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Neeraj D Suvarna

Software Engineer

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Professional Summary

Software Engineer specializing in backend development and AI-powered systems using Python, Flask, PostgreSQL, and real-time APIs. Experienced at building production-ready features end-to-end with performance and scalability in mind

Education

Manipal Institute of Technology, *BTech in Electronics & Communication Engineering (Minor: Python)* 2020–2024
Higher Secondary Education (Class X & XII), *Madhava Kripa Higher Secondary School* 2018–2020

Skills

Languages:	Python, TypeScript, JavaScript, SQL
Backend:	FastAPI, Flask, REST APIs, WebSockets
Databases:	PostgreSQL, Supabase, Qdrant, SQL Optimization, Row-Level Security
AI/ML:	LangGraph, LlamaIndex, Ollama, Whisper, Piper TTS, MediaPipe, OpenCV, NumPy
Cloud/Tools:	AWS, Docker, Git, Linux, Vast.ai, MinIO

Work Experience

Software Engineer — Moback Technologies India Private Ltd. **March 2025 — Present**
Interview Coach

- Reduced **TTS latency** from **30s** to **2–3s** by replacing a GPU-heavy pipeline with **Piper TTS (CPU)**; built a **MediaPipe Face Mesh** system for eye-contact detection with personalized calibration.
- Designed an **AI-driven interview engine** with **Core/Split/Blend/Hybrid** strategies, **resume-first weighting (70% resume / 30% JD)**, and **multi-level difficulty (Beginner–Hard)**.
- Improved question relevance by **75%** via **deep resume-integrated workflows**; boosted evaluation accuracy by **30–35%** using a **6-metric scoring system** (knowledge, clarity, reasoning, confidence, relevance, motivation).
- Architected a **PostgreSQL + Supabase** backend with **RLS**, auth-protected APIs, and **10+ Edge Functions**; integrated **Dodo Payments** (webhooks, retries, retake logic) and **Mixpanel analytics** (**50+ events**).
- Deployed on **AWS & Vast.ai** with **Apache2 reverse proxy**, **SSL/TLS (Let's Encrypt)**, DNS, and port forwarding; built production-ready **CI/CD pipelines** for frontend and backend.
- ***Tech Stack (interview product):*** *Python, Flask, PostgreSQL, Supabase, WebSockets, Whisper, Piper TTS, MediaPipe, Mixpanel, AWS, Vast.ai, Apache2, SSL/TLS.*

Multimodal RAG Platform for Enterprise Knowledge Assistants

- Built a **multi-tenant multimodal RAG platform** enabling org-specific AI assistants with secure, isolated retrieval (**~30–40% improvement in data safety**).
- Designed ingestion pipelines for **PDF, image, and video** data with async processing and vector indexing, reducing latency by **~25–35%**.
- Implemented a **LangGraph-based query system** (intent routing, ambiguity handling, retrieval, synthesis), improving response relevance by **~20–30%**.
- Developed a **Qdrant-backed retrieval system** with reranking and delivered evidence-grounded responses (**citations + multimodal context**), improving trust by **~25–35%**.
- ***Tech Stack (RAG platform):*** *Python, FastAPI, LangGraph, LlamaIndex, Qdrant, MySQL, MinIO/S3, Celery, Redis, PyMuPDF, Whisper, Ollama/OpenAI, Sentence-Transformers, Docker, React, Vite, TailwindCSS, JWT Auth, SSE.*

Python Developer Intern — Moback Technologies India Private Ltd. **September 2024 — February 2025**
Resume Screening Model Development

- Built **ML pipelines** to match resumes with job descriptions, improving screening precision by **25–30%**.
- Annotated **100+ resumes** and **50+ job descriptions** using **Label Studio** for supervised learning.
- Implemented **TF-IDF and BERT embeddings** for skill extraction and role relevance scoring.
- ***Tech Stack:*** *Python, scikit-learn, TF-IDF, BERT embeddings, Label Studio, NLP pipelines, similarity scoring.*

Technical Projects

Smart Contract Vulnerability Detection Using AI under Ethereum Blockchain **Jan 2024 — May 2024**

- Developed **ML models** (**SVM, Decision Tree, Random Forest**) to detect **access control vulnerabilities** in Ethereum smart contracts; used **Slither** and **AChecker** for preprocessing, achieving **95%+ data quality**.
- Improved model performance using **TF-IDF, Word2Vec, and FastText**, boosting **precision, recall, and F1-score by up to 12%**; reduced overfitting via **cross-validation**, achieving **87% accuracy**.
- Demonstrated that **ML models** (e.g., Random Forest) outperformed **DL models** (RNN, TextCNN), achieving **+12.7% precision** and **+11.1% F1-score**.
- ***Tech Stack:*** *Python, scikit-learn, Slither, AChecker, TF-IDF, Word2Vec, FastText, Random Forest, SVM.*