Hafeez Ali

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Education

- **University of Wisconsin-Madison** Madison, WI
  Traditional MS. in Computer Science; GPA: 4.0 *Aug 2022 - May 2024*
  Select courses: Deep Learning; Foundation Models; Distributed Systems; Machine Learning; Advanced DBMS; Data Integration & Matching
- **National Institute of Technology Karnataka** Surathkal, India
  Bachelor of Technology in Information Technology; GPA: 9.02/10.0 *Aug 2015 - May 2019*

Technical Skills

- **Languages, Scripts & Systems**: Java, Python, C, SQL, Bash, JavaScript, Gradle, Docker, Git, PostgreSQL, SingleStore
- **Frameworks & Libraries**: Dropwizard, Springboot, gRPC, FUSE, Kafka, Spark, PyTorch, RabbitMQ

Experience

- **Apple Inc.** Austin, TX
  SWE Intern *May 2023 - Aug 2023*
  - **Observability Framework**: Designed & developed a framework offering real-time progress updates, health monitoring, error alerting, performance-metrics tracking, and historical trends analysis for various live processes
  - **Microservices Design**: Developed a Java library and a REST service using Dropwizard for consuming observability events from a Kafka cluster and persisting intelligent data in Aurora PostgreSQL for real-time and historical analysis
  - **UI**: Built a user-friendly interface featuring insightful dashboards that display details on active jobs
- **Goldman Sachs Services Pvt Ltd** Bangalore, India
  Software Development Engineer II *Jun 2019 - Jul 2022*
  - **Data Processing**: Developed efficient data aggregators, scalable and robust ETL pipelines, data archivers & cleaners to facilitate real-time processing of the firm's financial inventory
  - **Migration Service**: Developed a RESTful microservice used to migrate real-time data across legacy & strategic systems by supporting push and pull workflows for data synchronization, thereby cutting maintenance costs and technical risk by 75%
  - **ETL Pipeline**: Led the development of an ETL pipeline enhancing data quality standards, reducing annual transaction failure costs by upto 2.5M USD. Was responsible for prototyping, development, testing, and productionization of the pipeline
  - **Optimization**: Wrote linear programming models using the Simplex algorithm solving inventory optimization problems
- **Goldman Sachs Services Pvt Ltd** Bangalore, India
  SWE Intern *May 2018 - Jul 2018*
  - **Middleware service**: Developed a middleware application as a RESTful microservice using Dropwizard and RabbitMQ, serving the purpose of a message router, user-authenticator, and data validator
- **Robert Bosch Engineering and Business Solutions** Bangalore, India
  Summer Intern *May 2017 - Jul 2017*
  - **Automation**: Developed an automated integration testing framework using Python for testing new hardware components, thereby cutting manual testing procedures, hence increasing operational efficiency

Publications

- **H. Ali A.**, S. U. Rao, S. Ranganath, T. S. Ashwin and G. R. M. Reddy,"**A Google Glass Based Real-Time Scene Analysis for the Visually Impaired**," in IEEE Access, vol. 9, pp. 166351-166369, 2021
  URL: https://ieeexplore.ieee.org/document/9648186

Select Projects

- **Raft Replicated Store**: Designed and developed a distributed key-value store backed by SQLite, implementing data replication using Raft Consensus Protocol, and utilizing gRPC for efficient communication among nodes, and for client requests. Optimized read and write performance by incorporating a nil-ext interface. (Apr '23)
- **LLM reinforced Entity Matching**: Developed a deep learning-based method for database record matching through a combination of transfer learning and active learning. Incorporated LLM-based prompt engineering techniques to implement an active-learning feedback loop to adapt the model to the target dataset. (Apr '23)
- **Distributed File System**: Designed and developed a distributed file system following AFS semantics by using gRPC for client-server communication and FUSE for intercepting system calls. Performed crash-consistency checks, durability tests, and measured the performance of the system using filebench. (Mar '23)
- **Disease Prediction on MIMIC healthcare dataset**: Performed data cleaning of medical records and trained a densely connected sequential neural network model on the dataset for effective data visualization and disease prediction. (Dec '18)
- **Malware Detection**: Performed static analysis of android apks to abstract opcode sequences and trained a CNN and an auto-encoder model for malware detection inspired by Deep Android Malware Detection (Dec '18)