

# Ahmad Hassan

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## EDUCATION

- 2023– **University of Southern California**  
Ph.D. in Computer Engineering, Advisor: Prof. Feng Qian
- 2021–23 **University of Minnesota – Twin Cities**  
M.S. in Computer Science  
GPA: 4.0/4.0
- 2016–20 **Lahore University of Management Sciences**  
B.S. in Computer Science, Advisor: Prof. Zafar Ayyub Qazi  
GPA: 3.73/4.0

## RESEARCH AREAS

Topics that intrigue me include, but are not limited to, Mobile Systems, Wireless Networking, and Multimedia Systems (VoD/VR/MR). My current research highlights challenges faced by today's 4G/5G technologies and argues for a cross-layer design to overcome these challenges.

## SELECTED PROJECTS

- 2024– **On-wheel Distributed Computing:** A proposal to leverage the idle computational power of autonomous/assisted-driving vehicles for distributed computing. (Under submission)
- 2024– **Generative ABR:** A new way to solve the Adaptive Bitrate Streaming problem with the help of recent advances in conditional generative modeling.
- 2023–24 **Dynamic TDD Scheduling:** A system that enables runtime configuration of uplink and downlink resources for a TDD base station.
- 2022–24 **Continuous Performance-driven Band Setting Configuration:** A system to dynamically switch band settings for mobile application performance boost, inspired by our multi-country field experiments. (Under Submission)
- 2021–22 **5G Mobility Management:** An in-depth study to characterize 5G mobility management, and highlight its issues in today's 5G networks.
- 2020–21 **An in-depth study of 5G cellular networks:** A study of performance, power, and application quality-of-experience (QoE) of 5G cellular networks in the wild.

## WORKING EXPERIENCE

- 2023– Research Assistant - IMMERSE Lab, USC.
- 2023-24 Associate Research Intern - NDSL, Hewlett Packard Labs.

- 2021-23     Research Assistant - Feng Qian's Lab, UMN.
- 2021        Data Analyst - AI Production Department, Afiniti Software Solutions Private Ltd.
- 2019-20     Research Assistant - Zong 4G Lab, LUMS.
- 2018        Research Intern - Energy Informative Group (EIG), LUMS, Lahore.

## PUBLICATIONS

- 2024     **Ahmad Hassan**, Shivang Aggarwal, Mohamed Ibrahim, Puneet Sharma, and Feng Qian. Wixor: Dynamic TDD Policy Adaptation for 5G/xG Networks. *ACM CoNext* 2024.
- 2024     Wei Ye, Xinyue Hu, Steven Sleder, Anlan Zhang, Udhaya Dayalan, **Ahmad Hassan**, Rostand Fezeu, Akshay Jajoo, Myungjin Lee, Eman Ramadan, Zhi-Li Zhang, and Feng Qian. Dissecting Carrier Aggregation in 5G Networks: Measurement, QoE Implications and Prediction. *ACM SIGCOMM* 2024.
- 2024     Xumiao Zhang, Shuowei Jin, Yi He, **Ahmad Hassan**, Z. Morley Mao, Zhi-Li Zhang, and Feng Qian. QUIC is not Quick Enough over Fast Internet. *WWW* 2024.
- 2024     Shuowei Jin, Ruiyang Zhu, **Ahmad Hassan**, Xiao Zhu, Z. Morley Mao, Zhi-Li Zhang, and Feng Qian. OASIS: Collaborative Neural-Enhanced Mobile Video Streaming. *ACM MMSys* 2024.
- 2024     **Ahmad Hassan**, Wei Ye, Anlan Zhang, Jason Carpenter, Ruiyang Zhu, Shuowei Jin, Z. Morley Mao, Zhi-Li Zhang, and Feng Qian. The Case for Boosting Mobile Application QoE via Smart Band Switching in 5G/xG Networks. *ACM HOTMOBILE* 2024.
- 2024     Anlan Zhang, Chendong Wang, Yuming Hu, **Ahmad Hassan**, Zejun Zhang, Bo Han, Feng Qian, and Shichang Xu. Habitus: Boosting Mobile Immersive Content Delivery through Full-body Pose Tracking and Multipath Networking. *USENIX NSDI* 2024.
- 2023     Rostand A. K. Fezeu, Eman Ramadan, Wei Ye, Benjamin Minneci, Jack Xie, Arvind Narayanan, **Ahmad Hassan**, Jaideep Chandrashekar, Myungjin Lee, Zhi-Li Zhang, and Feng Qian. An In-Depth Measurement Analysis of 5G mmWave PHY Latency and its Impact on End-to-End Delay. *PAM* 2023.
- 2022     **Ahmad Hassan**, Arvind Narayanan, Anlan Zhang, Wei Ye, Ruiyang Zhu, Shuowei Jin, Jason Carpenter, Z. Morley Mao, Zhi-Li Zhang, and Feng Qian. Vivisecting Mobility Management in 5G Cellular Networks. *ACM SIGCOMM* 2022.
- 2022     Arvind Narayanan\*, Muhammad Rochman\*, **Ahmad Hassan**, Bariq Firmansyah, Vanlin Sathya, Monisha Ghosh, Feng Qian, and Zhi-Li Zhang. A Comparative Measurement Study of Commercial 5G mmWave Deployments. *IEEE INFOCOM* 2022.
- 2021     Arvind Narayanan\*, Xumiao Zhang\*, Ruiyang Zhu, **Ahmad Hassan**, Shuowei Jin, Xiao Zhu, Xiaoxuan Zhang, Denis Rybkin, Zhengxuan Yang, Zhuoqing Morley Mao, Feng Qian, and Zhi-Li Zhang. A variegated look at 5G in the wild: performance, power, and QoE implications. *ACM SIGCOMM* 2021.

## ORAL AND POSTER PRESENTATIONS

- 2024     **Ahmad Hassan**, Shivang Aggarwal, Mohamed Ibrahim, Puneet Sharma, and Feng Qian. Wixor: Dynamic TDD Policy Adaptation for 5G/xG Networks. *ACM CoNext* 2024. (Oral

Presentation)

- 2024 **Ahmad Hassan**, Wei Ye, Anlan Zhang, Jason Carpenter, Ruiyang Zhu, Shuowei Jin, Z. Morley Mao, Zhi-Li Zhang, and Feng Qian. The Case for Boosting Mobile Application QoE via Smart Band Switching in 5G/xG Networks. *In ACM HOTMOBILE 2024*. (Oral Presentation)
- 2022 **Ahmad Hassan**, Arvind Narayanan, Anlan Zhang, Wei Ye, Ruiyang Zhu, Shuowei Jin, Jason Carpenter, Z. Morley Mao, Zhi-Li Zhang, and Feng Qian. Vivisecting Mobility Management in 5G Cellular Networks. *In Proceedings of the 2022 ACM SIGCOMM*, Amsterdam, Netherlands. (Oral Presentation)

## SERVICE

**Journal Reviewer:** IEEE/ACM ToN, IEEE TMC, IEEE ComNet, IEEE TNSM

**Program Committee:** ACM ImmerCom 2024

**Artifact Evaluation Committee:** ACM SIGCOMM 2024

## AWARDS/HONORS/GRANTS

- 2024 Best Paper Award, MMSys 2024
- 2022–24 Student (Travel) Grant: SIGCOMM 2022, HotMobile 2024
- 2017–20 Placed on Dean’s Honor List
- 2014–16 Merit Scholarship in High School (valued at \$2,000)

## TEACHING EXPERIENCE

### University of Minnesota – Twin Cities

- 2021 T.A. for Operating Systems

### Lahore University of Management Sciences

- 2018–20 T.A. for Topics in Internet Research, Computer Vision, and Multi-variable Calculus

## STUDENT ACTIVITIES

- 2024– VP of Programming - Viterbi Graduate Student Association, USC.
- 2019–20 Batch Representative for the School of Science and Engineering (SSE) - LUMS.
- 2019–20 Chair - Harassment and Disciplinary Committee, LUMS Student Council.
- 2017 Camp Leader - Project 50 Kids, Lahore.