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

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 and Demos

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)

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).

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