Abrar Mohammed

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Education

Georgia Institute of Technology — Atlanta, GA
Master of Science in Computer Science, Systems Specialization, GPA: 4.0/4.0 — *May 2024(expected)*

Vellore Institute of Technology — Vellore, India
Bachelors of Technology in ECE, GPA: 9.15/10 — *May 2017 – Sep 2021*

Technical Skills

Languages: Python, Embedded C, C/C++, Java, SQL, JavaScript, HTML/CSS, Bash scripting
Frameworks: TCP/IP, OSI, React, Bootstrap, Node.js, Flask, OpenCV, TensorFlow, Hadoop, PySpark
Developer Tools & Cloud: Wireshark, Netsim, Git, Docker, Kubernetes, MS Azure, AWS
Libraries: Pandas, NumPy, Matplotlib, D3.JS, SciPy, socket

Experience

Graduate Research Assistant — Sep 2023 – Present
RadioLF lab, Georgia Tech — *Atlanta, GA*

- Developed a Big data compression framework using Spark and Hadoop for real-time and historical radio data
- Engineered a custom compression algorithm fine-tuned for low-frequency radio data and automated the data transfer pipeline from servers along with pre-processing of data
- Achieved a compression ratio of 0.8 and a 75% reduction in processing time compared to industry best algorithms

Software Engineer Intern — May 2023 – Aug 2023
CQGRD, Georgia Tech — *Atlanta, GA*

- Built a Full stack web app that computes geo-spatial maps with compatibility across various device layouts
- Leveraged React.js for front-end, Flask for backend of the webapp, and clustering algorithms to group areas in map based on 15 dimensions
- Saved $100K in cost by replacing ArcGIS with a free web-based solution for spatial data analysis

Software Engineer — Jun 2021 – Jul 2022
Tata Consultancy Services — *Hyderabad, India*

- Designed a network monitoring tool with automated log analysis and deployed micro-services with Kubernetes
- Developed the framework using C++, Linux network protocols, NetSim, Python and integrated API functionalities
- Delivered the product that reduced incident response time by 50% and added 30% more revenue

Projects

Human Activity and Gesture recognition — Aug 2023 – Dec 2023

- Developed a scale-invariant, noise-invariant activity recognition using Motion History Images and Hu Moments
- Achieved around 99% test accuracy using SVM and KNN classifiers to predict multi-activity labels in a video

Adversial Attacks on NLP models — Aug 2023 – Dec 2023

- Applied a multi-model attack on MNLI dataset to flip the results of sentiment analysis using BERT and DistillBERT
- Developed an Adversial training defence to increase accuracy from 5% to 85%

Real-time Toxic Comments Detection and Filtering — Aug 2022 – Dec 2022

- Implemented Bag-of-Words and TF-IDF for word encoding, clustering over toxic labels to achieve 85% test accuracy
- Modeled binary classification using Supervised learning models (Naive Bayes, BERT, LSTM) to achieve better performance than existing systems by at least 5% and the best accuracy of 99.6%

Certifications & Publications

- AZ-900 Azure Fundamentals
- AZ-104 Azure Administrator
- Mohammed, A.A., et al, (2021). Computer Vision Based Autonomous Fire Detection and IoT Based Fire Response System. Proceedings of International Conference on Communication and Computational Technologies. https://doi.org/10.1007/978-981-16-3246-4$_4$3