Yusuf Saquib

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Education

Carnegie Mellon University
AUG 2022 – JUL 2023
Master of Science in Computer Science

Carnegie Mellon University
AUG 2018 – MAY 2022
Bachelor of Science in Computer Science
Minor in Business Administration

Technical Skills

Programming Languages
C · Python · SML NJ · Assembly · TypeScript

Software and Technologies
Unix · Google Cloud Platform · Git · GDB
Microsoft Office · Adobe Creative Cloud

Key Courses

Computer Science - Systems
15-330: Computer Security
15-348: Embedded Systems
15-441: Computer Networks
15-744: Graduate Computer Networks
18-732: Secure Software Systems

Computer Science - Theory
15-251: Great Theoretical Ideas in CS
15-316: Foundations of Security and Privacy
15-451: Algorithm Design and Analysis

Extracurriculars

Planetary Society President
SEP 2021 – MAY 2022

Computing Club President
SEP 2021 – MAY 2022

NSA Codebreaker CTF 2021
AUG 2021 – JAN 2022

Taekwondo Sparring Tournament
JUN 2018

Certifications

Basic Life Support and First Aid
Awarded MAR 2019

Taekwondo 2nd Dan Black Belt
Awarded AUG 2017

Languages

Arabic · English · Urdu

Work Experience

Research Assistant @ Carnegie Mellon University
DEC 2021 – JUN 2022
- Conducted in-depth experiments to identify Bluetooth vulnerabilities and potential attack vectors.
- Analyzed more than 20 traces with over 50,000 packets each to present and discuss findings with the research team.

Course Assistant @ Carnegie Mellon University
JAN 2019 – DEC 2021
- Contributed to the delivery of 4 computer science courses by holding office hours to help students understand complex course concepts and ensure their success in the course.
- Graded students' assignments and provided constructive feedback to promote academic growth.
- Met regularly with professors to discuss students' concerns and offer curriculum feedback.

Volunteer Teacher @ Code In Alice
JUL 2021 – AUG 2021
- Delivered engaging lessons on Computer Science basics using the Alice programming environment, fostering students' critical thinking skills and creativity.
- Offered hands-on guidance and mentorship to a class of 20 middle and high school students, inspiring them to pursue careers in technology and fueling their passion for learning.

Software Engineering Intern @ Biomotivate
JUL 2020 – AUG 2020
- Collaborated in the development of a product by prototyping software and hardware components.
- Enhanced the functionality of the product for consumer use, applying creative problem-solving skills to deliver a more user-friendly experience.

Project Experience

Video Content Distribution Network
NOV 2021 – DEC 2021
- Designed and implemented a Video Content Distribution Network (CDN) that used a custom-built Domain Name Server (DNS) using the C programming language as a course project.
- Developed a dynamic system that served different video bitrates based on the client's connection, ensuring seamless playback, optimizing video quality, and reducing buffering times.

BitTorrent-Like Peer-to-Peer Network
OCT 2021 – NOV 2021
- Designed and implemented a BitTorrent-like decentralized peer-to-peer network and custom network protocol built on top of UDP using the C programming language as a course project.
- Incorporated TCP mechanisms to ensure the reliability of data transfers in the network.
- Implemented congestion control and avoidance strategies such as AIMD to optimize network performance, minimize delays and prevent network overloading.

Academic Research

Perry: A Deception Orchestration System for Microservices
Carnegie Mellon University - CyLab Security and Privacy Institute
Advisor: Dr. Vyas Sekar
SEP 2022 – PRESENT
- Designed a microservice deception orchestration system in which the operator defines declarative deception techniques that the system can use to dynamically defend against multiple classes of attacks in a way that scales and keeps overhead low.
- Currently implementing the system, performing experiments, and evaluating efficacy.
- Expecting to complete a system that can effectively and invisibly defend against classes of attacks including DDoS, Data Exfiltration, and Privilege Escalation attacks whilst simultaneously gathering significant threat intelligence data on the adversary.