SWASTIK MUKHERJEE
AI/ML & Full-Stack Software Engineer
Email | Portfolio | GitHub | LinkedIn

SUMMARY:

Computer Science (AI/ML) student specializing in building production-style intelligent systems across full-stack platforms. Experienced in orchestration backends, local machine learning pipelines, and deploying end-to-end applications from models to user-facing products.

PROJECTS:

HelixAI — Local-First Multi-Agent Orchestration System

- Architected a local-first multi-agent orchestration system that decomposes user goals into directed acyclic graph (DAG) workflows coordinating specialized agents and tools.
- Engineered a FastAPI orchestration layer integrating local large language models (Ollama), retrieval-augmented generation pipelines, and real-time streaming responses.
- Implemented Redis Streams–based task routing, PostgreSQL-backed state management, and Qdrant vector search, enabling low-latency local inference, vector search, and knowledge retrieval.
- Delivered a cross-platform Electron desktop application supporting fully offline intelligent workflow execution.

FaceCheckAI — AI-Generated Face Detection Platform
CNN-based system for real vs synthetic face classification

- Designed and trained custom convolutional neural networks on 180,000+ real and AI-generated face images, establishing production-style training and evaluation workflows.
- Built a FastAPI inference service exposing TensorFlow/Keras models with calibrated confidence outputs and deployment-ready APIs.
- Containerized the end-to-end training and inference pipeline using Docker, supporting reproducible deployment and experimentation.

MindMend — AI-Backed Mental Wellness Platform

- Developed a full-stack intelligent journaling platform integrating large language model–powered dialogue and voice synthesis for accessible user interaction.
- Implemented mood tracking, progress analytics, and structured reflective workflows to support long-term user engagement.
- Deployed secure authentication and scalable data storage using Firebase Authentication and MongoDB Atlas.

EXPERIENCE:

Tech Member - Liftoff | Sept 2024 – Nov 2025

- Contributed to architecture design and development of multiple student-led products in a product accelerator environment.
- Supported full-stack feature development, applied machine learning integrations, and rapid prototyping cycles across multidisciplinary teams.

Technical Team Member- SRMKZILLA | Nov 2024 – Nov 2025

- Contributed to open-source initiatives and technical workshops focused on modern web and software engineering practices.
- Assisted in organizing development events and peer learning sessions within the Mozilla Club ecosystem.

SKILLS:

Languages: JavaScript | TypeScript | Python | C | C++ | Java | SQL | Bash

Full Stack: Next.js | React | Node.js | Express.js | FastAPI | Spring Boot | MongoDB | PostgreSQL | Tailwind CSS | Framer Motion | Electron | Zustand

AI/ML: PyTorch | TensorFlow | Keras | Scikit-learn | XGBoost | Convolutional Neural Networks (CNNs)| Transformers | LangChain | RAG Pipelines | Local Large Language Models (LLMs)| SentenceTransformers | Hugging Face | Qdrant

Tools & Infrastructure: Docker | Git | GitHub | Linux | Redis | Firebase | Supabase | GitHub Actions | Vercel | Render | Postman | Prometheus | Grafana | VS Code

EDUCATION:

Bachelor Of Technology (BTech) CSE with AI and ML – SRMIST, Main Campus, Chennai | AUG 2024 – Present | Chennai, India

Senior Secondary School – DAV Public School | Mar 2010 - Mar 2024 | Delhi, India