Rajesh Sathyakumar

(602) 693-3388 | rajeshsathyakumr@gmail.com | Linkedin | Portfolio | Github | Tempe, AZ

WORK EXPERIENCE

Software Engineer - Machine Learning, W4 Labs Inc., *Tempe, AZ*   JUNE 2023 - PRESENT

○ Deployed Hugging Face LLM models for cryptocurrency app using **AWS SageMaker**, **Kubernetes, Langchain,** and **Transformers**. Also, pioneered **Concept Drift Analysis** dashboard with Evidently AI, ensuring real-time alerts for model performance issues.

○ Developed a **PySpark AWS EMR** pipeline for scalable data distributed processing, catering to both training and testing needs.

Research Associate, SenSIP Labs @ ASU, *Tempe, AZ*   OCTOBER 2021 - APRIL 2023

○ Formulated distributed quantum circuits to enhance pre-trained QML benchmarking models (ResNET-50, Bert-Large, NCF), achieving accuracies of 74.9% Top-1 for ImageNet, 0.72 Mask-LM in NLP, and 0.635 HR@10 in recommendation systems.

○ Conducted comprehensive experiments, leveraging **H2O's Auto ML** workflow to create quantum benchmarks, facilitating model quantization. Deployed models for web-based education in 100-student classes.

○ Published as the first author of the "Measuring Performance of Quantum Simulators for Machine Learning" paper at IEEE.

Full Stack Web and Data Engineer, EdPlus @ ASU, *Tempe, AZ*   JULY 2021 - AUGUST 2021

○ Managed the migration of end-to-end data workloads from Markdown files to **AWS S3** systems using **Apache AirFlow and RDS.**

○ Implemented monitoring metrics to evaluate **Airflow DAG** connectivity performance for the application, making informed adjustments to enhance workflow efficiency.

Software Developer - Machine Learning, Zoho Corporation, *Chennai, India*   AUGUST 2018 - DECEMBER 2020

○ Architected a predictive prefetching system, deploying a **Markov model** in AWS and building a data processing pipeline for tracking user activity and inferences using **Guess.js**, **Tensorflow, AWS DynamoDB, and Kafka**. Improved web page load times by **~50%**.

○ Collaborated on data ingestion and distributed processing of millions of customer records with **Kubernetes, PySpark, Kafka,** and **MLFlow**. Engineered Flask **REST APIs** achieving <1s latency, seamlessly empowering mobile and web experiences.

○ Collaborated with a research group to optimize ML workflow and architecture, resulting in a 1.3-day reduction in data processing and model training per load using **MLFlow**.

○ Infused Zoho Desk with AI capabilities and increased customer engagement by 10% in less than a year using **Python Flask** Backend.

Data Analyst, The Advisory Board Company (Now OPTUM), *India*   SEPTEMBER 2015 - AUGUST 2018

○ Executed ETL procedures with **MSSQL, Python**, and **Apache Kafka** to transform terabytes (> 20 million rows) of US healthcare data. Generated granular analytics aiding physicians and hospital management to make key clinical decisions.

○ Implemented **time-series models** to identify operational bottlenecks, increasing efficiency by 60% with **Tensorflow** and **D3.js**.

○ Optimized database queries for a 30% performance boost through indexing, query rewriting, and execution plan analysis.

TECHNICAL SKILLS

Programming Language	Python, R, JavaScript, Java, C#, C++, MATLAB, MySQL, PostgreSQL
Frameworks	Tensorflow, Pytorch, Apache Spark, AngularJS, Flask, ASP.NET MVC, Spring Boot, Apache Kafka
Libraries	XGBoost, Airflow, Transformers, OpenCV, MongoDB, Redis, D3.js, Pinecone, MLFlow, React.js, Node.js,
Cloud	Firebase, AWS S3, SageMaker, EMR, Lambda, DynamoDB, AutoML, GCP, Firebase, Vertex AI
Miscellaneous	LLMs, LangChain, IIS, Docker, Kubernetes, Git, Microservices, Distributed Systems

EDUCATION

Master of Science, Computer Science, Arizona State University (ASU), Tempe, AZ   JANUARY 2021 - APRIL 2023
Bachelor of Engineering, Electrical and Electronics Engineering, Anna University, Chennai   JULY 2011 - MAY 2015

PROJECTS AND RESEARCH

Evaluating the Efficiency of Quantum Simulators, **Masters Thesis**, *ASU, Tempe, AZ*   APRIL 2023

○ Performed a comprehensive assessment of a quantum simulator's performance through rigorous benchmarking of ML tasks.

○ Analyzed simulation results, identified pivotal metrics, and provided valuable insights for future research and development.

MENTORING

Drug Monitoring System, Finalists, **Smart India Hackathon**, *Karnataka, India*   MAY 2017
Built a web-based drug monitoring system, to address usage of unapproved drugs using LAMP stack, MongoDB, ES5, and Firebase.