

AKILAN MANIKANDAN

Software Engineer | Backend Architectures & Intelligent Automation Systems

Chennai, India • +91 8754552566 • i.akilanoffl@gmail.com • [LinkedIn](#) • [GitHub](#) • [Portfolio](#)

PROFESSIONAL SUMMARY

High-impact **Software Engineer** with a dense track record across **4 production-grade engineering roles** specializing in robust backend architectures, distributed automation pipelines, and applied AI systems. Expert in designing configuration-driven RPA workflows, secure microservices, and LangChain RAG applications using **Python, Java, FastAPI, Spring Boot, and NestJS**. Proven ability to optimize legacy database layers, implement zero-downtime security controls, and engineer systems that eliminate **8+ hours of daily operational friction**

TECHNICAL SKILLS

Python, Java, TypeScript, JavaScript, SQL, FastAPI, Spring Boot, Flask, Django REST Framework, NestJS, React, Next.js, GraphQL, PostgreSQL, MongoDB, MySQL, SQLAlchemy, Mongoose, psycopg2, Playwright, PyAutoGUI, Selenium, TagUI, Scrapy, n8n, LangChain, OpenAI API, Gemini API, TensorFlow, Keras, scikit-learn, AWS (EC2, boto3, S3, Eventbridge, Lambda), Docker, Linux, Git, Maven, JWT, OAuth, bcrypt, AES-256, RSA, Power BI REST API, Postman, Mautic

WORK EXPERIENCE

Software Engineer · **Clarivium Technologies**

Aug 2025 – Mar 2026

- Developed and deployed **50+ production-grade intelligent automation workflows** using **Python, PostgreSQL, FastAPI, and AWS services**, eliminating **8+ hours of daily manual operations** across business teams.
- Built end-to-end **RPA** pipelines using **Playwright** and **PyAutoGUI** automating 12 recurring workflows — covering login, **OTP/TOTP**, date filtering, and retry logic — achieving zero manual intervention on success paths.
- Designed a **PostgreSQL-backed orchestration and state management layer** with idempotent retry handling, audit logging, and workflow replayability, reducing duplicate executions by ~90% in production environments.
- Built and maintained 48 documented **n8n** workflows integrating **Power BI** executeQueries API and **PostgreSQL** upserts, replacing manual analytics validation for a 10-branch automotive client.
- Engineered **event-driven infrastructure automation workflows** using **AWS Lambda** and **EventBridge-based scheduling** to automate EC2 instance startup/shutdown cycles, improving infrastructure utilization and reducing unnecessary compute runtime costs.
- Built scalable **RPA-driven report archival pipelines** with **AWS S3** serving as centralized object storage for automated file ingestion, report persistence, and retrieval across multiple operational workflows.
- Engineered 15+ **Mautic-n8n** campaign automation workflows on **AWS EC2** for WhatsApp and email outreach (AiSensy BSP APIs), reducing campaign setup time from hours to minutes across insurance and service reminder use cases.
- Managed **cloud-native deployment infrastructure** using **AWS EC2, Route 53, Dockerized services, and CI/CD workflows** to support scalable and highly available automation environments.

Backend Developer · **CleandeskAI**

Apr 2025 – Jul 2025

- Designed and shipped 5 **Django REST Framework** API endpoints supporting document classification and workspace management in a production **PostgreSQL** environment.

- Diagnosed and resolved 10+ backend defects across API response handling and data model inconsistencies, improving endpoint reliability for active production users.
- Traced and corrected **PostgreSQL** query logic returning incorrect or missing records, restoring data integrity for 20 users without service downtime.

Backend Engineer · Simbiotik Technologies

May 2024 – Jun 2024

- Built 15+ **REST API** modules for an **HRMS** platform using **NestJS**, **MongoDB**, and Mongoose, implementing **CRUD** operations across users, employees, tasks, and policy management with role-guarded endpoints.
- Secured 15+ API routes by implementing **JWT** and Passport-based authentication with bcrypt password hashing, **OTP**-based **MFA**, and **ABAC** role guards, eliminating unauthorized access across all protected endpoints.

AI/ML Engineer · Zidio Development

Jul 2024 – Aug 2024

- Trained an **LSTM**-based speech emotion recognition model on the TESS dataset, improving validation accuracy from a **66%** baseline to **97.6%** across **7 emotion classes** through **MFCC** feature engineering and hyperparameter tuning over **30** epochs.

PROJECTS

Secure Data Storage & Controlled File Sharing System | Java, Spring Boot, Flask, AES-256, RSA, ABAC, scikit-learn

- Architected a multi-role secure file-sharing system in **Spring Boot** supporting upload, access-request, approval, and download workflows across 5 user roles with **AES-256** encryption, **RSA** key exchange, and policy-based **ABAC** access control.
- Built a **Flask** anomaly-detection microservice using an Isolation Forest model with rule-based scoring to flag suspicious access behavior, achieving 100% recall and 0.611 F1 score with real-time email alerts to administrators.

CityPulse — Event Recommendation Chatbot | FastAPI, Next.js, React, MongoDB, LangChain, OpenAI GPT, Scrapy, Selenium

- Built a **FastAPI** backend and **Next.js** frontend with Google **OAuth** and a **LangChain RAG** pipeline over a 1,200+ event **MongoDB** corpus, delivering personalized recommendations with conversation memory and sub-2-second average response time.
- Developed a **Scrapy** + **Selenium** scraping pipeline covering 17 Chennai event categories, normalizing 1,200+ records into **MongoDB** for real-time chatbot retrieval with popularity-based ranking.

CERTIFICATIONS

Claude Code in Action · Anthropic	Mar 2026
AI Fluency for Students · Anthropic	Mar 2026
NLP for ML with Python: Advanced NLP Using spaCy & Scikit-learn · Skillsoft	Apr 2025
Python for Data Science · NPTEL	Apr 2025
Java Full Stack · Simbiotik Technologies	Jun 2024

EDUCATION

B.Tech — Computer Science and Engineering

SRM Institute of Science and Technology · CGPA: 8.35 / 10

2022 – 2026

Class XII (CBSE) · Lalaji Memorial Omega International School · 70%

2020 – 2022

Class X (CBSE) · Hindu Senior Secondary School · 84%

2019 – 2020