SWARNIM MANDAL

Software Engineer | Python | TypeScript | Backend | AI Integrations

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Full UK right to work – no sponsorship required | Notice period: 1 month

PROFESSIONAL SUMMARY

Software engineering graduate (MSc, Distinction, University of West London, 2026) with one year of commercial full-stack development, building React front ends and Django REST APIs for a US healthcare client. Since then, designed, built and tested two personal and academic projects: a TypeScript real-time voice agent with a PostgreSQL-backed pipeline and 100+ automated tests, and a PyTorch predictive-maintenance system served through FastAPI. Seeking a junior or graduate software, backend or AI engineering role.

TECHNICAL SKILLS

Languages: Python, TypeScript, JavaScript, SQL

Backend & APIs: Node.js, Express, FastAPI, Django REST Framework, REST API design, WebSockets, webhooks, Zod schema validation

Databases: PostgreSQL, Prisma ORM, MySQL, MongoDB

Testing & Delivery: Git, GitHub Actions (CI/CD), Vitest, ESLint, strict TypeScript, Docker (foundational), Vercel, Jira

AI & Machine Learning: OpenAI API (GPT-4.1, structured outputs with JSON Schema), Deepgram, ElevenLabs, Twilio ConversationRelay; PyTorch, scikit-learn, pandas, NumPy, TensorFlow/Keras, Hugging Face, Captum

Frontend: React, Next.js, Tailwind CSS, Three.js

SOFTWARE DEVELOPMENT EXPERIENCE

Full-Stack Developer (full-time) – Aankhijhyal Technologies

Pokhara, Nepal | Jan 2024 – Dec 2024

- Built responsive React interfaces backed by Django REST APIs as part of a 15–20 person team delivering outsourced software for a US healthcare client.
- Optimised the database queries behind key pages, contributing to a 12% reduction in their page-load times (as measured by the team).
- Shipped production releases through GitHub Actions CI/CD pipelines, and diagnosed and fixed defects across the front end, API and database layers.

UI Designer (Internship) – Eversoft Group

Pokhara, Nepal | Sep 2023 – Dec 2023

- Designed user interfaces for projects built with Node.js and Flutter.

Data Analyst (Internship) – Scertus

Remote (Bengaluru, India) | Apr 2022 – Jun 2022

- Automated the extraction and cleaning of client datasets in Python (pandas).
- Built scikit-learn predictive models and statistical analyses to benchmark client business performance.

EDUCATION

MSc Software Engineering – Distinction – University of West London

London, UK | Feb 2025 – Jul 2026

- Dissertation: deep-learning predictive maintenance for military UAV fleets (LSTM, 1D-CNN, Transformer), the basis of ARES PdM.

B.Tech Computer Science & Engineering – First Class – Jawaharlal Nehru Technological University Kakinada (JNTUK)

India | 2018 – 2023

PERSONAL & ACADEMIC PROJECTS

AI Phone Receptionist – Personal product (pre-revenue)
TypeScript, Node.js, Express, Twilio, OpenAI, Deepgram, ElevenLabs, PostgreSQL, Prisma | 2025 – Present |
Live demo: swarnimmandal.me/ai-receptionist

- Built a real-time voice agent that answers a business's missed calls: Deepgram Nova-3 speech-to-text, GPT-4.1-mini responses streamed token by token into ElevenLabs speech over a Twilio ConversationRelay WebSocket, with support for callers interrupting mid-sentence.
- Engineered a post-call pipeline that transcribes the recording (gpt-4o-transcribe), extracts a caller record against a strict JSON Schema, stores it in PostgreSQL via Prisma and emails the business, with retries and graceful shutdown so in-flight records survive redeploys.
- Secured the admin REST API with bearer-token authentication, Twilio request-signature verification and Zod-validated configuration; covered core logic with 100+ Vitest tests, ESLint and strict type-checking.
- Extended it to multiple businesses with an on-demand demo mode and a Google Sheets-synced sales pipeline; currently demonstrating it to prospective UK pub customers; no paying customers yet.

ARES PdM – UAV Predictive Maintenance – MSc dissertation project
Python, PyTorch, FastAPI, Next.js, Captum | 2025 – 2026 | Live demo: swarnimmandal.me/uav

- Built a config-driven PyTorch training pipeline comparing LSTM, 1D-CNN and Transformer models for remaining-useful-life (RUL) prediction; the Transformer achieved 16.40 RMSE (cycles) on the combined 707-engine NASA C-MAPSS test set (FD001–FD004).
- Found that a random window split understated error roughly fourfold, and replaced it with hold-out of whole engines and airframes to prevent data leakage; a joint RUL and fault model reached 95.5% accuracy across 4 fault classes on a synthesised UAV fleet.
- Served live inference over a FastAPI WebSocket into a Next.js dashboard deployed on Vercel, using Integrated Gradients and attention maps to show which sensors drove each prediction.

ADDITIONAL EXPERIENCE

Receptionist, Front of House (full-time) – The Oriental Club
London, UK | Feb 2025 – Present

- Use Salesforce, SevenRooms and Cloudbeds daily at a London private members' club; produce daily reconciliation and weekly bedroom-revenue forecast reports; wrote four standard operating procedures adopted by the front-of-house team.

Business Development Manager (part-time) – Elite Professionals Team Ltd
London, UK | Feb 2025 – Present

- Agree staffing requirements with hospitality clients, including InterContinental London – The O2 and London Marriott Hotel Marble Arch, and supply trained staff to meet them.