

Ahmad Hassan

Ph.D. Candidate
Department of Electrical and Computer Engineering
University of Southern California

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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 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*.

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