Avinash Ramesh

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SUMMARY

Experienced software engineer with 6+ years of expertise in data-driven design, backend systems, REST APIs, database modeling, big data frameworks and Proficient in building customer-facing solutions.

EDUCATION

San José State University *San Jose, CA, USA*
Master of Science in Computer Software Engineering (Specializing in Data science) ***August 2021 - May 2023***
Courses: *Enterprise Software Systems, Data Mining, Advanced Data Mining, Machine Learning, Deep Learning, Software Systems Engineering, Special topics in ML and Reinforcement Learning.* **GPA:3.9/4**

Anna University *Chennai, TN, INDIA*
Bachelor of Technology in Information Technology ***June 2012 - April 2016***

EXPERIENCE

Carl Zeiss Meditec, *Dublin, CA (Remote, Tx)*

Senior Software Engineer (Product - Zeiss Veracity part of Zeiss Health Data platform) ***June 2023 - Present***

- Driving the development of Tier 1 data integration services with Zeiss HDP servers, ensuring real-time access to critical medical information, and significantly enhancing healthcare decision-making and patient outcomes.
- Migrated microservices from AWS to Azure, analyzing system requirements and designing scalable solutions, which resulted in a 20% improvement in application performance.
- Effectively designed a data migration service using GitHub Action workflows, resulting in a remarkable 50% reduction in migration time, near-zero downtime, and meeting requirements for data integrity and rapid recovery.
- Revolutionized real-time communication within our systems by pioneering the deployment of diverse API endpoints for critical customer scenarios, such as EMR appointment processing and Zeiss HDP FHIR server synchronization.
- Instrumental in establishing robust FHIR data exchange validation procedures, ensuring 99.9% data accuracy and industry-standard compliance. Result: Enhanced overall data integrity and system reliability.

Software Engineer Intern - full-stack (big data product - Internal Tools) ***May 2022 - December 2022***

- Architectured an internal comprehensive DICOM data management solution for clinical & AI teams that can streamline clinical research and analytics contributing to a 40% reduction in data preprocessing time.
- Designed backend microservices, batch /event data processing pipelines to perform ETL tasks.
- Delivered a robust app, enabling intricate patient scan uploads, study annotation, and metadata handling. Engineered backend APIs & pagination for enhanced user experience & scalability, meeting premier technical benchmarks.
- Modeled a hierarchical DB system with materialized views, stored procedures, and triggers, significantly expediting imaging data ingestion and retrieval while enhancing overall system efficiency and user experience.

ITI DATA, *Chennai, India*

Associate - Software Engineer (Big Data Platforms) ***July 2019 - July 2021***

- Developed infrastructure to process internal & external vendor data feeds at Citigroup, creating a golden data source with business rule application and data selection hierarchy.
- Successfully migrated pipelines from Ab Initio to Spark, achieving 40% faster performance and significant reduction in ETL tool licensing costs.
- Deployed efficient Spark pipelines, optimized SQL queries by 30%, and wrote Sqoop jobs for seamless data integration across HDFS, Hive, and relational databases.
- Created a framework to detect data anomalies and produce daily automated reports, reducing turnaround time by half for addressing data issues.

Analyst - Software Engineer ***August 2016 - June 2019***

- Implemented scalable REST API endpoints for various data querying tasks, empowering businesses with real-time data analysis and dashboard design.
- Executed precise historical tracking via Slowly Changing Dimensions in Data Warehouse; Identified, reviewed, and implemented internal process improvements: automating manual processes, optimizing data delivery by 50%, re-designing infrastructure for greater scalability, etc.

SKILLS

Languages: Java, Python, TypeScript, JavaScript, SQL, Unix Shell Scripting
Databases: Oracle, SQLite, HBase, PostgreSQL, Redis
Cloud & DevOps: GCP, Azure, AWS, Kubernetes, Terraform, GitHub Actions.
Web Frameworks/runtime: HTML, CSS, React, Flask, FastAPI, Node.js
Big Data: Spark, Hive, Hadoop, HDFS, YARN, Sqoop, Kafka
Machine Learning: NumPy, Pandas, Matplotlib, PySpark, SpaCy, Scikit-learn, Keras, TensorFlow, PyTorch

ETL & Workflow Orchestration: Autosys, Crontab, Airflow, Ab Initio, OpenRefine, ADF

CAREER HIGHLIGHTS

- ❖ Strong Engineering background with 5+ years of experience and a Ms in Software Engineering(*Data science track*).
- ❖ Proficient in Python, Typescript, & SQL with expertise in REST API and microservices design.
- ❖ Have a proven track record of building customer-centric solutions that are robust, scalable, and easy to use.
- ❖ Follow object oriented design patterns and dependency ingestion techniques to develop loosely coupled applications.
- ❖ Designed and coded various ML projects during my master's and gained profound knowledge of the ML lifecycle.

PROJECTS

- **EditScape (Transcription based video editor with AI features)**
  Innovated an AI-powered audio and video editing tool, streamlining collaboration and accessibility for users of varying expertise. Seamlessly integrating cutting-edge features like real-time voice cloning, automatic transcription, and text-to-speech conversion for swift and intuitive content modification.

- **Wiki Question & Answering (QA) App.**
  Designed a dynamic Wiki QA Web Application, harnessing NLP to swiftly answer user queries by intelligently sourcing and analyzing Wikipedia content, streamlining information retrieval and enhancing user experience.

- **App for Detection & Classification Of ECG Images**
  This product aims to leverage image processing and machine learning to transform ECG images into a 1-D signal, extracting key heart activity elements like P, QRS, and T waves. These insights facilitate diagnosing a range of cardiac conditions, enhancing medical assessments with advanced techniques.

- **Patient Management System (Book/Cancel Appointments with Doctors)**
  Developed a Patient Management System enabling efficient booking and cancellation of appointments with doctors, enhancing healthcare access and scheduling convenience.

- **Flight Booking Application.**
  Focused on resolving the challenge of creating a flight booking application that incorporates diverse design patterns and software engineering best practices. The goal is to establish a versatile and reusable solution for addressing the intricacies of the problem domain.

- **Intention based ML/ Deep learning approach for fake news detection.**
  The project focuses on enhancing fake news detection using a novel approach that captures the underlying deceptive intentions. Utilizing deep learning techniques, it combines linguistic features like cognitive complexity, verbal immediacy, emotional experience, and sentence embeddings to classify news articles into categories of real, fake with deceptions, and fake without deceptions.

- **Real Estate Analysis.**
  We've innovated a strategy to pinpoint the most profitable and secure real estate investments through a 'golden cluster' approach, integrating latent variables like crime rates and walkability metrics. Our classification and regression techniques further refine investment decisions and property price predictions.

- **DL Framework for Facemask Detection using CNN, Facemask-Removal using GANs and Gender Classification**
  This project leverages ML to classify masked faces, predict masked individuals' appearance, and determine gender, addressing privacy concerns in surveillance. It offers potential for biometric authentication and will be accessible through a user-friendly web application.

- **Retail Store Analysis**
  Utilizing Olist's Brazilian retail dataset, this project employs clustering for churn risk, classification by Customer Lifetime Value, and regression to predict delivery dates for customer satisfaction. The dataset of 100k anonymized orders between 2016 and 2018 empowers data-driven retail insights.

- **Company Analysis - Knowledge Graph**
  This project creates a knowledge graph for investment decisions by combining data from APIs like FinancialModelingPrep, PeoplesData, NewsAPI, and scraping Crunchbase. After NLP preprocessing, the graph is stored in Neo4j, providing users with summarized insights.

- **Poem Generation**
  The project involves building a Poem class that leverages web scraping and NLP techniques to process and analyze poetry data. It aims to create new poems by replacing words based on POS analysis, enhancing the understanding and generation of poetic content.