

Karim Kabbara

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EDUCATION

Bachelor of Science in Computer Science

University of Colorado Denver

May 2023

GPA: 3.56/4.00

CERTIFICATIONS

CompTIA Security+ (SY0-601)

June 2023

Cisco Certified Network Associate (CCNA 200-301)

July 2023

PROFESSIONAL EXPERIENCE

Embedded Firmware / Software Engineer

September 2023 - Present

Geotech Environmental Equipment, Inc.

Denver, CO

- Develop embedded systems for environmental sampling and remediation applications.
- Write code on Programmable Logic Controllers (PLCs) using JavaScript, Node.js, and Node-Red.
- Wire components to PLCs to test system logic and reliability before handing it off to the customer.
- Utilize the MQTT protocol to enable real-time telemetry data transmission of a given system's status.
- Use Python to develop and maintain the Geotech website which displays information about a customer's device.

Technical Support

June 2023 – September 2023

Adaptive Programs at Cherry Creek Schools

Aurora, CO

- Provided technical support for 3 schools, including over 60 staff members and 150 students.
- Responsible for supporting over 200 student & staff devices, as well as multi-function printers, and projectors.
- Reimaged student and staff devices, troubleshooted network connectivity, and upkeep the school website.
- Repaired laptops by replacing faulty components such as RAM sticks, and storage drives.
- Use Incident IQ Ticketing to respond to tickets, and to escalate issues to the service desk team when necessary.

Cybersecurity Course Developer (Temporary)

January 2023 – May 2023

University of Colorado Denver

Denver, CO

- Collaborated with a professor and a student to develop two classes for the new Cybersecurity Major at CU Denver.
- Created course material for the classes Computer Security, and Secure Networking & Programming.
- Topics for each class included an introduction to penetration testing, SQL injections, cloud VM setup using GCP, packet capture and analysis with Wireshark, hashing and cryptography, as well as input validation and sanitization.

PROGRAMMING PROJECTS

Network Simulator

- Designed a network simulator to create network topologies, featuring devices like PCs, routers, and switches.
- Developed a command line for configuring IP addresses, VLANs, access/trunk ports, default gateways, and more.
- Additional configurations include DHCP servers and clients, as well as static routes.
- Simulated the process of ICMP pings, including the ARP learning process and dynamic MAC address learning.
- Defined PDUs for OSI layers 2, 3 and 4, including encapsulation and de-encapsulation at each layer.

Brady Public Humanities Archive (Visit: bradyhumanities.org/)

- Collaborated with a 3-person team to develop a digital archive for worldwide humanities projects.
- Technologies consist of AWS LightSail, RDS for the MySQL database, Nginx paired with Unicorn, and Django.
- User features involve project & glossary submission, project pages, and an interactive map using the MapBox API.
- Admin features involve project & glossary verification process, featuring projects, and glossary management.

Port Scanner Detector

- Wrote a Python script that detects port scanners to prevent unauthorized machines from scanning a network.
- Analyzes network traffic by using a listening socket to capture packets traveling through the network.
- Inspected layers 2, 3, and 4 PDUs to extract information such as IPs, MAC addresses, and port numbers.
- Identified excessive scans over a time interval using unique IP, MAC address, and port number combinations.

SKILLS

Skills: Python, JavaScript, JSON, MQTT, C++, Java, Embedded Systems, SQL, Linux OS, Amazon Web Services, Google Cloud Platform, Nginx, HTML, Tailwind CSS, PHP, Cisco IOS CLI (Switches, Routers), OSI Model, Routing, Switching.