Shubham Kumar Mitra

Chennai, India | +91-9917126279 | work.shubham.dev@gmail.com
LinkedIn | GitHub | Portfolio

Professional Summary

Computer Science undergraduate with backend and full-stack internship experience building REST APIs, asynchronous processing pipelines, and AWS serverless systems (Lambda, Step Functions, DynamoDB, SageMaker). Experienced in integrating AI features end to end, including RAG with pgvector, LLM APIs, OCR, and ML model inference, into deployed applications. Strong foundation in C++, Python, Java, SQL, Object-Oriented Programming, and Data Structures & Algorithms.

Technical Skills

Languages: Python, C++, Java, TypeScript, JavaScript, SQL
AWS: Lambda, Step Functions, API Gateway, DynamoDB, S3, SageMaker, KMS, SNS, CloudWatch, SAM/CloudFormation
Backend & Systems: FastAPI, Node.js, REST APIs, WebSockets, Celery (async task queues), JWT, Google OAuth, SQLAlchemy
AI/ML: RAG, LLM APIs, Embeddings & Semantic Search (pgvector), YOLOv8, OCR (Tesseract), TensorFlow
Databases: PostgreSQL, DynamoDB, Supabase, MongoDB
Frontend: React, Next.js
Tools & Engineering: Git, GitHub Actions (CI/CD), Docker, Vercel, Railway, Pytest, Debugging, Testing

Education

Vellore Institute of Technology, Chennai *2024 – 2028*
B.Tech. in Computer Science Engineering | CGPA: 8.77 *Chennai, India*
Hartmann College *2022*
Class XII (PCM) | 85% *Uttar Pradesh, India*

Experience

SDE Intern – Seatrick Innovations Pvt Ltd *May 2026 – Jul 2026*
Singapore-based Maritime Technology Company *Remote*

- Architected a multi-tier document verification pipeline for 1.5M+ seafarers using FastAPI, PostgreSQL, Celery, OCR, TensorFlow, and REST connectors, reducing certificate fraud risk from ∼18% to less than 1%.
- Designed AES-256 encrypted AWS S3 storage, JWT-secured REST APIs, audit logging, and asynchronous email verification across 150+ countries, reducing manual verification time from 10+ days to less than 2 days.

Summer Research Intern – Vellore Institute of Technology *Jun 2026 – Jul 2026*
8-Week Research Internship *Chennai, India*

- Conducted technical analysis, experimentation, implementation, testing, and documentation, iterating on implementations based on feedback.

Projects

RE:GENESIS – Serverless E-Waste Recovery (Hackathon) *Python, AWS SAM, Lambda, Step Functions, SageMaker*

- Co-built (16 of 36 commits); authored the AWS SAM stack: API Gateway → ingest Lambda → Step Functions orchestrating 6 Lambda stages (detect, parse, plan, diagnose, passport, impact) with retry/backoff, 4 DynamoDB tables, S3, and SNS.
- Wired a SageMaker-hosted YOLOv8 detector into the detection Lambda with automatic fallback to catalog-assisted detection on low confidence or endpoint downtime; scripted endpoint on/off to avoid idle inference cost.
- Built tamper-evident "Second-Life Passports": canonical JSON signed with an asymmetric AWS KMS key (RSASSA-PSS SHA-256) and checked by a verify API, so any edited field fails verification.

Averion AI *Next.js, React, TypeScript, Node.js, FastAPI, Python, Supabase, PostgreSQL, pgvector*

- Built and deployed a full-stack application with 25+ API routes/components, Google authentication, team workspaces, document uploads, chat history, and RAG-based question answering.
- Developed REST APIs and backend services for multi-tenant RBAC, organization invitations, role management, and tenant-isolated document storage across 3+ role-specific workflows.
- Implemented PostgreSQL and pgvector semantic search; deployed applications using Vercel, Railway, and GitHub Actions.

PitchGround – Adaptive Communication Training Platform *Next.js, FastAPI, PostgreSQL, SQLAlchemy, WebSockets*

- Engineered 20+ authenticated REST APIs and WebSocket workflows for session orchestration, learner profiles, attempt tracking, media processing, and asynchronous analysis across a 15-model relational data layer.
- Implemented Google OAuth/JWT authentication and authorization, Nhost-backed audio/video storage, Sarvam speech-to-text, and LLM APIs, integrating backend services into an end-to-end adaptive training pipeline.

Problem Solving

Solved 200+ Data Structures & Algorithms problems across LeetCode and other coding platforms, covering arrays, linked lists, stacks, queues, trees, graphs, recursion, backtracking, dynamic programming, and greedy algorithms.