Harshdeep S.

(602) 921-7436 | hssahdev252@gmail.com | linkedin.com/in/hsahdev | github.com/hssahdev

Education

Arizona State University (Ira A. Fulton School of Engineering) – *M.S. in Computer Science* | *GPA: 4.0/4.0* May 2024
University of Delhi (Netaji Subhas Institute of Technology) – *B.E. in Computer Science* | *GPA: 8.2/10* May 2021

Technical Skills

Languages: Python, Java, C/C++, Javascript, Scala, Typescript, Go, Kotlin, C#, , HTML, CSS, SQL, Git, clingo, LaTeX
Technologies: Springboot, Tensorflow, Pytorch, Docker, Apache Spark, Apache Kafka, AWS, D3.js, GraphQL, Android, React.js, Angular, jQuery, Next.js, LangChain, Jenkins, Redis, Apache Sedona, FastAPI, Vector DBs, MongoDB, Firebase, Kubernetes, MS Azure, .NET, Node.js

Experience

Research Assistant (ML/AI) March 2023 – May 2024
Lab V2 @ Arizona State University *Tempe, AZ*

- Developed machine learning models to forecast commodity prices, enhancing model performance further by 1-2% using EDCR technique, a neuro-symbolic approach.
- Achieved 2X precision in identifying spoofed AIS data in ships using attention-based deep learning models built with *PyTorch*.
- Managed and pre-processed 10TBs of AIS data utilizing *Hadoop*, *PySpark*, *AWS S3* and *AWS EMR* for feeding ML models.

Software Engineer July 2021 – July 2022
Expedia Group *Gurugram, Haryana*

- Engineered Tier 1 *Java Spring Boot* microservices, enabling seamless payment processing for 50M Expedia customers.
- Implemented fine-grained auth using Google's *Zanzibar* on a *gRPC* microservice, resulting in a reduction in unauthorized access to user data.
- Spearheaded effort to set up monitoring dashboards with *Datadog* and *Splunk*, reducing time to detect & resolve incidents by 60%.
- Optimized notification system by implementing *Apache Kafka, Apache Storm, and Redis cache*, boosting user engagement by 40% and enhancing booking communications for increased customer satisfaction and loyalty.
- Rebuilt batch jobs consuming terabytes of data utilizing *Apache Spark*, *AWS EMR* and *AWS Data pipeline* to drastically reduce execution time by six-folds and decrease execution cost by 50%.
- Leveraged technologies such as *AWS EMR*, *AWS Datapipeline*, *Qubole*, *AWS Kinesis* to run ETL processes that drove business analytics tool.

Founder/Developer (Part-time) July 2019 – July 2021
XanderApps *Remote*

- Conceptualized, developed, and launched a Java Android app with MVC, replicating notification LED functionality, amassing over **5M+ downloads and user base of 200K+ weekly users**.
- Efforts were recognized by **XDA** and **Android Authority** for innovation and impact.
- Owned full software development life-cycle, managing planning, UI/UX, testing and deployment.
- Integrated CI/CD using Bitrise, ensuring seamless updates and quality assurance reducing time to production by one-third.
- Actively incorporated user feedback, resulting in the introduction of new features that increased user retention by 20%.

Software Engineering Intern May 2020 – July 2020
Expedia Group *Remote*

- Delivered an end-to-end virtual agent system using *Python*, *FastAPI*, and NLP techniques, achieving a 95% accuracy rate in recognizing customer queries.
- Utilized *FastAPI*'s async architecture & *AWS DynamoDB* to create scalable backend service with an SLA of 300ms.

Projects

RAGbot: Simplifying PDF Navigation with Chat | *Python, LangChain, Qdrant, React, FastAPI, Docker*
Revolutionized PDF navigation by employing *LangChain*, *Ollama*, *Qdrant* vector DB, and *FastAPI* for web service. Integrated *React.js* frontend for seamless user experience. Utilized local version of *Llama3* LLM for intuitive chat-based PDF exploration.

Reinforcement Learning in Pacman | *Python, AI, RL*
Implemented and leveraged reinforcement learning methodologies, specifically employing Approximate Q-learning and True Online SARSA algorithms, to enhance performance of Pacman game in a Python-based project increasing average score by 20%.

Disaster Management Dashboard | *Javascript, React, D3.js*
Constructed a visualization dashboard employing *React.js*, *Redux.js*, and *D3.js* to assist first responders in disaster management by creating novel plot representations from scratch. Project served as a plausible solution for VAST 2019 MC1.