

Akshit Sharma

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Education

B.S. Computer Science

Expected Graduation: Dec 2023

San Jose State University | College of Science

- Relevant Coursework: Data Structures & Algorithms, Computer Architecture, Object Oriented Design, Operating Systems, MIPS Assembly, Computer Networks, Formal Languages and Computability,

Experience

Software Development Team Lead

San Jose, CA

The Software and Computer Engineering Society

May 2022 - May 2023

- Created a monitoring tool for paper printers using Python, Prometheus Grafana and Discord for a club with over 300 members.
- Implemented a scraper in Python to intermittently send ping and SNMP requests to the printers at their IP addresses.
- Built a Grafana Dashboard to visualize request latency, success rate and time elapsed since a printer was last “pinged”.
- Defined alert rules on Prometheus for a device not responding to snmpwalk and/or ping commands for more than 60 seconds.
- Integrated a Discord webhook into Prometheus’ Alertmanager to relay firing Prometheus alerts to a Discord server.

Internship Lead / Mentor

San Jose, CA

The Software and Computer Engineering Society

May 2023 - Current

- Lead a team of 12 interns to develop a multitude of projects varying from webpages to back end streaming services
- Held multiple workshops to teach the interns skills such as Docker, Linux, and Networking
- Monitored intern progress and provided timely feedback, and developed alongside them to support continuous improvement.
- Led the interns to deliver high-quality software solutions within project timelines, resulting in positive feedback from faculty

Skills & Interests

- Languages: Python, C, Java, JavaScript, HTML, CSS, Swift, InfluxDB, Bash, Express.js, ZSH
- Technologies: Amazon Web Services, Internet Standard Protocols (SNMP), Unix/Linux, Firebase, InfluxDB, Docker/Docker Compose, Grafana, Prometheus, Cadvisor, Nginx, Networking (Subnetting, VPN creation, traffic rerouting), Git,
- FrameWorks: Flask, Express, Django, React.js

Selected Independent Projects

RaspberryTube

Fremont, CA

Python, Flask, Bash, CSS, HTML, Grafana, Prometheus, Docker

May 2023 - Present

- Created a Raspberry Pi Flask application to play youtube videos/playlists remotely to play on a TV in a local barbershop.
- Utilized Bash to allow for a script to download and update all dependencies and run the web server.
- Implemented a page to paste links to videos/playlist where they get placed in their own directory, page to manage the files, and a page to manage currently playing media (skip, and previous)
- Added monitoring to the application to ensure maximum reliability and up-time, for over 100 clients in the barbershop.

Road Warrior VPN

San Jose, CA

OpenWRT, OpenVPN, AWS

May 2023 - June 2023

- Created a remotely accessible network using a Raspberry Pi as a router with OpenVPN and OpenWRT.
- Utilized OpenVPN’s `iroute` and `ccd` commands to route traffic between the VPN and the subnet behind the Raspberry pi router.
- Configured the OpenWRT router to also act as a DNS server to alias each IP address with a domain for easier access.
- The solution is currently used by a nursing home’s IT department for secure remote access into the on-premise network.

Assignment Notifications (Duo mobile MFA Bypass)

San Jose CA

Python, Docker, MITMProxy, Oracle Cloud

March 2023

- Utilized MITMProxy from laptop connected to mobile to grab tokens and requests made by Canvas (Our colleges Gradebook)
- Wrote a python scraper to scrape data using tokens and the request headers caught by using MITMProxy.
- Implemented requests to send Discord messages if an assignment has not been completed and is due in 3 hours.
- Containerized it and ran it on Oracle Cloud where it runs 24/7 to ensure not one assignment is missed

Coin Flip REST API

San Jose, CA

Node.js, Prometheus, Grafana, Nginx

March 2023 - April 2023

- Developed an HTTP API with Node.js to simulate coin flips, returning the result of heads and tails in JSON format.
- Users could interact with this API via HTTP GET requests with the number of coin flips specified in the URL’s query string.
- Combined Prometheus and Grafana to monitor and visualize the API’s results, tracking heads tails and flips per minute.
- Utilized Nginx to route traffic to either the Prometheus Grafana or Coin API depending on the contents of the request URL.

Honors & Awards

- **SJSU Dean Scholar** – Awarded from the SJSU College of Engineering for exemplary GPA.

April 2022