SOUBHIK ROY

Dhanbad, Jharkhand

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EDUCATION

Vellore Institute of Technology, Bhopal   **Sep 2023 – May 2027**
*B.Tech - Computer Science and Engineering - **CGPA - 8.2***   *Bhopal, Madhya Pradesh*

EXPERIENCE

IIT (ISM) Dhanbad   **May 2025 – Present**
Summer Research Intern   *Dhanbad, IN*
- Engineered EV-routing algos, cutting TAT **20%** and raising load **30%** on 500 km+ lanes (20-truck fleet).
- Processed 10k+ datapts/day; shipped responsive analytics UI (Next.js, TS, Flask).

BookNest   **Apr 2025 – May 2025**
Full-Stack Developer   *Remote*
- Released book e-commerce, 100+ sales in month 1; scored 90+ Lighthouse perf.
- Architected Next.js + Tailwind + Node stack handling 200 SKUs, 50 tx/day.
- Enabled PAN-India shipping to 28 states; led end-to-end SDLC v1.

TECHNICAL PROJECTS

AI Model Benchmarking Tool — Next.js, PostgreSQL   **Feb 2025 – Apr 2025**
- Evaluated over **25 ML models**, focusing on **F1-score optimization (72%)**, achieving **latency <50ms**, **memory usage <100MB**, and **throughput >1,000 req/s**.
- Automated PDF-based eval reports, reducing manual analysis time by **75%** for **200+ users**.
- Deployed with **Supabase**, ensuring **99%+ uptime** under **150+ concurrent user** load.
- Accelerated batch data ops by **65%** using Pandas vectorization (15min → 5.2min).

PrepIQ – AI-Powered Exam Strategy Platform   **Nov 2024 – Jan 2025**
- Achieved **90%+ accuracy** in question prediction via **NeuraFocus™**, trained on **15-year multi-exam corpus**.
- Devised **TopicRank™** system, optimizing revision flow by **41%** through AI trend mining.
- Built full-stack platform (React + Express) with drag-drop uploads, dashboard UI, and auto-generated PDF kits.
- Implemented JWT-secured freemium access for **teachers (paid)** and **150+ students (free)**.

Face Mask Detection System — CNN, OpenCV, Flask   **Aug 2024 - Sept 2024**
- Trained MobileNetV2-based CNN achieving **98.1%** accuracy and **30 FPS** real-time inference.
- Optimized model to **3.2 MB** for deployment on edge IoT devices (Raspberry Pi, Jetson Nano).
- Built RESTful Flask API to detect non-compliance; flagged **1.5K+ violations** during 7-day live pilot.
- Integrated OpenCV-based webcam stream processing for contactless surveillance.

PUBLICATIONS

AI Meets Load Balancing — Research Lead   **June 2024 – Oct 2024**
- Applied **Reinforcement Learning** in **K8s/Envoy** stack, achieving **99.9% system uptime** and reducing manual ops by **80%**, saving **200+ dev hours/month**.
- Engineered traffic-aware model selector reducing latency by **30%** (210ms → 147ms) across **50+ microservices**, scaling to **5K+ RPS**.
- Formulated dynamic auto-scale policies, improving infra utilization by **40%** and maintaining **<1% request failure rate**.

ACHIEVEMENTS & CERTIFICATIONS

Hackathon: 3× Runner-up
AI Masterclass: Freedom With AI (10/2024)
Frontend Dev: Infosys Springboard (9/2024)
Java Certified – Udemy (6/2024)

TECHNICAL SKILLS

Languages: Java, Python, TypeScript, JavaScript
ML/AI: TensorFlow, PyTorch, Sklearn, OpenCV, SageMaker, Hugging Face
Frameworks: Spring Boot, Node.js, React.js, Next.js, FastAPI, Express.js
Databases: PostgreSQL, MongoDB, MySQL, Firebase
DevOps/Cloud: AWS, Azure, Docker, Kubernetes, Terraform, Jenkins, CI/CD
Tools: Git, GitHub Actions, Bitbucket, Prometheus, Sentry
System Design: Load Balancing, Caching, CDN, EDA, Multi-Tenancy