

# Damika Anupama Nanayakkara

Software Engineer | Full-Stack, Backend, AI & Cloud

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Software Engineer focused on full-stack and backend systems, with experience building AI tools, scalable APIs, and AWS-based production workflows. I work across React, Node.js, FastAPI, Django, TypeScript, Python, and cloud infrastructure, with strong project experience in NLP, Web3, and data-driven applications.

## Technology Summary

- **Backend & Languages:** Python (**FastAPI, Django**), Java, background workers (**Celery**), JWT auth
- **Microservices & Distributed Systems:** REST API design, event-driven services (**AWS Lambda, SQS**), configuration management, observability (logging, metrics, tracing concepts)
- **Databases:** **PostgreSQL, MySQL, Redis**, DynamoDB, schema design & query optimisation
- **Cloud & DevOps:** **AWS** (Lambda, EC2, RDS, S3, DynamoDB), Docker, GitHub Actions CI, SonarQube
- **Data & ML:** scikit-learn, TensorFlow, PyTorch, Hugging Face, Pandas, NumPy, matplotlib
- **OS & Tooling:** **Linux (Ubuntu)**, Git, VS Code, JetBrains IDEs, bash, Postman

## Work Experience

**Software Engineer - Machine Learning, [SYNERGEN Health](#) - USA**

July 2025 - Onwards

- Developed and supported Python/FastAPI REST microservices for an OCR platform, and used refactoring and profiling within a CI/CD pipeline to reduce average API response latency by about 20%.
- Created batch workflows and MySQL/Amazon RDS schemas with an emphasis on database performance, data integrity, and dependable background processing for large volumes of claim data.
- AWS Lambda, S3, EC2, RDS, SQS, and integrated logging and monitoring (CloudWatch, X-Ray, Grafana) were used to build event-driven, cloud-native services that facilitate on-call troubleshooting.

Tech: **Python, FastAPI, MySQL, AWS (Lambda, S3, EC2, RDS, SQS, CloudWatch), Git, Grafana**

**[Google Summer of Code 2025 Contributor, Checker Framework](#)**

June 2025 - Aug 2025

- Improved the static safety of large Java codebases by implementing a new Java annotation checker in the Checker Framework to find index-related errors at compile time.
- To prevent regressions and guarantee maintainable, production-grade tooling, extensive test suites were constructed using TDD and JUnit across various JDKs and configurations.
- worked in a distributed, fully remote open-source team, taking part in code reviews, design discussions, and iterative refactoring in accordance with project architecture.

Tech: **Java, Gradle, JUnit, Checker Framework, Git**

**Software Engineer - (Part-Time, Contract) [jahan.ai](#) - Australia**

Dec 2024 - Feb 2025

- Back-end Django and Django REST Framework services were maintained and expanded, and secure REST APIs for analytics and reporting features were made available.
- By incorporating unit tests and integrating SonarQube into the pipeline to enforce PEP8, minimise code smells, and maintain low technical debt, code quality and continuous integration were strengthened.
- Working in Dev Containers and containerising services with Docker, I collaborated with a remote Agile team to debug production issues and produce regular releases.

Tech: **Python, Django, Django REST Framework, Docker, SonarQube, Git, Atlassian tools**

**Software Engineering Internship [WealthOS Pvt Ltd](#) - UK**

Dec 2023 - May 2024

- Improved 8K+ lines of backend main codebase, and AWS Lambda functions were optimised (using X-Ray), increasing execution efficiency in a serverless microservices environment by about 30%.
- Strengthened DevSecOps, automated deployments, and cloud service resilience by designing AWS Step Functions workflows and integrating Snyk into CI/CD.

- Contributed to a full-stack Leave Management System using React, Next.js, and TypeScript, which reduced manual HR effort. I also worked with AWS DynamoDB, MongoDB, and RDS.  
Tech: **TypeScript**, **React**, **Next.js**, **Node.js**, **Express.js**, **MongoDB**, **AWS** (Lambda, Step Functions, EC2, DynamoDB), **Docker**, **Snyk**, **Git**, **NGINX**

**Backend Engineer (AWS)** [LivinBetr Corp. / SmartNURSE Corp](#) - USA Feb 2023 - May 2023

- Improved lambda, RESTful backend APIs, guaranteeing safety and quick access to patient data.
- Enhanced observability, application support, and decreased mean time to fix production problems by integrating with Amazon RDS and implementing logging and monitoring using AWS CloudWatch.  
Tech: **Node.js**, **AWS** (Lambda, RDS, CloudWatch), **MySQL**, **Git**

## Education

**University of Moratuwa, Sri Lanka** Oct 2021 - Jun 2025  
**BSc Eng Hons, Computer Science & Engineering**

## Projects

[Job Search Website](#) (*FastAPI, Python, Redis, HuggingFace, Pinecone, Celery, Docker, PyTest*) Aug 2025 - Onwards

- For a multi-source job search platform, a Python/FastAPI REST API and Celery background workers were developed using semantic search, NER, vector embeddings, and cross-encoder reranking.
- Configuration management, structured logging, health checks, PyTest unit tests, and Docker-based deployment (with multiple ML modes) were implemented.

[Safe RL Algorithm for T1D Patients](#) (*TensorFlow, PyTorch, NumPy, Pandas, GCP*) May 2024 - May 2025

- Enhanced Python RL agents (PPO, G2P2C) with a focus on stable training, evaluation, and repeatable experiments for automated insulin dosing using PyTorch and TensorFlow.
- Repeatable training pipeline was constructed using Hydra-based configuration management, MLflow experiment tracking, structured logging, and GPU-accelerated runs on GCP (CUDA).
- Evaluation suite was created using NumPy, Pandas, and matplotlib to calculate and visualise metrics (time-in-range, hypo/hyperglycemia events).

Leave Management System – WealthOS (HR Platform) Feb 2024 - May 2024  
Tech: **React**, **Next.js**, **TypeScript**, **Node.js**, **Express.js**, **MongoDB**, **AWS** (Lambda, Step Functions, EC2), **Docker**

- Delivered a full-stack **Leave Management System** with a **React / Next.js / TypeScript** frontend consuming **Node.js / Express** APIs, replacing manual HR spreadsheets with a self-service web app.
- Designed REST endpoints and MongoDB schemas for leave requests, approvals and audit history, and integrated with **AWS Lambda / Step Functions** to automate workflows in a **cloud-native** architecture.
- Containerised services with **Docker** and participated in **CI/CD** pipelines and code reviews.

[Student Summary Evaluation Website](#) (*Next.js, Django REST Framework, PostgreSQL, Pandas*) Feb 2023 - current

- With a Django and a Next.js, this full-stack web application offers role-based academic dashboards and safe REST APIs for managing passages, summaries, and grading processes.
- BERT embeddings, scikit-learn, LightGBM, Pandas, and NumPy were used in the implementation of an NLP evaluation pipeline to consistently and repeatably score summaries on content accuracy and fluency.