

# Ananta Singh

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## EDUCATION

Master of Science in Computer Science | San Jose State University, San Jose, CA

Dec 2025

## WORK EXPERIENCE

**Volvo Group North America**, Greensboro, NC | *Python, LangChain, AWS, MQTT, FastAPI, Node.js, Express, React, TypeScript, Apache Airflow, PySpark, dbt, Delta Lake, GitHub Actions, Snowflake, MySQL, PostgreSQL, Power BI, Azure*

Software Engineer

May 2025 - Present

- Built a **modular data pipeline** using Airflow, PySpark, and dbt to transform spare parts and service data into Snowflake(on AWS), with Delta Lake for ACID compliance and CI/CD via GitHub Actions.
- Built a **remote diagnostics and log-collection pipeline** by integrating a QNX-based MQTT client with FastAPI services on AWS, enabling automated upload of vehicle system logs and eliminating manual data collection.
- Built a **full-stack** Workshop Traceability App using React (TypeScript), Node.js (Express), and MySQL on AWS (App Runner, RDS, CloudFront, S3) to automate bay reservations and safety approvals.

**Microsoft Hyderabad, India** | *Java, Spring Boot, Apache Kafka, Kubernetes, React, Redux, C#, .NET, JavaScript, HTML, CSS, Azure, SQL Server, MongoDB, Docker, Azure Kubernetes, DevOps, Jenkins, REST APIs, OpenAI(LLM, RAG)*

Software Engineer 2

Jul 2019 - Jul 2024

- **Architected** and implemented a **microservice** for Renault-Nissan's Connected Vehicle Platform using Java, Spring Boot, Kafka, and Azure Kubernetes Service, automating test vehicle resets across distributed systems, reducing QA cycle time by 70% and improving reliability by 27%.
- **Designed** an **event-driven system** using C#, .NET Core, Azure Event Grid (Pub-Sub), Service Bus, Azure Blob Storage, JavaScript, HTML, and CSS to automate vehicle list updates, load-tested to 500 updates/sec.
- Built a **RAG-based generative AI support chatbot** using OpenAI LLM, Azure Cognitive Search, React, Redux, C#, and .NET 6.0, reducing support tickets by 25% and eliminating 70-hour latency for addressing support queries.
- Developed a **RESTful API** to automate and integrate support ticket creation from within the chatbot.
- Deployed **containerized** Azure Functions with Docker to purge stale data across distributed Azure Table Storage.
- Migrated a monolithic React UI to a **micro-frontend(container app)** architecture, enabling modular development.
- Debugged and **resolved 60+ production incidents**, led postmortem analyses, and improved CSAT scores by 12%.

## PROJECTS

**Deepfake Attack on Face Recognition** | [GitHub](#) | *Python, FaceNet, scikit-learn (SVM, Random Forest, MLP), PCA, MTCNN, SimSwap, InsightFace, imgaug, GridSearchCV*

- Developed a **facial recognition system** using FaceNet and trained classifiers (SVM, MLP, Random Forest) on an augmented PubFig dataset (~10k images).
- Evaluated system vulnerability to deepfakes generated via InsightFace and SimSwap, revealing a significant misidentification rate difference (0.03 vs. 0.49).

**Smart Device Analyzer** | [GitHub](#) | *Python, Flask, IsolationForest, Sentiment Analysis, NumPy, scikit-learn, Vercel*

- Created a system that uses **machine learning** to interpret device behavior patterns, categorizing states as Normal, Fatigued, Stressed, or Critical, making technical data intuitive for non-technical users.

## SKILLS

**Programming Languages:** Java, Python, C#, JavaScript, C++, C, HTML, CSS, Shell, SQL, Kusto (KQL), Cypher, ABAP, Swift

**Framework & Libraries:** Node.js, Express, React, Redux, Spring Boot, Flask, Django, .NET Framework, .NET Core, Hooks, Zustand, Material UI, Fluent UI, SwiftUI, LangChain, NumPy

**Tools:** Visual Studio, Android Studio, Power BI, GitHub, Jenkins, Xcode, Docker, Kubernetes, Prometheus, Grafana

**Database:** MySQL, PostgreSQL, SQL Server, CosmosDB, MongoDB, Google Firebase, Azure Storage, Neo4j

**Cloud:** AWS, Azure, Azure Data Explorer, Azure Databricks, Azure OpenAI, Azure AI Search, Quickbase, SAP

**ML Libraries & Models:** FaceNet, scikit-learn, SVM, Random Forest, MLP, PCA, MTCNN, SimSwap, InsightFace, imgaug, GridSearchCV, IsolationForest, Sentiment Analysis

**Miscellaneous:** Microservices, RESTful API, MVC, CI/CD, DevOps, Android App Development, LLM, RAG, RabbitMQ, Kafka