Santhanagopalan Krishnamoorthy

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SUMMARY

As Software Engineer with 3+ years of experience in Full stack application development using multiple web frameworks like **Flask**, **Spring Boot**, **React** and **Finatra**. Also proficient in writing and optimizing **Spark** jobs for large-scala data applications. With a strong technical background in envisioning scalable solutions, and implementing the best practices of agile methodologies, I am eager to bring my skills to a new team and deliver high-quality results.

EXPERIENCE

Software Engineer – Colorado Center for Personalized Medicine, USA Dec. 2023 – Current

- Lead the development and release of Genetics Reporting Tool, employing **Nextflow** and **Python** data pipelines. Overhauled testing by integrating Nextflow-test and **Pytest**, achieving 85% code coverage
- Designed a **Python-Typer** based CLI tool to manipulate genetic data for 5 Genotyping chips, reducing mock data generation time from 3 hours to 2 minutes

Full Stack Engineer Intern – Twitter, USA May. 2022 – Aug. 2022

- Integrated text translation of tweets in an internal Ad Review web tool as **HTTP API endpoints** using **Scala** and **Finatra**, increasing productivity of Ad Review process by 8%
- Embedded visualizations for productivity data of Ad Review agents as **React** visualizations, aggregating logs over time granularities such as minutes, hours, days, and months, spanning a 2-month analysis period to enhance operational insights
- Introduced permission **middleware** filter in the Legacy Ad Review tool for **APIs** to dynamically deprecate or activate the Legacy tool for agents without the need for redeployment, simplifying access control and tool maintenance

Senior Full Stack Engineer - Neurostellar, India July. 2020 – July. 2021

- Developed and deployed web services for EEG Seizure storage and analysis using **Spring Boot** on **AWS ECS-Fargate** and integrated with **AWS RDS PostgreSQL**, achieving a p99 latency of 150ms
- Architected and implemented a rule-based engine using **AWS Lambda**, **SQS**, **Sagemaker**, which reduced seizure analysis time by 30% and met the SLA of 3 minutes, thereby streamlining real-time analysis
- Refactored and optimized EEG data preprocessing and ML model training pipelines using **Python** and **AWS Sagemaker**, reducing model training time by 12.3% and saving $4000/year by transitioning from MATLAB licensing to **Python-TensorFlow**

Software Development Engineer - Optum, India Jan. 2019 – July. 2020

- Refactored the Genetic Insight Portal at Optum using **Flask**, splitting data storage between **Big Query** and **PostgreSQL**, and utilized **AJAX** for dynamic content loading, reducing query latency from 9 seconds to 4 seconds and improving user experience
- Optimized **PostgreSQL** database queries by implementing B-tree indexing for numerical data and GIN indexing for text, improving query performance by 80%, thereby speeding up data retrieval and analysis
- Enhanced data visualization by integrating interactive Manhattan plots and bar graphs using **D3.js**
- Implemented secure user authentication and management using **Google Firebase**, ensuring robust access control.
- Engineered an **XML engine** allowing non-technical users to input healthcare metrics, which were then automatically parsed and executed as **Spark jobs** to generate analytical data, supporting 14 CMS measures and improving project manager autonomy
- Enhanced **Spark** job efficiency by 48% using performance optimization techniques such as DAG analysis, repartitioning, and caching, optimizing large-scale healthcare data processing using **AWS Step functions, EMR and S3**

PROJECTS

- Alexandria – Contributor to Open-source Book reader project with **2k GitHub stars**. Developed build scripts to automate builds for MacOS. Integrated LLM based ChatBot in **React** and **Rust** to answer queries in my fork
- Application Health Monitoring Service - Designed and implemented a Distributed Service that reports real time insights to users analyzing log files. Deployed Akka actor, Kafka, and Spark workers as containers in AWS EKS Kubernetes Service

EDUCATION

MS Computer Science & Engineering May. 2023

University of Illinois at Chicago; GPA – *3.7/4.0*

B. Tech Information Technology May. 2019

SASTRA University, Tamil Nadu, India; *Graduated with distinction.*

TECHNICAL SKILLS

- Web Development: Flask, Spring Boot, React/Redux, Finatra
- Languages: Python, Java, JavaScript, Scala, Rust
- Databases.: PostgreSQL, MongoDB, Cassandra
- Cloud Infrastructure: AWS (RDS, Lambda, S3, Sagemaker, SQS), GCP (App Engine, Cloud SQL, Firebase, Compute Engine VM)
- Code Quality: Jest, Pytest, Junit, Nextflow-test
- Other Technologies: Spark, Docker, Kubernetes, Git, Jenkins, GitHub Actions, Nextflow