

Ahmad Hassan

Ph.D. Candidate
Department of Electrical and Computer Engineering
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RESEARCH AREAS

My interest lies at the intersection of systems, networking, and machine learning. I design and evaluate cross-layer systems that optimize user experience, network performance, and device energy efficiency. By bridging large-scale measurements and foundational research with real-world engineering, my work advances the design of intelligent, adaptive, and high-performance networked systems.

WORKING EXPERIENCE

- 2025 Research Intern - SMI Lab, Samsung Research America
- 2023-26 Research Assistant - IMMERSE Lab, USC
- 2023-24 Associate Research Intern - NDSL, Hewlett Packard Labs
- 2021-23 Research Assistant - Feng Qian's Lab, UMN
- 2020 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

TECHNICAL SKILLS

- **Systems, Networking & Infrastructure:** C/C++/Python, virtualization (QEMU/KVM, SEV-SNP/TDX), containers/Kubernetes, distributed systems, traffic shaping, eBPF/DPDK.
- **AI/ML & Data:** PyTorch/TensorFlow, LLM/RAG pipelines (LangChain), model serving & optimization, time-series and RL models, data engineering, data analysis and presentation.
- **Mobile, Multimedia & Wireless:** Android/React Native, ns-3, srsRAN, 4G/5G RAN/Core, O-RAN RIC, video/audio QoE tools, Perf/Perfetto/Monsoon, WebRTC/FFmpeg.

EDUCATION

- 2023-26 **University of Southern California**
Ph.D. in Computer Engineering, GPA: 4.0/4.0
Thesis: Towards Performance-aware Cellular Networking via Cross-layer Optimizations
- 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, GPA: 3.73/4.0

ONGOING PROJECTS

- 2024– Traffic Shaping for Satellite Links.
- 2025– Interference-aware TDD Scheduling.
- 2025– Energy-aware Adaptive Video Streaming for Smartphones.
- 2025– A Comprehensive Analysis of Download Time Estimation Techniques.

PUBLICATIONS

- 2025 **Ahmad Hassan**, Vutha Va, Anum Ali, Yuqiang Heng, Boon Loong Ng. Prediction-based Adaptive RRM Measurement Relaxation for UE Power Saving. *[In submission.]*
- 2025 **Ahmad Hassan**, Wei Ye, Anlan Zhang, Rostand A. K. Fezeu, Akshay Jajoo, Myungjin Lee, Jason Carpenter, Ruiyang Zhu, Shuowei Jin, Z. Morley Mao, Zhi-Li Zhang, and Feng Qian. OPCM: Opportunistic Performance-driven Connectivity Management for 5G/xG Networks. *ACM CoNext 2025*.
- 2024 **Ahmad Hassan**, Shivang Aggarwal, Mohamed Ibrahim, Puneet Sharma, and Feng Qian. Wixor: Dynamic TDD Policy Adaptation for 5G/xG Networks. *ACM CoNext 2024*. *Best Paper Runner-up!*
- 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*. *Best Paper Award!*
- 2024 **Ahmad Hassan**, Shivang Aggarwal, Mohamed Ibrahim, and Puneet Sharma. Wixor: Accelerating Emerging Uplink-intensive 5G Applications. *HPE Tech Con 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 Chandrashekhar, 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, Shuwei 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*.

PATENTS

- 2025 Prediction-based RRM Measurement Relaxation for UE Power Saving. [*Patent filed.*]
2024 Proactive Dynamic TDD Scheduling for 5G networks. [*Patent filed.*]

AWARDS/HONORS/GRANTS

- 2025 MHI Scholar Finalist, ECE Department, USC
2025 Best Intern Poster Runner-up, SMI Lab, Samsung Research America
2024 Best Paper Award, MMSys 2024; Best Paper Runner-up, CoNEXT 2024
2017–20 Placed on Dean’s Honor List
2014–16 Merit Scholarship in High School (valued at \$2,000)

SERVICE

Program Committee: ACM CoNEXT 2025 (Shadow), ACM ImmerCom 2024

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

Artifact Evaluation Committee: ACM SIGCOMM 2024

LEADERSHIP EXPERIENCE

- 2024–25 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

TALKS AND TEACHING EXPERIENCE

- 2022 Guest Lecture for USC EE 597 (Wireless Networks)
2022 Guest Lecture for UMN CSCI 8211 (Advanced Computer Networks)
2022 GRaDS talk organized by CSGSA, UMN
2018–21 T.A. for Advanced Operating Systems, Computer Vision, Multi-variable Calculus