS**
  - Spring 2012–2017: [CS202](#) Data Structures
    - Ratings (Most recent first): 4.51/5 (110/140), 4.46/5 (84/172), 3.84/5 (47/209), 4.35/5 (58/160), 4.33/5 (60/160), 4.63/5 (37/64)
  - Spring 2012–2017: [CS678](#) Topics in Internet Research (graduate-level)
    - Ratings: 4.42/5 (22/23), 4.46/5 (26/30), 4.67/5 (4/27), 4.86/5 (7/24), 4.94/5 (12/16), 5/5 (6/8)
  - Spring 2016: CS382 Network-Centric Computing
    - Ratings: 4.14/5 (63/84)
  - Fall 2011–2016: [CS501](#) Applied Probability (graduate-level)
    - Ratings: 4.27/5 (10/64), 4.64/5 (13/62), 4.64/5 (22/66), 4.47/5 (38/75), 4.34/5 (26/40)
- **University of Pittsburgh**
  - Fall 06, Summer 06: CS0131 Softwares for Personal Computing
- **Guest Lectures**
  - EE583 Network Protocols and Performance (Spring 16)
  - CS471 Computer Networks: Principles and Practices, LUMS (Fall 13,15)

CS100 Computational Problem Solving, LUMS (Fall 12,13,14)

### Research Funding and Grants

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1. **National ICTR&D Fund (PI)**, “*Design and Implementation of a Failure Resilient Network Load Balancer for Cloud Datacenters*”, 2017–2019, Amount: PKR 18,844,518 (~\$188,000)
2. **Higher Education Commission (HEC) National Research Program for Universities (NRPU) (PI)**, “*A QoS Differentiation Framework for Next-Generation High-Speed WiFi Networks*”, 2017–2019, Amount: PKR 2,660,242 (~\$26,000)
3. **Higher Education Commission (HEC) National Research Program for Universities (NRPU) (PI)**, “*A High Performance Cloud Data Center Architecture Using Software-Defined Networks*”, 2015–2017, Amount: PKR 5,612,842 (~\$56,000)
4. **World Bank Grant (Co-PI)**, “*Provision of Technical Advisory and Research Services for Applications of ICT and Big Datasets for Governance Reform in Punjab*”, June 2013–Sept 2014, Amount: PKR 19,857,063 (~\$200,000)
5. **LUMS Faculty Initiative Fund (FIF) Grant**
  - i. **Co-PI**, Jul 2017–Jun 2018, Amount: PKR 960,000 (~\$9,600)
  - ii. **PI**, Oct 2016–Sept 2017, Amount: PKR 960,000 (~\$9,600)
  - iii. **Co-PI**, Mar 2016–Feb 2017, Amount: PKR 960,000 (~\$9,600)
  - iv. **PI**, Feb 2015–Jan 2016, Amount: PKR 960,000 (~\$9,600)
  - v. **PI**, Jan 2013–Jan 2014, Amount: PKR 450,000 (~\$4,500)
6. **LUMS Faculty Startup Grant (PI)**, LUMS, 2011-2013: PKR 1,600,000 (~\$16,000)
7. **Research Grant (PI)**, CS Department, LUMS, Total Amount: PKR 750,000 (~\$7,500)
  - i. Dec 2014 – June 2015: \$1400
  - ii. Oct 2013 – April 2014: \$2450
  - iii. Dec 2012 – June 2013: \$1250
  - iv. Nov 2011 – June 2012: \$2400

### Research Supervision Experience

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#### Ph.D. Students

1. Syed Mohammad Irteza. **Ph.D. Advisee**, LUMS, Sept 2012-present (Data Centers)
  - a. Microsoft Research PhD Summer School 2014
  - b. Cleared Ph.D. qualifying exams
  - c. Cleared his Ph.D. Proposal Defense in December, 2016
  - d. IEEE INFOCOM 2017 “*Best-in-Session-Presentation*” award
2. Kamran Nishat. **Ph.D. Advisee**, LUMS, Sept 2012-present (High-Speed Wireless Networks)
  - a. Best Graduate Student Research Award, LUMS (Winner, 2014)
  - b. Invited Talk: University of Waterloo, Canada, May 2014
  - c. Cleared Ph.D. qualifying exams
  - d. Cleared his Ph.D. Proposal Defense in November, 2015
3. Aadil Zia Khan. **Ph.D. Advisee**, LUMS, Nov 2014-present (Data Centers and SDN)
  - a. Cleared Ph.D. qualifying exams
  - b. Cleared his Ph.D. Proposal Defense in June, 2017

#### MS Thesis/Project Students

1. Hira Javaid (MS CS, 2017)  
Thesis: “*Advertising Under Internet Censorship*”  
SBASSE, LUMS, Pakistan
2. Shazal Irshad (MS CS, 2017)

Thesis: *“On Joint Flow Scheduling and Load Balancing in Datacenters”*  
SBASSE, LUMS, Pakistan

3. Muneeb Ullah (MS CS, 2017)  
MS Project: *“Datacenter Flow Scheduling for Heterogeneous Workloads”*  
SBASSE, LUMS, Pakistan
4. Owais Ahmad Jan (MS CS, 2016)  
Thesis: *“Redundancy-Aware Datacenter Networks”*  
SBASSE, LUMS, Pakistan
5. Hafiz Muhammad Mohsin Bashir (MS CS, 2016)  
Thesis: *“Efficient Statistics Collection at the Endhosts Using SDN”*  
SBASSE, LUMS, Pakistan
6. Ali Raza (MS CS, 2016)  
Thesis: *“Context-Aware Rate Adaptation”*  
SBASSE, LUMS, Pakistan
7. Maria Rehman (MS CS, 2016)  
Thesis: *“Data Communication over Low Cost Channels”*  
SBASSE, LUMS, Pakistan
8. Talal Anwar (MS CS, 2016)  
Thesis: *“Datacenter Load Balancing Under Asymmetric Topologies”*  
SBASSE, LUMS, Pakistan
9. Safa Khan (MS Project, 2014-2015)  
MS Project: *“Effectiveness of Using CoDel in Data Center Networks”*  
SBASSE, LUMS, Pakistan

#### Undergraduate Research Students

1. Abdul Wasay. Undergraduate RA, LUMS, 2013-2014 (Data Centers)
  - a. Now a Ph.D. student at Harvard University, USA
2. Aisha Mushtaq. Undergraduate RA, 2012-2015 LUMS (Data Centers)
  - a. Now a Ph.D. student at UC Berkeley, USA
  - b. First placement at Microsoft (Vancouver, Canada)
  - c. Fully-funded Ph.D. admission offers from UC Berkeley, Stanford University, and CMU (*All Ranked 1<sup>st</sup> in Computer Science per the US News University Rankings*)
  - d. Facebook Grace Hopper Scholarship Recipient, 2014
  - e. Best Undergraduate Research Award (Winner, 2014)
  - f. Google Anita Borg Memorial Scholar 2013
3. Ghufran Baig. Undergraduate RA, LUMS, 2013-2014 (SDN/Data Centers)
  - a. Now a Ph.D. student at UT Austin, USA
4. Mohsin Ali. Undergraduate RA, LUMS, 2013-2014 (Wireless Networks)
  - a. Now at Facebook, CA, USA
  - b. MS in Computer Science, University of Southern California (USC), USA,
  - c. Undergraduate Research Award, LUMS (Runners Up, 2014)
5. Muhammad Ruwaifa Anwar. Undergraduate RA, LUMS, 2013-2014 (Wireless Networks)
  - a. Now at Cisco, CA, USA
  - b. MS in Computer Science, Stony Brook University, USA
  - c. Undergraduate Research Award, LUMS (Runners Up, 2013 & 2014)
6. Haseeb Niaz. Undergraduate RA, LUMS, 2011-2013 (Wireless Networks)
  - a. Now at Microsoft, Redmond, USA
  - b. Previously worked at Viptela, San Jose, CA, USA

- c. MS in Computer Science, Stony Brook University, USA
7. Kumail Haider. Undergraduate RA, LUMS, 2011-2012 (Smart Grids)
  - a. Now a Ph.D. student at Rice University, USA
8. Asad Khalid Ismail. Undergraduate RA, LUMS, 2012-2013 (Smart Grids & Data Centers)
  - a. Now at Amazon, Seattle, USA
  - b. MS in Computer Science, UC Santa Barbara, USA
9. Ali Munir. Graduate RA, LUMS, 2012 (Data Centers)
  - a. Now a Ph.D. student at Michigan State University, USA
10. Muhammad Bilal Zafar. Undergraduate RA, LUMS, 2012 (Buffer Sizing and Mobile Networks)
  - a. Now a Ph.D. student at Max Planck, Germany
11. Zahaib Akhtar. Graduate RA, LUMS, 2012-2013 (Wireless Networks)
  - a. Now a PhD student at University of Southern California, USA
12. Uneeb Rathore. Research Student, LUMS, 2013-2014 (Smart Grids)
  - a. Now a Ph.D. student at UCLA, USA
13. Basma Khan. Graduate RA, LUMS, 2012 (Data Centers)
  - a. Now at Microsoft, Seattle, USA
14. Bilal Mahmood. Undergraduate RA, LUMS, 2013-2014 (Data Centers)
  - a. Now at Cisco, CA, USA
  - b. MS in Computer Science, UC San Diego, USA
15. Raza Mahboob. Undergraduate RA, LUMS, 2015 (SDN/Data Centers)
  - a. Now a MS student at UT Austin, USA
16. Haleema Saadia. RA, LUMS, 2015 (Data Centers)
  - a. Now a Ph.D. student at Purdue University, USA
17. Qurat-ul-Ain Bajwa. Undergraduate RA, LUMS, 2015 (Data Centers)
  - a. Now a Ph.D. student at Northwestern University
  - b. Google Anita Borg Memorial Scholarship Recipient, 2014
18. Hasnain Ali Pirzada. Undergraduate RA, LUMS, 2015 (SDN/Data Centers)
  - a. Now a Ph.D. student at Wisconsin Madison
  - b. Summer internship in the Networked Systems Research Group at the Max Planck Institute for Software Systems (MPI-SWS), 2016
19. Aqsa Kashaf. Undergraduate RA, LUMS, 2015-2016 (Internet Censorship & Data Centers)
  - a. Now a Ph.D. student at CMU, USA
  - b. Grace Hopper Scholarship Recipient, 2016
20. Farrukh Javed. Undergraduate RA, LUMS, 2015-2016 (Wireless Networks)
  - a. Now a MS student at Michigan Ann Arbor, USA
21. Adil Ahmad. Research Student, LUMS, 2015-2016 (SDN/Data Centers)
  - a. Now a Ph.D. student at Purdue University, USA
22. Aqib Nisar. Research Student, LUMS, 2015-2016 (Internet Censorship)
  - a. Now a Ph.D. student at the University of Southern California (USC), USA
23. Ubaid Ullah Hafeez. Research Student, LUMS, 2015-2016 (Data Centers)
  - a. Now a Ph.D. student at Stony Brook University, USA
24. Hashaam Mahboob. Research Student, LUMS, 2015-2016 (Wireless Networks)



- a. Now a MS student at USC, USA
  - b. Summer internship at Koc University, Turkey (2015)
25. Ahmed Mehfooz. Research Student, LUMS, 2013-2015 (Wireless Networks)
- a. Now at Aruba Networks, USA
  - b. MS Computer Science, UC San Diego, USA
26. Hassan Mujtaba Zaidi. Research Student, LUMS, 2014-2015 (Data Centers)
- a. Now a MS student at NYU, USA
27. Adnan Ahmed. Undergraduate RA, LUMS, 2014 (Data Centers)
- a. Now a Ph.D. student at University of Iowa
28. Sana Farrukh. Research Student, LUMS, 2013-2015 (Data Centers)
- a. Now a Ph.D. student at Tufts University, USA
29. Waleed Farrukh. Research Student, LUMS, 2013-2014 (Smart Grids)
- a. Now a MS student at ETH Zurich
30. Ghous Amjad. Research Student, LUMS, 2014-2015 (Data Centers)
- a. Now a Ph.D. student at Brown University
31. Bilal Zaidi, Research Student, LUMS, 2013-2015 (Wireless Networks)
- a. Software Engineer at Afiniti
32. Haris Chaudhry, Research Student, LUMS, 2013-2015 (Wireless Networks)
- a. MS in Computer Science, Brown University
33. Saad Naveed Ismail. Undergraduate RA, LUMS, 2013-2015 (Data Centers)
- a. Now a MS Student at Rutgers University
34. Muneeb-Ur Rehman. Undergraduate RA, 2013 LUMS (Smart Grids)
- a. Now a Ph.D. student at Utah State University, USA
35. Waleed Aslam. Undergraduate RA, LUMS, 2014 (Smart Grids)
- a. Now a MS Student at NC State University
36. Sohaib Ahmad. Research Student, LUMS, 2015-2017 (ICT for Developing Regions)
- a. **Winner:** Summer Research Programme (SRP) 2016 Award
  - b. Now a Ph.D. student at UMass Amherst, USA
37. Saim Salman. Research Student, LUMS, 2015-2017 (Wireless Networks & Internet Anonymity)
- a. Now a Ph.D. student at Brown University, USA
38. Hafiz Muhammad Mohsin Bashir. Research Assistant, LUMS, 2015-2016 (Data Centers)
- a. Now a Ph.D. student at Tufts University, USA
39. Abdullah Bin Faisal. Research Assistant, LUMS, 2015-2017 (Data Centers)
- a. Now a Ph.D. student at Tufts University, USA
40. Nofel Yaseen. Research Student, LUMS, 2015-2017 (Wireless Networks & Internet Anonymity)
- a. Now a Ph.D. student at University of Pennsylvania (UPenn), USA
41. Tooba Ahsen. Research Assistant, LUMS, 2015-2017 (Data Centers)
- a. **Winner:** Summer Research Programme (SRP) 2016 Award
  - b. Now a Ph.D. student at Tufts University, USA
42. Ali Raza, Research Student, LUMS, 2015-2016 (Mobile/Wireless Networks)
- a. Now a Ph.D. student at Boston University, USA

43. Fatima Tariq. Research Student, LUMS, 2015-2017 (Data Centers)
  - a. **Winner:** Summer Research Programme (SRP) 2016 Award
  - b. Now a MS student at University of Illinois Urbana Champagne (UIUC), USA
44. Huzaifa Kamran. Research Student, LUMS, 2015-2017 (Wireless Networks)
  - a. Now a MS student at University of Illinois Urbana Champagne (UIUC), USA
45. Ans Fida. Research Student, LUMS, 2015-2017 (Wireless & Internet Censorship)
  - a. Now a MS student at Purdue University, USA
46. Hafiz Kamran Khalil. Research Student, LUMS, 2015-2017 (Internet Censorship)
  - a. Now a Ph.D. student at Purdue University, USA
47. Hira Javaid. Graduate RA, LUMS, 2015-2017 (Internet Censorship)
  - a. Now a Ph.D. student at Northeastern University, USA
48. Abeer Ahmed. Research Student, LUMS, 2015-2017 (ICT for Developing Regions)
  - a. **Winner:** Summer Research Programme (SRP) 2016 Award
  - b. Now a Ph.D. student at Stony Brook University, USA
49. Abdul Lateef Haamid. Research Student, LUMS, 2015-2017 (ICT for Developing Regions)
  - a. **Winner:** Summer Research Programme (SRP) 2016 Award
  - b. Now a MS student at Georgia Institute of Technology, USA
50. Moiz Imran. Research Student, LUMS, 2015-2017 (Data Centers)
  - a. Now a MS student at USC, USA
51. Zaid Ahmed Farooq. Research Student, LUMS, 2017 (Mobile Web Performance)
  - a. Intern at Duke University, USA, Summer 2017 (**Host:** Theophilus Benson)
  - b. **Winner:** Summer Research Programme (SRP) 2017 Award
    - i. Award co-recipient: Bismah Babar
52. Ifrah Idrees. Research Student, LUMS, 2017 (Data Centers)
  - a. Intern at Duke University, USA, Summer 2017 (**Host:** Theophilus Benson)
53. Syed M. Ahmad Tirmazi. Research Student, LUMS, 2017 (Data Centers & Mobile Web Performance)
  - a. Intern at EPFL, Switzerland, Summer 2017

#### Independent Study/Directed Research/Internship Advisees

1. **CS497 – Directed Research Project (2 Credits)**
  - a. Syed Muhammad Ahmad Tirmazi (Fall 2016)
  - b. Abeer Ahmad (Fall 2016 & Spring 2016)
  - c. Fatima Tariq (Fall 2016 & Spring 2016)
  - d. Saim Salman (Fall 2016)
  - e. Nofel Yaseen (Fall 2016)
  - f. Aqib Nisar (Spring 2016)
  - g. Sohaib Ahmad (Spring 2016)
  - h. Tooba Ahsen (Spring 2016)
  - i. Huzaifa Kamran (Spring 2016)
  - j. Saim Salman (Spring 2016)
  - k. Gohar Irfan Choudhary (Spring 2015)
  - l. Jehan Khattak (Spring 2015)
  - m. Hasnain Ali Pirzada (Spring 2015)
2. **CS400A – Independent Study (1 Credit)**
  - a. Abdul Lateef Haamid (Spring 2017)
  - b. Nofel Yaseen (Spring 2017)
  - c. Abeer Ahmad (Spring 2017)
  - d. Haseeb Wajid (Fall 2016)
  - e. Sana Farrukh (Spring 2015)

- f. Qurat Ul Ann Danyal Akbar (Spring 2015)
3. **CS500A – MS Independent Study (1 Credit)**
    - a. Furqan Baig (Spring 2014)
    - b. Momina Khan (Spring 2014)
    - c. Farhan Ul Haq (Spring 2014)
    - d. Muhammad Kamran Nishat (Spring 2012)
  4. Mohsin Ali, Muhammad Ruwaifa Anwar, Aisha Mushtaq, Saad Naveed Ismail, Asad Khalid Ismail, Abdul Wasay, Aroosa Ijaz, Usman Zaheer. Summer Research Interns, LUMS (**Summer 2012**).
  5. Ayan Azmat, Hassan Nawaz, Muhammad Ali Gulzar, Qurat-Ul-Ann Bajwa, Hasnain Ali Pirzada, Babar Memon, Muhammad Zaman, Sana Farrukh, Hasan Abbas, Uzair Mahmood, Adnan Ahmed, Haris Choudhary, Syed Muhammad Bilal Zaidi, Ahmed Mehfooz, Uneeb Yaqub Rathore, Waleed Farrukh. Summer Research Interns, LUMS (**Summer 2013**).
  6. Hammad Mazhar, Hashaam Mahboob, Zeeshan Abid, Muhammad Farrukh Javed, Ghous Ali Amjad, Aqib Nisar, Adil Ahmad, Zaid Saeed Khan, Gohar Irfan Chaudhry, Bilal Bakht, Aqsa Kashaf, Ubaid Ullah Hafeez, Syed Muhammad Hassaan, Qandeel Tariq, Momina Haider, Jehan Khattak, Hassan Shahbaz, Muhammad Asher Anjum, Amna Abid, Shanzae Nadeem Khan, Muhammad Sumran, Muhammad Faez Riaz, Mohammad Laghari, Anas Saeed, Ali Raza. Summer Research Interns, LUMS (**Summer 2014**).
  7. Sohaib Ahmad, Nofel Yaseen, Fatima Tariq, Muhammad Muqsit Nawaz, Huzaifa Kamran, Saim Salman, Tooba Ahsen, Ali Raza Tariq, Abdul Lateef Haamid, Abeer Ahmad, Palwisha Akhtar, Abdullah Bin Faisal, Ans Fida, Sameed Ali, Salman Sattar, Muhammad Taha Zaidi, Ali Raza, Habiba Farrukh, Syed Muhammad Meisam—(LUMS), Ramla Ijaz (UET), and Oneeb Babar (CMU Qatar). Summer Research Interns (**Summer 2015**).
  8. Airas Akhtar, Ali Nowraiz Khan, Ayesha Shahid Saleem Lone, Baber Khalid, Hira Akbar, Ifrah Idrees, Maryam Shahid, Mubeen Zulfiqar, Muhammad Zain Qasmi, Noaman Ahmad, Sultan Hayat Khan Durrani, Syed Muhammad Ahmad Tirmazi. Summer Research Interns, LUMS (**Summer 2016**).

### Thesis Committee Service

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1. [**Committee Member**] Saqib Ilyas (Ph.D. CS, 2016-Graduated)  
Thesis: *“Leveraging Workload Relocation and Resource Pruning for Electricity Cost Minimization in Service Provider Networks”*  
SBASSE, LUMS, Pakistan.
2. [**Committee Member**] Fatima Ahsan (MS EE, 2015)  
Thesis: *“A Method for Wireless Co-existence”*  
SBASSE, LUMS, Pakistan.
3. [**Committee Member**] Sharjeel Ahmed Qureshi (MS CS, 2013)  
Thesis: *“Android Malware Analysis using Data Provenance Graphs”*  
SBASSE, LUMS, Pakistan.
4. [**Committee Member**] Ali Munir (MS, 2012)  
Thesis: *“Improving Flow Completion Times in Data Centers”*  
SEECS, National University of Sciences & Technology (NUST), Pakistan.

### Senior Projects Supervised

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1. Zaid Ahmad Farooq, Syed Muhammad Ahmad Tirmazi, and Bismah Babar (BS 2018, LUMS)  
Project: Understanding Mobile Web Performance from the Developing World
2. Abdullah Bin Faisal and Moiz Imran (BS 2017, LUMS)  
Project: Flow Scheduling Under Changing Workloads

3. Tooba Ahsen (BS 2017, LUMS)  
Project: On Backpressure Scheduling in Datacenters
4. Aqib Nisar and Aqsa Kashaf (BS 2016, LUMS)  
Project: Combining Internet Censorship Measurements with Circumvention
5. Adil Ahmad, Mohammad Laghari, Hashaam Mahboob (BS 2016, LUMS)  
Project: QoS-Aware Traffic Management Using OpenFlow
6. Ahmed Mehfooz, Shanzae N. Khan, Amna Abid (BS 2015, LUMS)  
Project: WiFi Multicast Rate Adaptation
7. Haris Choudhary, Hassan Zaidi, Bilal Zaidi (BS 2015, LUMS)  
Project: Long Distance WiFi Using Steerable Antennas
8. Hasnain Pirzada and Raza Mahboob (BS 2015, LUMS)  
Project: Joint Congestion Control and Load Balancing Using End-Host SDN Controllers
9. Sana Farrukh and Qurat-ul-Ain Bajwa (BS 2015, LUMS)  
Project: Addressing TCP Incast Using SDN
10. Ruwaifa Anwar, Mohsin Ali, Saad Ismail (BS 2014, LUMS)  
Project: Efficient and Resilient Data Centers
11. Aisha Mushtaq, Abdul Wasay, Ayan Azmat (BS 2014, LUMS)  
Project: Transport Protocols Using SDN
12. Luqman Ghani, Ali Raza, Dilawar Khan (BS 2014, LUMS)  
Project: Centralized WLAN Management
13. Haseeb Niaz (BS 2013, LUMS)  
Project: Long-Distance WiFi
14. Hammad Malik (BS 2013, LUMS)  
Project: Improving WiFi Performance using Sensor Hints
15. Tanzeel ur Rehman and M. Haseeb-Ul-Hassan Zahid (BS 2013, LUMS)  
Project: Improving Mobile Battery Life using Cloudlets

### Talks/Seminars

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- **Industry**
  1. [Netflix](#), Los Gatos, CA, USA, October 2017
  2. [Facebook](#), Menlo Park, CA, USA, March 2017
    - a. Talk: “*Understanding Internet Access from the Developing World*”
  3. [Facebook](#), Menlo Park, CA, USA, December 2015
  4. [Microsoft Research](#), Cambridge, UK, August 2014
- **Universities**
  5. [UC Berkeley](#), NetSys Lab, Berkeley, CA, USA, June 2017
  6. [MIT](#), Cambridge, MA, USA, March 2017
  7. [Harvard University](#), Cambridge, MA, USA, March 2017
  8. [University of Southern California \(USC\)](#), Los Angeles, CA, December 2016
  9. [Carnegie Mellon University \(CMU\)](#), Pittsburgh, PA, USA, September 2016
    - a. [Privacy seminar \(http://privacy.cs.cmu.edu/seminar/index.html\)](http://privacy.cs.cmu.edu/seminar/index.html)
  10. [RWTH Aachen University](#), Aachen, Germany, July 2016
  11. [UC Berkeley](#), Berkeley, CA, USA, December 2015
  12. [Stanford University](#), Palo Alto, CA, USA, December 2015
    - a. [Stanford University Networking Seminar \(http://netseminar.stanford.edu\)](http://netseminar.stanford.edu)
  13. [Princeton University](#), Princeton, NJ, USA, November 2015

14. [Rutgers University](#), New Jersey, USA, August 2014
  15. [Stony Brook University](#), New York, USA, May 2014
  16. [University of Pittsburgh](#), Pennsylvania, USA, May 2014
  17. [Swinburne University of Technology](#), Melbourne, Australia, September 2011
  18. [Carnegie Mellon University](#), Qatar, March 2011
- **Conferences/Others**
    19. [IMC 2016](#), Santa Monica, USA, November 2016
    20. [GLOBECOM 2015](#), San Diego, USA, December 2015
    21. [ICET 2014](#), Islamabad, Pakistan, December 2014
    22. [ICC 2014](#), Sydney, Australia, June 2014
    23. [INFOCOM 2013](#), Turin, Italy, April 2013
    24. [ICC 2013](#), Budapest, Hungary, June 2013
    25. [ICC 2013](#), Budapest, Hungary, June 2013
    26. [ICONIP 2012](#), Doha, Qatar, Nov 2012
    27. [PFLDNeT 2009](#), Tokyo, Japan, May 2009
    28. [INFOCOM 2009](#), Rio De Janeiro, Brazil, April 2009
    29. [INFOCOM 2008](#), Phoenix, AZ, April 2008
    30. [Namal College](#), Mianwali, Pakistan, March 2015
      - a. Talk: “*On Promoting Undergraduate Research*”
    31. [LUMS](#), May 2015
      - a. Talk: “*On Promoting Undergraduate Research*” given to the LUMS faculty

### Departmental and University Services

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- **Convener**, Departmental Search Committee (DSC), CS Department, LUMS (2016-17)
- **Convener**, Undergraduate Curriculum Committee, CS Department, LUMS (2015-16)
- **Member**, Undergraduate Curriculum Committee, SBASSE, LUMS (2016-Current)
- **Member**, Graduate Program Committee (GPC), CS Department, LUMS (2012-2016)
  - a. Conducted a review of the CS graduate program
    - i. *Identified challenges and proposed solutions*
  - b. Conducted a review of the CS qualifying exams
    - i. *Helped in defining its syllabus*
  - c. Proposed an annual research competition for CS undergraduate and graduate students
  - d. MS and Ph.D. Admissions
    - i. *Contributed to the admissions exam every year since joining LUMS*
    - ii. *Conducted interviews of Ph.D. applicants*
- **Member**, Sports Committee, LUMS
- **Patron**, ACM Student Chapter, LUMS
- Presentation to LUMS Students on “*Applying to Graduate School*”
  - a. 2012-2017 (1-2 talks/year)

### Professional Activities

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- **Technical Program Committee (TPC) Member**
  - APNet 2018
  - [COMSNET 2018](#)
  - [APSys 2017](#)
  - [APNet 2017](#)
  - [ACM CoNEXT 2016](#)
  - [COMSNET 2016](#)
  - [IEEE ICNP 2014](#)
  - INMIC 2013
- **Mentor**, Mentoring Moments, [ACM SIGCOMM 2017](#) (Aug 21-24)
- **Jury Member**, Student Research Competition, [ACM SIGCOMM 2017](#).
- **Invitee/Participant**, [Citizen Lab Summer Institute on Monitoring Internet Openness and Rights](#), University of Toronto, Canada, July 12-14, 2017
- **Session Chair**, ACM CoNEXT 2016, Santa Monica, CA, USA
- **Visiting Researcher**, COMSYS Lab, RWTH Aachen University, Germany, 2016
  - Gave a series of research talks on Internet censorship, cloud networking, and mobile/wireless networks as part of this research visit (**Host**: Prof. Dr. Klaus Wehrle)

- **Invitee/Participant** in the Dagstuhl Seminar on “[Network Latency Control in Data Centres](#)”, Schloss Dagstuhl, Wadern, Germany (July 10-13, 2016)
- **Mentor**, [Mentoring Moments](#) at ACM SIGCOMM 2015, London, UK
- **Head of Working Group 2 (WG-2)**, IXP Stakeholders Group of Pakistan
  - Goal of WG-2: “*Identifying the benefits of IXP, and making recommendations for the respective public/private organizations to achieve these benefits*”
- **Invited Referee for Conferences and Journals (each listed only once)**
  - IEEE/ACM Transactions on Networking, Elsevier Computer Networks Journal, ACM SIGCOMM Computer Communications Review (CCR), IEEE Transactions on Communications, IEEE Transactions on Vehicular Technology, IEEE Communication Letters, ACM CoNEXT, IEEE ICNP, IEEE INFOCOM, ACM Conference on Computer and Communications Security (CCS), ACM SIGCOMM (poster session), IEEE Real-Time Systems Symposium (RTSS), and others.

### **Honors and Awards**

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- Senior Fellow, Open Technology Fund (OTF), 2017
- GeoDiversity Travel Grant, ACM IMC 2015, Tokyo, Japan
- GeoDiversity Travel Grant, ACM SIGCOMM 2015, London, UK
- Andrew Mellon Fellowship (2009-2010)
- Best Graduate Student Research Award, University of Pittsburgh, USA (2009)
- Best Poster Award 2009 (faculty choice), University of Pittsburgh, USA (2009)
- Outstanding Paper Award, Graduate Expo, University of Pittsburgh (2008)
- Graduate Student Research Award (Runners Up), University of Pittsburgh (2008)
- NSF Student Travel Grant to Attend NSDI'06 held in San Jose, CA, USA (2006)
- Deans Honor List, LUMS
- Roll of Honor (Highest Student Award), Lahore Grammar School (2001)