Malik Ali Hussain

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Education

Carnegie Mellon University – Information Networking Institute   Pittsburgh, PA

Master of Science in Information Technology – Information Security - **CGPA: 3.95/4.00**   August 2021 – December 2022

Lahore University of Management Sciences   Lahore, Pakistan

Bachelor of Science in Computer Science with a Mathematics minor - **CGPA: 3.70/4.00**   August 2017 – June 2021

Relevant Coursework: Computer Systems, Distributed Systems, Secure Software Systems, Cyber Risk Modeling, Information Security, Applied Information Assurance, Topics in Cybersecurity, Software Engineering, Network Security, Net-Centric Computing, Operating Systems, Machine Learning, Discrete Mathematics & Algorithms

Professional Experience

Google | *C++, Bazel*   Madison, WI

Software Engineer Intern at Google Cloud Infrastructure Team   May 2022 – August 2022

- Built an API for Memory Management & Unsolicited Message Delivery from Pony Express to Host Application
- Designed, Implemented & Tested a Reliable Datagram(RD) operation for Pony Express
- Currently benchmarking & developing a Multicast version of RD aimed at reducing tail latency of large fanout messages

iTitans Ltd. | *HTML, CSS, Bootstrap*   Lahore, Pakistan

Software Engineer Intern   June 2020 – August 2020

- Used Jira for project management, Adobe XD for design & prototyping of the UI/UX of user-friendly web solutions
- Implemented web-solutions, in HTML, CSS, & integrated them with back-end capable of catering 6M+ annual traffic

Academic Projects

Distributed Systems, CMU | *Java, Socket & Concurrent Programming*   January 2022 – April 2022

- Implemented a Distributed Database Platform supporting database partitioning & replication with eventual consistency
- Developed a Distributed File System capable of interacting using RESTful APIs & ensuring concurrency control using locks
- Built a Java Remote library for service communication in Distributed Systems & used it to implement RAFT consensus algorithm

Cyber Threat Intelligence Sharing with MISP, CMU | *Python, Zeek, MISP*   September 2021 – November 2021

- Configured Intrusion Detection System on 10 network hosts & integrated it with MISP to automatically log malicious activities
- Automated all network hosts to retrieve data from MISP server, after every 120 seconds, and perform log analysis
- Programmed network hosts to Harden themselves against 30+ possible type of attacks using the results of log analysis

Computer Systems, CMU | *C, Object-Oriented Programming*   September 2021 – November 2021

- Developed a HTTP Proxy, in C, capable of handling multiple concurrent connections using multi-threaded LRU cache design
- Implemented Malloc package, in C, having an average memory utilization of above 78% and throughput of 11000 Kops/sec

Issue Logging System Mobile Application, LUMS | *Flutter, SQL, Android Studio*   January 2020 – April 2020

- Designed UI/UX of application considering the usability for 3000+ users, including the less educated users, with Adobe XD
- Developed front end of the application for iOS/Android using Flutter framework and integrated with SQL database
- Deployed the application on Heroku while following an incremental model throughout the development phase

Paper Unshredder, LUMS | *Python, ResNet, Google Colaboratory*   September 2020 – December 2020

- Trained a Neural Network, in Python, to predict the compatibility of two paper shreds with 90% accuracy
- Devised an optimization technique to find the possible permutations of the shreds without using the absolute Bruteforce approach

Technical Skills

Languages & OS: Fluency in Python, C++, Java, C & Familiarity with Go, Haskell, PHP, SQL, HTML/CSS, Dart

Tools & Platforms: Flutter, Heroku, MISP, Wireshark, Splunk, Git, MS Office, Android Studio, GDB Debugger

Skills: Object-Oriented Programming, TCP/IP, Version Control, Agile Software Development, ML Model Training

Leadership Roles

- As **Teaching Assistant** at CMU, designed course assignments & delivered recitations for MS level Information Security course
- As **Teaching Assistant** at LUMS, supervised semester long project of 4 groups from Databases course