Mohammed, Abrar Ahmed

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EDUCATION

Georgia Institute of Technology, Atlanta, GA, MS. Computer Science (Systems specialization), **GPA: 4.0** **May 2024**

Courses: Algorithms, Big Data Systems, Computer Vison, Computer Networks, Machine Learning, Advanced Internet Computing

Vellore Institute of Technology, Vellore, India, Bachelor of Tech. ECE, GPA: 9.15/10 **2017- 2021**

Courses: Web Development, Computer Networks, Network Security, Operating Systems, Database Management, DS & Algorithms

EXPERIENCE

Radio LF Lab, Georgia Tech **Atlanta**

Graduate Research Assistant **Sep 2023-Present**

- Developing a Big data processing system to compress the data of scale ~100TB collected by Radio Antennas
- Programmed lossless compression techniques in distributed MapReduce framework in Hadoop deployed in Docker containers

CQGRD-Geographical Information Systems Lab, Georgia Tech **Atlanta**

Software Engineer Intern **May 2023-August 2023**

- Built a decision tool using Python backend and a React web application to compute parcel-level geo-spatial map
- Implemented K-means clustering to analyze parcels with high suitability for warehouse placements based on multiple data factors
- Improved UI/UX by adding React-Bootstrap components while conducting usability surveys from 100 users and clients
- Implemented a REST API using Flask that serves JSON data to front-end and enabled user requests to the backend
- Saved at least $100K by building self-sufficient in-app functionalities for spatial data analysis, monitoring, and visualizations

Enterprise Innovation Institute, Georgia Tech **Atlanta**

Web Developer **Oct 2022- Apr 2023**

- Developed a Web application using React+ NodeJS + MongoDB to create real-time dashboards and portfolio webpages
- Involved in Product Management to improve the KPIs by 60% and used Supervised Learning to performed customer segmentation

Tata Consultancy Services **Hyderabad, India**

Systems Engineer, Ericsson Network Management team **Jun 2021-Jul 2022**

- Designed a network monitoring framework, troubleshooting tools for fault management, and log analysis platforms to reduce incident response time by **60%**
- Created Network emulation and verification models in CI/CD to validate network configurations and software testing
- Introduced containerization using Kubernetes and Docker for cloud-native deployments, resulting in a **30%** more resource efficiency
- Worked in Agile method with DevOps and Product team, to gather requirements and implement solutions that met customer needs
- Worked with Version Control, Shell scripting, Linux network protocols, and tools to perform network configuration, configure firewall rules, system administration, network connectivity and monitoring for Virtual Machines, Remote access, and log analysis

SKILLS

Python, C++, Java, Go, Bash, ReactJS, NodeJS, VueJS, ExpressJS, Flask, Django, MySQL, MongoDB, Git, Jira, Docker, Kubernetes, Hadoop, Spark, Jenkins, TCP/IP, OSI, Shell scripting, Linux, Scikit-learn, TensorFlow, OpenCV, Tableau, Microsoft Azure, AWS

PROJECTS

IPFSFinder| Github link **Spring 2023**

- Built a high scalable search engine using Flask to let user search files across the decentralized IPFS network using keywords of the file
- Innovated a backend client using Node.JS that indexes the files on IPFS nodes locally and updates the ranked global index using REST API to Azure MYSQL DB saving **50%** in compute costs and surpassing current decentralized search engine response times by **70%**
- Deployed a web endpoint using Azure Webapps and performed functional, unit tests, latency, and performance tests

Mini-Internet | Github link **Fall 2022**

- Configured L2, and L3 devices using Open vSwitch and FFRouting CLI in a network of 70 Autonomous Systems (docker containers) and 7 IXPs in a mesh network
- Configured L3 network using OSPF to enable inter-domain routing within ASes and Border Gateway Protocol to enable Intra-domain routing b/n ASes along with static routes and executed validation tests using traceroutes
- Implemented BGP policies to manage customer-provider and peer-peer relationships by defining BGP communities to handle traffic
- Detected Origin Prefix Hijack and leveraged RPKI to issue Route Origin Authorizations and Validations as a countermeasure
- Learned about advanced concepts like RIP, MPLS, LDP, BGP Free Core, BGP VPN, VRF, and Multicast

Real-time Toxic Comments Detection and Filtering |Link **Fall 2022**

- Pre-processed 151k data points using stop words, regex, and tokenization before implementing Bag-of-Words, Word2Vec for word encodings, and TF-IDF to identify popular words
- Modeled clustering over toxic labels using Unsupervised learning models (K-means, GMM, DBSCAN, Hierarchical clustering) and achieved **85%** test accuracy
- Modeled binary classification using Supervised learning models (Naïve Bayes, BERT, LSTM) to achieve better performance than existing systems by at least **20%** and best accuracy of **99.6%**