Jagadeeshwar K

Senior Software Engineer

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PROFESSIONAL SUMMARY

- Results-driven Software Engineer with deep expertise in data engineering, cloud-native architectures, and full-stack development across healthcare, insurance, banking, wellness, and retail sectors.
- Designed and deployed scalable data pipelines and real-time analytics systems to support mission-critical business processes and actionable insights.
- Engineered high-performance ETL workflows using **Python**, **SQL**, and **Airflow**, enhancing data accuracy and reducing processing latency across platforms.
- Developed modern, responsive web applications using **Java**, **React**, and **Node.js**, aligning frontend UX with robust, scalable backend systems.
- Integrated **LLM-based retrieval systems** and deployed **RAG pipelines** for intelligent document summarization and interactive support workflows.
- Tuned **CNN models** and orchestrated ML training pipelines with **TensorFlow** and **Kubeflow**, accelerating experimentation and improving model accuracy.
- Deployed microservices to **AWS** and **Azure**, leveraging **Docker** and **Kubernetes** for scalable and resilient infrastructure.
- Partnered with product and data teams to translate business logic into data workflows, microservices, and visual tools supporting data-informed decisions.
- Delivered measurable value through enhanced fraud detection, automated claims processing, retail forecasting, and real-time wellness recommendations.
- Built and secured containerized services, managing orchestration with **Terraform**, **Kubernetes**, and observability through **Prometheus** and **Grafana**.
- Designed and maintained unified data storage using **SQL**, **NoSQL**, and **data lake architectures** for high-throughput analytics.
- Automated deployments and testing using **CI/CD pipelines** with **GitLab**, **GitHub Actions**, and **Jenkins** to ensure development velocity.
- Delivered visual insights to stakeholders using **Power BI**, **Tableau**, and **QuickSight**, enhancing transparency and decision-making.
- Aligned **DevOps practices** with data security policies using **GitOps**, **RBAC**, and **infrastructure as code** for compliance and audit readiness.
- Passionate about building software systems that combine intelligence, efficiency, and real-world impact through continuous innovation and collaboration.

TECHNICAL STACK

Cloud: AWS, Azure

Languages: Python, SQL, Java, Node.js, .NET

AI/ML: Generative AI, LLM, RAG, CNN, Transformers, Prompt Engineering, TensorFlow, Scikit-learn

Backend: Java, .NET, Node.js, Microservices, Testing

Database: SQL, NoSQL, Data Warehouse

PROFESSIONAL EXPERIENCE

Software Data Engineer
Capital One | Virginia
Feb 2025 – Present

Overview:
Led backend and data engineering initiatives to modernize claims automation, risk workflows, and credit analytics across Capital One's banking ecosystem. Tackled fragmentation in underwriting pipelines, asynchronous event processing, and compliance-heavy data flows by building secure, ML-driven, cloud-native architectures. Collaborated with product leads, analysts, and security teams to integrate LLM-based automation, reduce manual effort, and enhance system reliability while ensuring compliance with federal regulations.

- **Responsibilities:**
  • Automated credit claim adjudication workflows using **Python** and **SQL**, reducing manual resolution time and increasing customer satisfaction.
  • Refactored monolithic API services into scalable **Node.js microservices on AWS Lambda**, improving uptime and modular development.
  • Built **ETL pipelines using AWS Glue** to transform raw financial events into structured datasets for analytics and audit readiness.
  • Delivered a **RAG-enabled LLM chatbot** to resolve cardholder queries, reducing average handling time by over 35%.
  • Designed **React + D3.js dashboards** in collaboration with frontend teams to support fraud ops with real-time authorization metrics.
  • Integrated **Kafka** for real-time ingestion of transaction events, supporting downstream systems like fraud scoring and alert systems.
  • Ensured audit-compliant data trails using **Terraform**, **Amazon S3**, and **Athena**, aligning data handling with **SOX** and **PCI-DSS** standards.
  • Containerized services with **Docker** and orchestrated deployments via **Kubernetes**, managed through **GitLab CI/CD pipelines**.
  • Monitored anomalies in claim processing using **Prometheus** and **Grafana**, enabling real-time alerting and observability.
  • Trained a **Transformer-based NLP model (BERT variant)** to classify transaction intent and behavior for automated dispute routing.
  • Orchestrated scalable ML workflows using **Kubeflow pipelines** for risk scoring, credit eligibility, and personalization flows.
  • Integrated **QuickSight** and **Redshift** to auto-generate insights for stakeholders on claim reimbursements and approval trends.
  • Built secure **.NET Core interfaces** for third-party claims portals, adhering to standards-based communication protocols.
  • Migrated legacy messaging systems to an **SNS/SQS-based architecture**, enabling fault-tolerant asynchronous notifications.
  • Increased backend test coverage with **JUnit** and **Mockito** for Java-based modules, reducing regression errors in dispute workflows.
  • Developed an **LLM-based summarizer** to extract highlights from lengthy dispute descriptions, improving human review efficiency.
  • Secured backend APIs with **Spring Security**, enforcing dynamic **RBAC** for claim and risk microservices.
  • Modeled customizable onboarding forms using **DynamoDB**, enabling flexibility for different customer intake scenarios.
  • Used **Celery with Redis as broker** in Python microservices to handle asynchronous tasks like KYC checks and notifications.
  • Developed **RESTful APIs in Node.js** for seamless integration between mobile apps and customer claim history.
  • Scheduled recurring **ETL workflows using Apache Airflow**, consolidating data across internal and partner systems.
  • Standardized infrastructure and IAM configurations using **modular Terraform**, minimizing drift and improving maintainability.
  • Collaborated with product teams on **MVP definitions and KPI tracking** to ensure roadmap alignment with platform enhancements.

• Eliminated environment-specific K8s drift by templating secrets and manifests across dev, staging, and prod clusters.
• Built a **Prompt Engineering toolkit** to standardize LLM outputs across internal GenAI tools used in credit operations.

Tech Stack:
AWS, **Python**, **Node.js**, **SQL**, **React**, **Docker**, **Kubernetes**, **Terraform**, **Kafka**, **Redshift**, **QuickSight**, **Airflow**, **Celery (with Redis)**, **.NET Core**, **Spring Security**, **LLM**, **BERT**, **Kubeflow**, **Athena**, **DynamoDB**, **SNS/SQS**, **Prometheus**, **Grafana**, **JUnit**, **Mockito**

Full Stack Software Engineer
The Home Depot | North Carolina
Oct 2023 – Dec 2024

Overview:
Led the development of scalable backend systems and interactive dashboards using Azure cloud services to support real-time analytics for Home Depot's digital retail campaigns. Collaborated with product, machine learning, and DevOps teams to implement personalization engines, sentiment analytics, and customer-facing features. Delivered solutions that enhanced user experience, operational visibility, and data-driven decision-making in a high-volume e-commerce environment.

Responsibilities:
• Developed Python-based ETL workflows and scheduled **Azure Data Factory** pipelines to transform clickstream and behavioural telemetry into unified datasets stored in **Azure SQL Database**.
• Built **Tableau dashboards** to visualize campaign KPIs, funnel drop-offs, and real-time sentiment, improving visibility for marketing and customer support leadership.
• Integrated LLM-based transformer models (e.g., **BERT**) in collaboration with ML teams to extract summaries and emotion from customer reviews and chat feedback.
• Refactored backend APIs using **Node.js**, exposing recommendation logic to frontend apps with improved response time and accuracy during flash-sale events.
• Deployed containerized services to **Azure Kubernetes Service (AKS)** for scalable microservices and backend orchestration.
• Configured **Azure Monitor** and **Application Insights** to track frontend latency, backend error rates, and API availability.
• Leveraged **Azure Cognitive Services** for real-time sentiment analysis, keyword extraction, and content moderation from user-generated feedback.
• Built reusable **React + D3.js** component libraries for campaign dashboards, enabling dynamic analytics and user engagement visualizations.
• Implemented model lifecycle management using **MLflow**, tracking performance of personalization and forecast models.
• Built a centralized ML feature store and API layer to expose customer behaviour signals to internal recommendation systems.
• Applied **Scikit-learn** to build anomaly detection models for coupon abuse and conversion tracking inconsistencies.
• Managed metadata using **MongoDB**, supporting fast filtering and user targeting logic.
• Scheduled daily KPI reports via **Apache Airflow**, automating insights delivery to product and growth teams.
• Integrated **OAuth2 authentication using Azure AD B2C**, streamlining customer identity access across digital storefronts.
• Strengthened test reliability using **Jest** for React UIs and **Mocha** for Node.js APIs, supporting CI-integrated validation.
• Implemented GitOps pipelines with **GitHub Actions**, enabling version-controlled deployments and seamless rollbacks.
• Optimized leaderboard logic with asynchronous **Node.js worker pools**, supporting real-time promotion refreshes.
• Re-architected vendor chat moderation APIs for pluggable NLP integrations, improving moderation coverage

and flexibility.
• Tuned prompt templates to optimize LLM outputs for clarity, sentiment relevance, and business value.

Tech Stack:
Azure (AKS, Data Factory, SQL DB, AD B2C, Monitor, Cognitive Services), **Python**, **Node.js**, **React**, **D3.js**, **Docker**, **Kubernetes**, **MLflow**, **Airflow**, **Scikit-learn**, **MongoDB**, **Jest**, **Mocha**, **GitHub Actions**, **Tableau**, **LLMs (BERT/Transformer-based)**

Software Engineer
Codebees Technologies PVT LTD | Hyderabad, India
May 2021 – Apr 2023

Overview:
Led the development of a cloud-native health tracking platform supporting millions of users across diet, fitness, and wearable integrations. Solved challenges in real-time data ingestion, personalized coaching feedback, and predictive wellness engagement. Delivered scalable pipelines, ML-powered features, and modular UIs to enhance user retention, operational insights, and coach effectiveness across digital wellness applications.

Responsibilities:

- Ingested real-time health metrics from wearable devices using **Python APIs**, improving data fidelity for personalized tracking.
- Designed daily **ETL pipelines** and data lake integrations to support time-series visualizations of nutrition adherence and fitness progress.
- Developed reusable front-end components in **React** for mobile-based calorie tracking, improving usability and log completion rates.
- Trained **image classification models** using **TensorFlow/CNN** to auto-detect food items, simplifying user nutrition logging workflows.
- Built a **transformer-based sentiment classifier** (e.g., **BERT**) to analyse coach messages, supporting personalized coaching strategies and tone detection.
- Automated weekly user summary reports using **Airflow DAGs**, enabling consistent communication between coaches and clients.
- Deployed containerized backend services using **Docker** on **AWS ECS**, ensuring scalability and reliability during peak traffic hours.
- Created operational dashboards in **AWS QuickSight**, enabling insights into coach effectiveness, user retention, and engagement trends.
- Used **DynamoDB** to store dynamic nutrition metadata for personalized goal setting and user profile customization.
- Developed **Node.js** backend services to support chatbot-based conversational food logging and in-app feedback collection.
- Implemented **Amazon S3 archival policies** to manage long-term, secure storage of fitness logs and sensitive health records.
- Built a **Scikit-learn model** to predict user streak likelihood, supporting gamified engagement features and timely coach interventions.
- Developed a coach alerting system using **SNS/SQS**, proactively notifying users based on missed logs and behavioural patterns.
- Secured pipelines by encrypting PII fields in **SQL** and enabling audit logging for compliance with data privacy standards.
- Refactored frontend state logic using **Redux Toolkit**, reducing rendering delays and improving app responsiveness on log-heavy screens.

Tech Stack:
AWS (ECS, S3, DynamoDB, SNS/SQS, QuickSight), Python, React, Node.js, SQL, TensorFlow, BERT, Scikit-learn, Airflow, Docker, Redux Toolkit

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Full Stack Engineer
SAK Informatics | Hyderabad, India
Feb 2019 – Apr 2021

Overview:
Led the modernization of core insurance systems by migrating legacy platforms to cloud-native architectures. Delivered secure, modular microservices, real-time data pipelines, and AI-powered automation features to enhance claims processing, fraud detection, and audit readiness. Collaborated with cross-functional teams to enforce compliance standards, integrate hospital systems, and streamline adjudication workflows for high-volume health insurance operations.

Responsibilities:

- Refactored legacy claims logic into modular **Java** microservices, reducing SLA violations and improving deployment agility.
- Built fraud detection models using **Scikit-learn** (e.g., logistic regression, decision trees) trained on historical claims data to proactively identify high-risk cases.
- Developed ETL workflows using **SQL** and **SSIS** to validate pre-authorization requests against policy rules, improving decision automation.
- Designed secure, scalable **.NET-based REST APIs** for real-time eligibility checks, enabling seamless partner integrations.
- Deployed a deep-learning OCR system using **TensorFlow (CNN + LSTM)** in combination with **Tesseract**, extracting structured data from scanned medical records with enhanced accuracy.
- Modelled flexible claim lifecycle structures using **MongoDB**, supporting dynamic audit workflows and change history tracking.
- Built internal dashboards in **Power BI**, enabling operational teams to monitor reconciliation accuracy and adjudication throughput.
- Containerized services using **Docker**, standardizing runtime environments for staging and production pipelines.
- Integrated **Apache Kafka** to stream real-time claims events across fraud detection, audit logging, and adjudication engines.
- Partnered with audit teams to enforce traceability through **SQL-based compliance logging**, aligning with industry audit standards.
- Engineered **bi-directional API gateways** for hospital systems, enabling real-time treatment verification and claims submission.
- Implemented enterprise-grade access control using **RBAC** and **LDAP-based authentication**, securing internal toolchains.
- Automated service monitoring via **Linux cron scripts**, triggering alerts on system outages and delayed submissions.
- Orchestrated optimized batch jobs for bulk adjudication using **Spring Batch**, accelerating throughput for large hospital claims.

Tech Stack:
Java, **.NET**, **Python**, **Scikit-learn**, **TensorFlow (CNN + LSTM)**, **Tesseract**, **MongoDB**, **SQL**, **SSIS**, **Power BI**, **Docker**, **Kafka**, **REST APIs**, **RBAC**, **LDAP**, **Spring Batch**, **Linux Cron**

Software Engineer
Code Facts PVT LTD | Hyderabad, India
Jan 2017 – Jan 2019

Overview:
Contributed to the modernization of a large retail chain's inventory intelligence system by developing data pipelines, dashboards, and forecasting solutions. Streamlined real-time analytics and cross-platform reporting by replacing legacy systems with cloud-enabled services and scalable front-end tools. Delivered secure APIs, predictive insights, and interactive dashboards to drive merchandising efficiency and executive decision-making across 1,000+ store locations.

Responsibilities:

• Developed Python-based **ETL pipelines** to ingest inventory data from POS and warehouse systems, reducing daily update lag across regional hubs.
• Designed and implemented **ARIMA-based forecasting models** in Python and SQL to optimize stock replenishment and reduce outages.
• Built **executive dashboards in Power BI**, surfacing daily sales KPIs and promotional effectiveness for senior retail leadership.
• Refactored a legacy portal using **Angular 4** and integrated **React + D3.js** components to create interactive heatmaps for inventory flow analysis.
• Scheduled reconciliation tasks using **Linux cron jobs**, automating daily exports and backend synchronization between stores and warehouses.
• Engineered **data warehouse schemas** to improve query performance and eliminate data duplication across BI pipelines.
• Used **Python web scraping tools** (BeautifulSoup, Requests) to collect competitor pricing, enabling strategic merchandising decisions.
• Designed secure, mobile-friendly **RESTful APIs** for inventory scanning apps used by store floor teams for real-time stock validation.
• Enhanced supply chain transparency by building data pipelines to track warehouse-to-store movement and surface delivery delays.

Tech Stack:
Python, **SQL**, **Power BI**, **Angular 4**, **React**, **D3.js**, **Linux Cron**, **REST APIs**, **Data Warehousing**, **ETL**, **ARIMA**, **BeautifulSoup**

PROFESSIONAL CERTIFICATIONS

- Microsoft Certified: Azure Data Fundamentals
- Microsoft Certified: Azure Developer Associate
- Salesforce Certified AI Associate
- AWS certified Data Engineer Associate