Sanjit Kumar

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EDUCATION

University of Illinois at Urbana-Champaign, *Master of Computer Science* Aug 2022 – May 2024
3.89/4.00 GPA Champaign, USA

Vellore Institute of Technology, Vellore, *B.Tech Computer Science and Engineering* Jul 2018 – May 2022
9.23/10.00 GPA Vellore, India

SKILLS

Languages (Python, C, C++, Java) • **Web Development** (ReactJS, Node.js, Express.js, PHP, HTML/CSS)

Mobile Development (React Native, Expo) • **Database Management** (MySQL, MongoDB, Elasticsearch)

DevOps (AWS, Bash, Docker) • **Systems Programming** (Linux Kernel, Sockets, Hadoop, Apache Kafka, Distributed Systems)

Version Control (Git, Github) • **Machine Learning** (TensorFlow, PyTorch) • **Computer Graphics** (OpenGL, WebGL)

PROFESSIONAL EXPERIENCE

Fall Software Engineer Intern, *Aviz Networks Inc.* Sep 2023 – Nov 2023
San Jose, USA
- Enhanced a network packet collector developed during the previous summer internship to enable streamlined packet filtering and destination selection.
- Performance tuned high throughput low latency network packet collector pipeline by batching packet payload.
- Automated the configuration, build and execution of the packet collector with Python.

Summer Software Engineer Intern, *Aviz Networks Inc.* May 2023 – Aug 2023
San Jose, USA
- Designed and developed a highly performant and scalable network analyzer system in C++ that taps packets of high velocity traffic from network fabric of data centers to extract and stream metadata information.
- Leveraged scalable event processing systems like Kafka and Elasticsearch for further analytics.
- Benchmarked performance on physical network devices with Python network load generator to test for scalability.

Software Developer Intern, *Zigma Software* Sep 2021 – Nov 2021
Erode, India
- Built a weigh-bridge management MERN stack web application for a 'trucks and heavy motor vehicles' weighing company. Programmed a dashboard for visualization of revenue metrics and constructed unit tests.
- Coordinated meetings with stakeholders for design and performance feedback and improvement.

Full Stack Developer Intern, *WebKnot Technologies Pvt. Ltd.* Nov 2020 – Dec 2020
Bangalore, India
- Integrated custom Tensorflow object detection models with Shinobi, a open source CCTV framework.
- Developed web pages with ReactJS and REST API with node.js and Express.js for two different MERN stack applications for local businesses in Bangalore.

PROJECTS

Android Task Manager for Textile Industry
- Built a React Native Android application using Expo (cross platform mobile development) to create and manage work assignments in textile firms.
- Deployed as a cloud application hosted on AWS EC2 using S3 with Mongo Atlas as data storage layer.
- Used OpenTelemetry Collector to centralize metrics from the client to Prometheus and Grafana to derive performance insights.
- Performance tuned for efficient image storage and retrieval via caching and lazy loading.

Distributed ML Job Scheduler System
- Designed a distributed job scheduler system for ML inference tasks built on top of 10 Linux VMs from scratch using Java and Python.
- Includes a distributed data logging service, distributed group membership protocol and failure detector, a distributed files system and a real-time work scheduling algorithm to optimize query rate for ResNet and ImageNet classification tasks.

Credit Card Fraud Detection with CLONALG
- Credit Card Fraud Transactions Classifier using a hybrid artificial immune system algorithm that mimics human secondary immune response (called CLONALG) that uses adaptive data vectors build from ground-up.

MapReduce Simulation
- An application to leverage the popular Google Map Reduce algorithm for computation intensive tasks in a distributed async environment emulated using multiple docker processes with randomized delays.

ORGANIZATIONS

Journalism Club, *Tech and Media Board Member* Feb 2020 – Jan 2021
- Led a team of 6 to move the literature club's newsletter segment (The Weekly Edge) online.
- Developed and launched a full scale MERN stack web app that facilitated writing, editing and publishing articles by club members. Tracked and increased reader traffic by 40%.