

Ananta Singh

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EDUCATION

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

April 2026

WORK EXPERIENCE

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

Software Engineer Intern

May 2025 - Present

- Built a **remote diagnostics and log-collection** pipeline by integrating a **QNX-based MQTT client with Python (FastAPI)** services on AWS, enabling automated ingestion of vehicle system logs.
- Built a modular **Python-based 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.
- Developing a **RAG-based chatbot** using Python, OpenAI, and AI Search for the spare part assortment process.
- 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

Jul 2022 - Jul 2024

- Architected and implemented a microservice for Renault-Nissan's Connected Vehicle Global 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 **Java, Spring Boot, Event Grid, Service Bus, and Blob Storage** to propagate vehicle eligibility updates and refresh **in-memory** data used in the **real-time** vehicle validation requests.
- Built a **RAG-based generative AI support chatbot** using OpenAI LLM, Azure Cognitive Search, React, Redux, Java, and Spring Boot, 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/ RESEARCH PAPERS

Sleeper Agents | [GitHub](#) | *Python, PyTorch, Hugging Face Transformers, LoRA (PEFT), TPU v5e, Prompt Engineering, DeepSeek-Coder*

- Replicated **Anthropic's Sleeper Agents** study by fine-tuning DeepSeek-Coder-1.3B with LoRA and achieved 100 % differentiation responses, validating sleeper-agent behavior in small LLMs.

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

- Developed a **facial recognition system** using FaceNet and trained classifiers on an augmented dataset. Evaluated vulnerability to deepfakes, 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, FastAPI, QNX, MQTT

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

Machine Learning: FaceNet, scikit-learn, SVM, Random Forest, MLP, PCA, MTCNN, imgaug, GridSearchCV, IsolationForest, Sentiment Analysis, Hugging Face Transformers, LoRA (PEFT), TPU v5e, Prompt Engineering, DeepSeek-Coder

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