Mubashir Anwar

manwar@illinois.edu

Education

University of Illinois Urbana-Champaign — Aug 2021 – Present
Doctor of Philosophy in Computer Science — *Advisor: Matthew Caesar*

Lahore University of Management Sciences — Sept 2017 – May 2021
Bachelor of Science in Computer Science — *CGPA: 3.99/4.00*

Research Interests

Large Language Models for Networking, Formal Methods for Networked Systems, Database Defined Networking

Publications

Understanding Misunderstandings: Evaluating LLMs on Networking Questions. **Mubashir Anwar**, Matthew Caesar. ACM SIGCOMM Computer Communication Review, Volume 54 Issue 5 (SIGCOMM CCR '24)

Verifying Multi-Vendor IoT Deployments using Conditional Tables. **Mubashir Anwar**, Matthew Caesar, and Anduo Wang. 21st EAI International Conference on Mobile and Ubiquitous Systems: Computing, Networking and Services (EAI Mobiquitous '24)

Structural Semantics Management: an Application of the Chase in Networking. Anduo Wang, **Mubashir Anwar**, Fangping Lan, and Matthew Caesar. 2023 31st International Symposium on Modeling, Analysis, and Simulation of Computer and Telecommunication Systems (MASCOTS '23)

Fortify: Software Defined Data Plane Resilience. Umar Farooq, **Mubashir Anwar**, Haris Noor, Rashid Tahir, Santhosh Prabhu, Ali Kheradmand, Matthew Caesar, Fareed Zaffar. IEEE Conference on Network Function Virtualization and Software Defined Networks (NFV-SDN '22)

Trimmer: An Automated System for Configuration-based Software Debloating. Aatira Anum Ahmad, Abdul Rafae Noor, Hashim Sharif, Usama Hameed, Shoaib Asif, **Mubashir Anwar**, Ashish Gehani, Fareed Zaffar, and Junaid Haroon Siddiqui. IEEE Transactions on Software Engineering (TSE '22)

Seeing is Believing: Exploring Perceptual Differences in DeepFake Videos. Rashid Tahir, Brishna Batool, Hira Jamshed, Mahnoor Jameel, **Mubashir Anwar**, Faizan Ahmed, Muhammad Adeel Zaffar, and Muhammad Fareed Zaffar. 2021. In Proceedings of the 2021 CHI Conference on Human Factors in Computing Systems (CHI '21)

Posters, Demos, and Extended Abstracts

Structural Network Minimization: A Case of Reflective Networking. **Mubashir Anwar**, Anduo Wang, Fangping Lan, and Matthew Caesar. In Proceedings of the ACM SIGCOMM 2023 Conference (SIGCOMM '23).

Indirect Network Troubleshooting with The Chase. **Mubashir Anwar**, Fangping Lan, Anduo Wang, and Matthew Caesa. In Proceedings of the 7th Asia-Pacific Workshop on Networking (APNET '23).

Structural Semantics Management: an Application of the Chase in Networking Anduo Wang, **Mubashir Anwar**, Fangping Lan, Matthew Caesar. 2023 31st International Symposium on Modeling, Analysis, and Simulation of Computer and Telecommunication Systems (MASCOTS '23)

Trimmer: Context-Specific Code Reduction. Aatira Anum Ahmad, **Mubashir Anwar**, Hashim Sharif, Ashish Gehani, Fareed Zaffar. IEEE/ACM International Conference on Automated Software Engineering (ASE '22)

Honors and Awards

Best Paper Award for "FORTIFY: Software Defined Dataplane Resilience"	Nov 2022
Sohaib and Sara Abbasi Computer Science Fellowship	Aug 2021 – Present
Gold Medal - LUMS Computer Science	May 2021
Silver Medal - LUMS Batch of 2021	May 2021
Award of High Distinction - LUMS	May 2021
Undergraduate Merit Scholarship – LUMS	Sept 2018 – May 2021

Teaching Assistantships

Internet of Things (CS 437 - UIUC)	Sept 2024 – Dec 2024
Internet of Things (CS 437 - UIUC)	Sept 2022 – Dec 2022
Operating Systems (CS 370 - LUMS)	Sept 2020 – Dec 2020
Fundamentals of Computer Systems (CS 225 - LUMS)	Sept 2019 – Dec 2019
Project for Uplifting LUMS Support Staff (LUMS)	Sept 2018 – May 2019

Selected Course Projects

Improving Pedestrian Safety with Consumer Grade Earphones Sept 2022 – Dec 2022

- Designed a system, collected training data, and implemented a method for detecting approaching vehicles using microphones of consumer grade earphones for pedestrian safety.

Distributed Machine Learning Manager | Python Sept 2022 – Dec 2022

- Designed and implemented a distributed membership service with failure detection, failure-resilient distributed file system, and a scheduler and manager for running machine learning jobs with fair resource allocation.

Exploring Shared Acceleration in Scene Reconstruction Algorithms Jan 2022 – May 2022

- Designed an accelerator for commonly used scene reconstruction algorithms in XR, Marching Cubes and Ray Marching.
- Profiled Marching Cubes and Ray Marching on a CPU and implemented software optimizations for Marching Cubes that resulted in a 28% improvement in performance.

Cross-System Configuration Validation Sept 2021 – Dec 2021

- Performed a feasibility study of using existing test suites in large systems (such as Hadoop, Alluxio etc.) for cross-system configuration validation.

Tripaze | JavaScript React Firebase Jan 2020 – May 2020

- Managed and worked with a group of 5 in the specification, design, implementation, and testing of a web application to serve as a market place for local trips.

Technical Skills

Programming Languages: Python, C/C++, SQL, JavaScript, Datalog
Web Frameworks: React, Node.js, Django
Other: Postgres, OpenFlow, Z3-Solver, CUDD, NumPy, Matplotlib, pandas, GazeCloud API