

DHANASEKAR RAVI JAYANTHI

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EDUCATION

Master of Science in Computer Science and Engineering, **Santa Clara University**, USA
Bachelor of Engineering in Computer Science and Engineering, **Anna University**, INDIA

Sep 2023 - Jun 2025
Aug 2019 - Jun 2023

TECHNICAL SKILLS

Languages: Java, Python, C, JavaScript, TypeScript
Frameworks: React, Flutter, LangChain, Hugging Face Transformers, scikit-learn
Backend and Systems: TCP Sockets, REST APIs, Client Server, Pub Sub, Multithreading, ConcurrentHashMap, Protocol Design, Docker
ML and NLP: RAG, Embeddings, Semantic Search, Speech to Text, NLU, TF-IDF, Logistic Regression, QLoRA, LoRA
Tools and Databases: Git, GitHub, Docker, Docker Compose, Postman, Linux, Jupyter, BeautifulSoup, ChromaDB

WORK EXPERIENCE

Software Engineer - TipTop Technologies, Inc.

Oct 2025 - Present

- Building an **AI-powered** gift recommendation system by converting **voice inputs** into **user intent** using **Speech-to-Text** and **NLU**, then ranking candidates via **embedding similarity** and **business-rule scoring**.
- Built backend pipelines for ingestion and model serving, improving latency and personalization speed.
- Migrated the frontend to **React** and **TypeScript** with **Vite**, built a responsive UI with **TailwindCSS**, improved data fetching with **React Query**, and added **automated tests** for stability.

Software Developer - Frugal Innovation Hub

Jan 2025 - Jun 2025

- Developed a K-12 learning mobile app in **Flutter/Dart**, building modular lesson flows for Seasons, Water Cycle, Weather Patterns with **PageView/navigation**, asset-driven UI, and stateful interactions optimized for kids.
- Added **bilingual support** using **GoogleTranslator** with an in-app toggle and **translation caching** for faster responses.
- Integrated **FlutterTTS** narration across lessons and quizzes, built interactive quiz logic with score tracking and answer-state handling, and maintained reusable UI components with **Git** version control.

Machine Learning Engineer - Ecopez Technologies Private Limited

Mar 2023 - Aug 2023

- Built an **AI-assisted content moderation pipeline** for student uploads using **Python**, **OpenCV**, and **scikit-learn**, combining **TF-IDF** and **Logistic Regression** scores with **policy rules** to flag inappropriate or off-topic content.
- Developed a **content-based retrieval and recommendation module** using **Pandas**, **NumPy**, and **cosine similarity** ranking to surface relevant posts for talent and achievement discovery in a gamified feed.
- Deployed models through **Flask** or **FastAPI REST APIs**, validated integrations with **Postman**, packaged reproducible runs with **Docker** and **Git**, and added basic **logging** to support reliable low-latency inference.

DevOps Engineer Intern, Divine Technologies Inc.

Jun 2021 - Jul 2021

- Provisioned **AWS EC2** infrastructure with **VPC**, **Security Groups**, **IAM**, and **Linux** setup.
- Implemented shared storage using **Amazon EFS** mounted across multiple EC2 servers to enable centralized data access.
- Configured **Elastic Load Balancing** with target groups and health checks, validated failover, and monitored using **CloudWatch**.

Machine Learning Intern, DLK Career Development Inc.

Mar 2020 - May 2020

- Ran **ML experiments** in **Python** using **EDA** and **feature engineering** on structured datasets.
- Built reusable preprocessing with **Pandas**, **NumPy**, and **scikit-learn Pipelines** for repeatable training.
- Trained and tuned Logistic Regression, Decision Trees, and Random Forests using **k-fold CV** and **F1 ROC-AUC**.

PROJECTS

Distributed Stock Ticker Notification System - [GitHub](#)

- Built a Java TCP publish-subscribe service for topic-based fan-out notifications, improving delivery responsiveness under concurrency.
- Implemented Master Secondary routing using **ConcurrentHashMap** and multithreading to improve concurrency safety.
- Packaged the system with **Docker** and **Docker Compose**, reducing **setup time** and improving **environment consistency**.

Context-Aware Email Assistant - [GitHub](#)

- Built a RAG pipeline over Gmail Takeout mbox using BeautifulSoup, chunking, embeddings, and ChromaDB for semantic retrieval.
- Implemented **retrieval-to-generation** using **LangChain** with local inference via **GPT4All** and **Llama.cpp** for **grounded answers**.
- Fine-tuned **Gemma** with **QLoRA** using **Transformers** and **PEFT LoRA**, then **quantized** for local serving.

Custom UDP Protocol Data Transfer - [GitHub](#)

- Designed a custom UDP application protocol with framing, sequence IDs, length encoding, and checksums for message integrity.
- Implemented reliability over UDP using ACKs, timeouts, retransmissions ARQ, and out-of-order handling.
- Built a **benchmark harness** to measure **throughput**, **latency**, and **packet-loss impact**, tuning protocol parameters from results.