Ankita Viresh Rathod

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PROFILE

Senior Full Stack & Data Engineer with 8+ years of experience architecting and delivering large-scale enterprise applications, cloud-native services, and high-volume ETL pipelines. Proven expertise in Java, Spring Boot, Angular, Python, Scala, and AWS, with a track record of building distributed data workflows on Apache Spark that process 5B+ records daily. Adept at modernizing legacy systems, implementing secure microservices, and integrating ML models for production use.

PROFESSIONAL EXPERIENCE

Senior Lead Software Engineer | Resonate Networks, VA, USA **May'20 – Present**

- Architected a microservices based platform using Spring Boot and AWS (S3, Lambda, EC2, SQS, Route53), reducing system latency by 60% and improving scalability for millions of concurrent requests.
- Engineered distributed ETL workflows on AWS EMR using Apache Spark and Scala, processing 5B+ records daily to power advanced analytics and real-time audience insights.
- Developed and integrated RESTful APIs and cloud services using AWS SDKs, CLI, and OpenAPI specifications, ensuring secure, fault-tolerant deployments. Modernized 10+ core UI components in Angular and TypeScript, boosting user engagement metrics by 30% and accelerating release cycles via Webpack optimization.
- Implemented CI/CD automation using Jenkins, Maven, SonarQube, and GitLab, cutting deployment time and improving release confidence. Containerized workloads with Docker/Kubernetes and applied SRE monitoring, alerting, and failover strategies to ensure 99.9% uptime
- Fine-tuned and deployed large language models (LLMs) using ChatGPT Retrieval, HuggingFace, LangChain, AWS Bedrock with Pinecone, serving them via REST APIs for customer-facing NLP applications.
- Designed AI-powered data crawling and extraction workflows leveraging Python, Scrapy, and LangChain agents, automating ingestion of semi-structured data with human-in-the-loop validation.
- Collaborated with the data engineering team to migrate SQL schemas from Oracle to PostgreSQL using AWS SCT and DMS, reducing database licensing costs and improving query performance.
- Applied OWASP security principles, including input validation, authentication hardening, and secure logging, to protect sensitive customer data.
- Designed reusable service patterns and internal libraries that shortened onboarding time for new engineers by 40% and reduced code duplication across services. Drove Agile ceremonies, mentoring engineers, facilitating sprint planning, and ensuring high-quality delivery in a fast-paced environment.

Machine Learning Engineer | University of Maryland Baltimore County **Aug'19 – Aug'20**

- Developed a novel CNN-LSTM deep learning model to predict Planetary Boundary Layer Height (PBLH), improving forecast accuracy by 24% (total accuracy 88%), enabling more reliable climate and air quality predictions.
- Built a semi-supervised lung cancer detection algorithm that reduced radiologist workload by identifying the most informative samples for annotation, accelerating diagnosis workflows.
- Performed end-to-end data engineering for high-dimensional meteorological and medical datasets, from exploratory data analysis and feature engineering to model deployment. Optimized model training and inference pipelines using Python, TensorFlow, and Keras, reducing compute time by 30%.
- Published peer-reviewed research in IEEE journals, contributing to climate science and healthcare innovations.
- Collaborated with multidisciplinary teams to define requirements, validate results, and present findings to academic and industry stakeholders.

Full Stack Engineer/Lead | Atmospheric Lidar Group, MD, USA **Dec'19 – May'20**

- Architected and developed a dynamic data visualization web application using Django, JavaScript, and D3.js, enabling interactive mapping of aerosol concentrations and smoke detection across the U.S.
- Integrated real-time sensor data from ceilometers into cloud-based pipelines, improving data processing speed and accuracy by 90%. Designed scalable APIs to serve environmental datasets to multiple visualization clients.
- Led and mentored 12 emerging developers, transforming a diverse student group into a high-performing agile team that delivered a production-ready platform under tight timelines.
- Implemented AWS-based deployments using EC2, S3, and CloudFront to ensure high availability and low-latency global access.

- Collaborated directly with environmental scientists to translate research goals into usable, high-performance software solutions. Presented completed application and architecture to stakeholders, securing adoption for broader research and public outreach purposes.

Full Stack Engineer | Scientific Systems and Software International, USA **Jul'19 - Dec'19**

- Spearheaded design and delivery of new customer contract management and permission-based authentication modules using Spring Framework and Hibernate, improving system modularity and security compliance.
- Architected and developed RESTful APIs to extract structured data from PDFs using Java and OCR libraries, automating a manual process and saving the client 30+ hours per month. Directed code reviews, set development standards, and mentored junior engineers to improve code quality and delivery consistency.
- Collaborated with cross-functional teams to capture business requirements and translate them into technical specifications for implementation. Optimized database queries and indexing strategies in MySQL, reducing key operation times by 35%.
- Diagnosed and resolved critical production issues under tight SLAs, increasing platform uptime and reliability.
- Produced detailed system documentation, improving onboarding efficiency and reducing dependency on senior staff for knowledge transfer.

Software Engineer | Cherry Ivy, NY, USA **May'19 - Aug'19**

- Architected and implemented the platform using Django, MySQL, and AWS EC2/S3, ensuring high availability, scalability, and secure data handling.
- Designed the database schema, API contracts, and front-end templates to enable event registration, ticketing, and donation tracking. Developed RESTful APIs for core features, including event creation, attendee management, and payment integration.
- Integrated secure payment gateways to facilitate online donations while ensuring compliance with data protection standards. Deployed the platform to AWS EC2 with automated backup strategies and CloudWatch monitoring for operational reliability.
- Managed end-to-end client communications, translating business requirements into technical specifications and ensuring 100% feature delivery on schedule. Provided training and documentation to the nonprofit's staff to ensure smooth adoption and operational independence.

Sr. Software Engineer | Bacancy Technology, India **May'15 - Aug'18**

- Architected microservice based applications using Spring Boot, Hibernate, and MySQL, improving system modularity and deployment efficiency.
- Directed a team of 4 engineers, overseeing sprint planning, code reviews, and mentoring junior developers.
- Integrated RESTful APIs with third-party payment gateways and authentication systems, enabling secure transaction flows and compliance with PCI DSS standards. Optimized SQL queries and indexing strategies, reducing critical API response times by up to 40%.
- Implemented CI/CD pipelines using Jenkins and Docker, reducing deployment errors and accelerating release cycles. Collaborated with product owners and QA teams to refine requirements and ensure feature parity with business needs.

TECHNICAL SKLLS

- **Programming Languages**: Java, Golang, Python, SQL, Ruby, JavaScript (Angular, Ember.js, React.js), TypeScript, C++, Rust. **Frameworks**: Spring Boot, Hibernate, Django, Flask, Rails, Android, iOS, FastAPI
- **Cloud & DevOps**: AWS (EC2, S3, RDS, Lambda), SQS, SNS, ECS Fargate, Step Functions, EventBridge, CloudWatch, Docker, Kubernetes, Jenkins, Terraform/Terragrunt, Microservices
- **Big Data & ML:** Apache Spark, Elasticsearch, Airflow, CNN, LSTM, NLP, Feature Engineering, LLMs
- **Tools**: GitHub, Jira, Trello, Asana, Confluence, Postman, Grafana, Splunk, Kafka, Pagerduty, ELK, Snowflake, Databricks. **Testing**: JUnit, Mockito, Selenium, Cucumber, Karate
- **Databases**: MySQL, PostgreSQL (Aurora), HBase, Parquet, Avro, AWS Athena
- Web Crawling (Scrapy, Playwright, Selenium)

EDUCATION

University of Cumberlands – PhD in Information Technology **Jun'25 – Present**

Harrisburg University of Science and Technology – Master's in Project Management **Jul'23 – Jun'25**

University of Maryland Baltimore County – Master's in Computer Science **Aug'18 – Aug'20**