Contact

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Top Skills

QUIC

Apache Flink

Socket Programming in Python

Honors-Awards

Best Presentation/Demonstration Award

DG's (Director General's) Commendation Disc and Certificate

Sword of Honour

Prateek Jain

Research Intern @ Google | Pursuing PhD @ BU | C/C++ | Computer Networks | Transport Layer Protocols | MS in CS with Specialization in Cybersecurity
Boston, Massachusetts, United States

Summary

I'm a Doctoral Student at Boston University, where I'm exploring the cutting-edge intersections of network communication protocols. My academic and professional journey has been defined by a relentless pursuit of innovation in computer networks, particularly through my work on designing a Recursive Internetwork Architecture (RINA) based architecture that leverages the in-network resources to reduce the probability of undetected errors in a petabyte scale file transfer and dissecting the intricacies of the QUIC protocol.

Before entering academia, I was an Assistant Commandant (Technical) with the Central Reserve Police Force, India, where I led key tech-driven initiatives to enhance operational efficiency, cybersecurity, and data management. This exposure helped me in learning the leadership and team management skills.

Experience

Google
Research Intern
May 2025 - Present (4 months)
Boston, Massachusetts, United States

Working with the networking protocol team to optimise the transport level communication for various Google services.

Boston University
2 years 4 months

Doctoral Student
January 2024 - Present (1 year 8 months)
Boston, Massachusetts, United States

• Engaged in optimizing the Multi-Layer Error Detection model by integrating FPGA support for enhanced CRC calculations and error checks.

• Conducting in-depth research on the QUIC protocol, focusing on its unique features such as connection migration, server migration, 0-RTT connections, and its protection mechanisms against ossification.

• Analyzing how QUIC's features contribute to improved connectivity and faster recovery in environments with challenging network conditions, underpinning reliable data communication over UDP.

• Highlighting QUIC's critical role in contemporary internet architecture, with its protocol supporting more than 35% of Google's traffic and exceeding 7% of global internet traffic.

Research Assistant
May 2023 - December 2023 (8 months)
Boston, Massachusetts, United States

• Implemented the Multi-Layer Error Detection (MLED) protocol in C++ as part of a research project, enhancing file transfer reliability for large scientific datasets.

• Led experimental efforts to compare theoretical models with actual outcomes, particularly in the field of astronomy, ensuring the integrity of petabyte-scale data transfers.

• Demonstrated expertise in network protocol development and a strong commitment to empirical research, contributing significantly to advancements in large size file transfer technology.

Central Reserve Police Force - India
8 years 2 months

Assistant Commandant (Technical)
July 2016 - March 2022 (5 years 9 months)
Delhi, India

• Led tech initiatives, focusing on operational efficiency, security, and data management at force level.

• Conducted security audits with tools like Ghidra and Nessus, achieving a 90% reduction in data leaks through malware analysis.

• Developed a MEAN stack-based web application to expedite field data collection, enhancing operational response times.

• Created an ELK stack dashboard for real-time data analysis, offering advanced data handling and analysis features.

• Optimized management systems with Django and SQLite, significantly improving efficiency and reducing reliance on paper-based processes.

• Demonstrated leadership in cybersecurity, web and application development, and data analysis to bolster force capabilities.

Assistant Commandant
February 2014 - June 2016 (2 years 5 months)
Manipur, India

• Held a key role in ensuring peace, order, and security in areas affected by insurgency and civil unrest.
• Led law enforcement initiatives with a focus on strategic planning, execution, and team leadership.
• Oversaw comprehensive training programs and administrative tasks, promoting community engagement and collaboration with other agencies.
• Demonstrated unwavering commitment, strategic foresight, and exemplary leadership in managing complex challenges in high-pressure situations.

Education

Boston University
Doctor of Philosophy - PhD, Computer Science · (January 2024)

Boston University
Master's degree, Computer Science with Specialization in Cybersecurity · (September 2022 - December 2023)

Delhi College of Engineering
Bachelor of Technology - BTech, Information Technology · (August 2006 - July 2010)