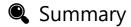# Alan T A

Date of Birth: 26 Dec 2001 **Location:** Ernakulam, Kerala, India

Software Engineer | Full Stack Developer (Backend Specialist) *Driving innovation and excellence in scalable software solutions*

Core Technologies: Spring Boot 3.5 · Java 21 · Generative AI · Full-Stack Development

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🔍 Summary

I am a backend software engineer focused on building scalable systems with **Spring Boot 3.5**, **Java 21**, and Generative AI. I have hands-on experience designing REST APIs, asynchronous data pipelines, and integrating AWS services. My background includes working with Docker, implementing observability using **OpenTelemetry**, and contributing to both backend and frontend projects (React, Flutter). I am passionate about distributed systems, DevOps, and driving innovation through R&D.

🛠 Skills

Programming Languages: Java 21, Java 17, Dart, SQL, NoSQL, JavaScript, Python, C++, C

Backend Development: Spring Boot 3.5, Spring AI, Spring Batch, Spring Data, JPA/Hibernate, Spring Scheduler, Quartz, Spring Security, Spring AOP, REST APIs, Microservices, Monolithic Architectures, MyBatis, MapStruct, Lombok, OpenAPI 3 (Swagger), Node.js, Express.js, Razorpay (Payments), Auth0, OAuth2, Google SSO

Generative AI & LLMs: Prompt Engineering (OpenAI, Claude, Gemini), LangChain4J, RAG pipelines, Vector DBs (PGVector, knn_vector, dense_vector), Embedding workflows, OpenAI API, AWS Bedrock API, Token analytics, GardRail, MCP Client/Server, Structured response validation

Frontend Development: Flutter (Android/iOS), Dart, Flutter Flavour, React, TailwindCSS, Axios, HTML, CSS

Databases: PostgreSQL, OpenSearch, Elasticsearch, MySQL, Firestore, MongoDB, H2, SQLite, Flyway (Migration)

Blockchain: Solidity (Ethereum), testnets, Alchemy API, MetaMask integration, Flutter blockchain apps, Wallet connect, contract calls, Blockchain data & transaction workflows

Arduino & Embedded: Arduino Uno, NRF24L01, HC-05, Sensor interfacing (Bluetooth/Radio), Real-time data acquisition, IoT prototyping (Arduino IDE), Cloud integration (Firebase)

DevOps & Cloud: Docker, Docker Compose, Layered Images, AWS (S3, Lambda, ECS, EC2, SQS), LocalStack, JLink, JDeps (Custom JREs), Kibana, OpenSearch Dashboard, Eclipse MAT, Firebase, Nginx

Observability & Tools: OpenTelemetry, opentelemetry-collector, Prometheus, Grafana, Tempo, Loki, IntelliJ IDEA, Postman, Bruno, Maven, Git, GitHub Copilot, Cursor

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💼 Experience

Software Engineer

QBurst – Koratty Infopark, Kerala 680308 *2023 – Present*

- Backend development for a Generative AI platform using **Spring Boot 3.5** and **Java 21**
- Designed scalable REST APIs and asynchronous data pipelines with **SQS**, **Lambda**, and **Spring Batch**
- Developed and maintained batch processing workflows and scheduled cron jobs using **Spring Batch** and **Quartz**
- Built AWS-integrated file processors using **S3**, **Lambda**, **SQS**, and **AWS SDK v2**
- Implemented full-stack observability using **OpenTelemetry** for HTTP, DB
- Optimized application using a custom JRE built with **JLink**, **JDeps**, and layered Docker images for efficient deployment

Key Projects I did for a Leading Global HR Services Company at QBurst

- **R&D Initiative for Generative AI Matching Platform (Lead Backend Developer, 2025 – Present)**
  - Served as Backend Developer in the R&D team for a global HR services client
  - Led the design and prototyping of advanced backend architectures for Generative AI-driven CV and job description matching
  - Evaluated and integrated emerging technologies, including custom retrieval pipelines and observability solutions
  - Collaborated with cross-functional teams to drive innovation, performance, and scalability in production systems
- **Generative AI Matching Platform (2023 – Present)**
  - Designed and implemented a modular backend solution for a top-ranking global HR services company
  - Developed a Generative AI system to match and search CVs and job descriptions using **Spring Boot 3.5**, **Java 21**, and advanced retrieval pipelines
  - Integrated **AWS Bedrock Claude** with **Spring AI** for LLM-powered matching and searching
  - Managed large-scale document ingestion, token analytics, and per-file error tracking with **Spring Batch**, AWS **S3**, **Spring Scheduler** for cron jobs, **Lambda**, and **SQS**
  - Integrated **PostgreSQL** and **OpenSearch** for scalable storage, retrieval, and vector search of documents and embeddings
  - Implemented OpenTelemetry for full-stack observability and performance monitoring
- **Recruitment Management App (Flutter)**
  - Built a cross-platform Flutter application for the HR provider's client to manage, search, and book recruitment services
  - Implemented secure authentication, real-time updates, and seamless integration with backend APIs
  - Enhanced user experience with intuitive UI, push notifications, and efficient data workflows
  - Supported both Android and iOS platforms with custom theming and robust state management

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👨‍💻 Internships

FullStack Flutter Developer Intern

SANCHARI (Cisco, NASSCOM Foundation ThingQbator program) *July 2021 – September 2021*

- Worked as a FullStack Flutter Developer intern in a team of 4 interns and 1 guide to build a Travel Guide app from the ground up; app published on Play Store for testing.
- Created user registration using Firebase Authentication.
- Built a page to add travel routes.
- Developed Google Maps integration for travel routes, live location sharing, SOS messaging, and nearby help locations (police stations, hospitals, repair shops), and interest location finder.
- Implemented real-time weather and news updates for travel routes.

Web Development Intern

Kanjikode Industries Forum (KIF) *2021*

- Developed a React web application to showcase all companies under KIF and their products.
- Built features to display detailed information about each company, their products, KIF organization details, and board members.
- Collaborated with a team to design and implement the MySQL database backend.
- Deployed and hosted the application on AWS EC2.
- Website: https://kifproducts.com/

🎓 Education

Bachelor of Technology (BTech) in Computer Science NSS College of Engineering, Palakkad *2019 – 2023*

- Graduated with First Class with Distinction
- Focus: Software Engineering, Distributed Systems, Machine Learning, Artificial Intelligence, Blockchain

🏆 Certifications

- **Introduction to Flutter Development** – London App Brewery
- **Programming for Everybody (Getting Started with Python)** – Coursera (University of Michigan)
- **Python Data Structures** – Coursera (University of Michigan)
- **Crash Course on Python** – Coursera (Google)

🏅 Achievements

- **Top 10 Team, Reboot Kerala Hackathon (Health Sector)** – ASAP Kerala, 2020
- **Team Head, Android Application Development** – Dyuksha, NSS College of Engineering, 2023
- **1st Place, Hackfit 2022** – National Level Hackathon by ICEFOSS FISAT, 2022
- **1st Place, AIDEATHON** – NSS College of Engineering, Palakkad, 2020
- **1st Place, DedSec CTF** – Solasta, 2022
- **2nd Place, Hackathon FOSSEra** – FOSSNSS & HASP, 2022

- **7242nd Position, Google Hash Code**, 2021
- **7421st Position, CTFlearn**, 2020

🌐 Languages

- **English** – Fluent
- **Malayalam** – Fluent
- **Hindi** – Fluent

🗂 Projects

- **Smart Covid QR Scanner (Flutter, 01/2021):** Mobile app for contactless visitor tracking via QR codes.
  https://github.com/alanta335/qr_code-_scanner_for_covid_list
- **CTF Writeup (09/2020):** Solutions for CTF challenges in web, crypto, forensics, and more.
  https://github.com/alanta335/ctfs
- **Smart Doctor Patient Management (Flutter, 01/2022):** Cross-platform app for managing appointments and records using Firebase.
  https://github.com/alanta335/smart_doctor_patient_detail_management_flutter_app
- **Student Profile Management (Flutter, PHP, MySQL, 03/2022):** CRUD app with Firebase auth and PHP/MySQL backend.
  https://github.com/alanta335/flutter_php_mysql_app_student_profile_management
- **Anonymous Drug Reporting (Flutter, ML, 05/2022):** App for anonymous incident reporting with maps, clustering, and spam detection. https://github.com/alanta335/anonymous-drug-reporting-flutter-app
- **Product Authentication via Blockchain (Ethereum, 01/2022):** Smart contract solution for product authentication and tracking using QR codes.
  https://github.com/alanta335/smart_doctor_patient_detail_management_flutter_app
- **Vehicle-to-Vehicle Communication (Arduino, Kotlin, 04/2023):** Network-free traffic congestion detection and SOS broadcasting system.
  https://github.com/alanta335/v2v_Arduino_Kotlin_Communication
- **LLM Web Search Agent:** Java/Spring Boot tool for LLM-powered web search, scraping, and knowledge base creation with SearxNG and semantic processing. GitHub
- **Spring Batch + Quartz + PostgreSQL + NGINX + LocalStack:** Dockerize batch job environment with advanced scheduling, PostgreSQL, S3 (LocalStack), and NGINX reverse proxy. GitHub
- **E-commerce Website (React, Tailwind, Firebase, Razorpay, Google Cloud Run):** E-commerce platform for selling tote bags, built with React and Tailwind CSS, using Firebase for backend, Razorpay for payments, and deployed on Google Cloud Run.
  https://github.com/alanta335/ecomerse_website_react_firebase
- **AI Agent Doctor (Flutter, LLM, Groq):** AI-powered doctor assistant app for users without access to real doctors, built with Flutter and LLM Groq. https://github.com/alanta335/ai-agent