Mahadev Balla

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SUMMARY

Computer Engineering student with experience building backend systems and full-stack applications. Have worked with FastAPI/Django, React/Next.js, and Docker, and deployed services on AWS. Interested in distributed systems and cloud-based architectures.

EDUCATION

Sardar Patel Institute of Technology   **Expected May 2027**
Bachelor of Technology in Computer Engineering (CGPA: 9.16)   *Andheri, Mumbai*
Minor in Banking Technology, Barclays (CGPA: 9.0)

EXPERIENCE

Indian Institute of Technology, Bombay   **Jan 2026 – Present**
Research Intern   *Mumbai*

- Contributing to an urban mobility platform for automated Traffic Analysis Zone (TAZ) generation from OpenStreetMap data using Uber H3 grids and PostGIS, including spatial feature engineering and demand proxies.
- Built reproducible data pipelines and modular experiment runners with versioned outputs, enabling consistent evaluation and cross-environment execution.

AiM4u Software Solutions Pvt. Ltd.   **Aug 2025 – Oct 2025**
Backend Developer Intern   *Andheri, Mumbai*

- Configured and deployed a Django web app for the Tech4Social initiative on an AWS EC2. Configured a new independent database for this application.
- Designed and deployed the backend for the company's SkinTara app, designed to provide personalized skin care guidance, using Django and PostgreSQL, and Docker; implemented authentication, user profiles, image analysis reports, automated reminders, and achievements tracking for users on AWS EC2.
- Set up Docker-based deployment workflow and production configuration on AWS EC2 (environment configuration, database provisioning).

PROJECTS

NeoDermaScan | *React, Django, PyTorch, GeminiAPI*   **Demo** ◯ **Oct 2025**

- Built a responsive full-stack melanoma detection platform using React, Django REST Framework, and Supabase, implementing JWT-based authentication, patient management, dermatologist discovery, appointment scheduling, multi-channel notifications, secure image uploads, and an integrated chat assistant using Gemini API.
- Integrated a PyTorch **EfficientNet-B0** inference module; model trained using **Distributed Data Parallel (DDP)** with albumentations preprocessing on the SIIM-ISIC dataset, delivering **82%** accurate predictions with confidence scores, and risk indicators in the user interface.
- Containerized and deployed the full-stack application on **AWS EC2** with production-ready configuration, environment isolation, and database provisioning.

Anti-Grinch Bot E-commerce Bot Protection Suite | *React, Node.js, FastAPI, Google ReCAPTCHA*   **Demo** ◯ **Jul 2025**

- Developed client-side e-commerce platform and an admin-side dashboard panel with React, implementing real-time behavioral analytics employing WebSocket communication, and **IP-based blocking** via **Nginx**, enabling bot detection with low latency($< 200ms$).
- Configured the FastAPI ML server with a Random Forest Regressor to classify users based on behavioral metrics; incorporated **Google ReCAPTCHA v3** with threshold-based **v2** fallback to maintain **95%** legitimate user success rate.
- Designed containerized microservices (React dashboard, Node backend, FastAPI ML server); configured **GitHub Actions CI/CD** for automated builds and deployments to **AWS EC2**, enabling reproducible releases.

TECHNICAL SKILLS

Technologies/Frameworks: FastAPI, Django, React.js, Next.js, Redux Toolkit, Tailwind CSS, Express.js, Node.js
DevOps & Deployment: Docker, GitHub Actions (CI/CD), AWS EC2, Nginx, Linux
Databases: MongoDB, MySQL, PostgreSQL, Redis
Tools & Platforms: Git, GitHub, Jira, Postman, Figma
Languages: Python, C++, C, Java, JavaScript

CERTIFICATIONS & EXTRACURRICULAR

Oracle Certified OCI Foundations Associate   🔗 **Aug 2025**
HackerRank - SQL (Intermediate) Certificate   🔗 **May 2025**
F.A.C.E Club, SPIT   **Nov 2024 – Present**
Creatives Head

- Directed branding (posters, digital media) for technical and non-technical college events, increasing engagement by 20%.