ROHAIL ASIM

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EDUCATION

New York University Expected August 2025
PhD in Computer Science - CGPA: 3.92/4.0
Relevant Coursework: Advanced Algorithms, Databases, Distributed Systems

Lahore University of Management Science (LUMS) 2015 - 2019
*Bachelor of Computer Science - CGPA: 3.70/4.0 (*Graduated with Distinction*)*
Relevant Coursework: Network Centric Computing, Distributed Systems, Advanced Programming, Artificial Intelligence

EXPERIENCE

Graduate Research Assistant Sep 2020 - Present
New York University *New York, USA*

- Designed and implemented **Hera**, a modular QoE-aware rate control framework for AR/VR applications in 5G networks, integrating a custom TCP Linux kernel module in C with WebXR-based multi-user environments to reduce interaction latency by up to 66%, improve video quality by 50% average bitrate, and sustain high-resolution 4K streaming across dynamic wireless conditions; leveraged dash.js, NGINX, FFmpeg, and NetEm for full-stack benchmarking and evaluation.
- Developed **Zeus**, a novel benchmarking framework for evaluating congestion control algorithms (CCAs) in 5G environments and led the most comprehensive cross-protocol measurement study to date across 5G environments using Python, Mahimahi, and NS-3 for repeatable, scenario-aware analysis.
- Conducted a comprehensive study on the impact of generative AI on educational institutions revealing GenAI's performance across 32 university courses and exposing the unreliability of AI-detection tools and influencing global academic policy debates on generative AI across major media outlets worldwide.
- Developed **Sonic**, a novel connectivity system leveraging FM radio and SMS to deliver simplified, pre-rendered web content to low-end mobile devices in internet-deprived regions.
- Developed **LiteWeb**, a JavaScript optimization framework reducing mobile web page load times by up to 72% on low-end phones, significantly bridging the digital divide in underserved regions.

Software Engineer (Full Stack) Jan 2020 - Aug 2020
Educative Inc. *Lahore, PAK*
Educative is an ed-tech platform with over 2 million users that provides interactive and adaptive courses for software developers

- Migrated platform to Next.js to utilize server-side rendering (SSR) and client-side caching to improve SEO and reduce page load times up to 50%.
- Created a Design System using Material-UI in TypeScript saving up to 50% of a developer's time to build UI components.
- Increased test coverage by 50% using a testing infrastructure based on Jest, Unittest, and Selenium.

My research has led the design and deployment of cutting-edge systems at the intersection of networking, AI, and web technologies reducing latency, improving quality of experience, and advancing accessibility for underserved communities. I have delivered real-world impact through peer-reviewed publications with global media coverage, open-source tools, and technologies adopted in diverse environments ranging from high-performance 5G networks to low-end mobile devices in internet-constrained regions.

PUBLICATIONS

[1] Perception, performance, and detectability of conversational artificial intelligence across 32 university courses. Scientific Reports 13 (2023)

[2] Impact of Congestion Control on Mixed Reality Applications. ACM SIGCOMM EMS 2024

[3] The GAIUS Experience: Powering a Hyperlocal Mobile Web for Communities in Emerging Regions. ACM ICTD 2024

[4] Towards a world wide web without digital inequality. Proceedings of the National Academy of Sciences (PNAS)

TECHNOLOGIES

Languages Python, C, C++, JavaScript, TypeScript, GoLang, HTML, CSS, Matlab, SQL, Haskell
Tools & Frameworks Wireshark, Linux, Git, Selenium, NGINX, NetEm, Mahimahi