ASMIT GHOSH

+91-9875342543 ◇ Kolkata, West Bengal

asmitghosh.tech@gmail.com ◇ github.com/asmitgh ◇ linkedin.com/in/asmitgh ◇ asmitghosh.tech

OBJECTIVE

Seeking Software Development and Machine Learning internship or research roles to contribute in building systems and deploying applied AI solutions with strong engineering rigor.

EDUCATION

Heritage Institute of Technology, Kolkata   2023 – 2027 *(expected)*
B. Tech in Electronics and Communication Engineering   *CGPA: 7.9/10 (Till Sem 4)*
Relevant Coursework: DSA, Operating Systems, Artificial Intelligence, ML with Python

SKILLS

Programming Languages: C, Python, JavaScript, TypeScript, HTML, CSS, Java
Web Technologies: React.js, Next.js, Express.js, Redux, Tailwind CSS, WebSocket, APIs
AI & ML: TensorFlow, PyTorch, NumPy, Pandas, Scikit-learn, OpenCV, LLMs, RAG, Transformers, GenAI, NLP
Cloud, DevOps & Tools: AWS, GCP, Firebase, Docker, SQL, PostgreSQL, MongoDB, VectorDB, Git, n8n
RF Simulation: Ansys HFSS, CST Studio Suite
Soft Skills: Problem-solving, Analytical skills, Leadership, Communication, Teamwork, Adaptability.

EXPERIENCE

Research Intern   Jun 2025 – Jul 2025
Jadavpur University, Kolkata (Dept. of Electronics and Telecommunication Engineering)

- Designed and simulated miniaturized multiband circularly polarized antenna structure for maritime SAR missions using CST Studio Suite; optimized design parameters to improve VSWR, axial ratio and polarization robustness.

Freelance Web Development   Feb 2025 – Mar 2025
Team Lead

- Delivered a **3D Next.js SaaS Website**; with context-trained AI support chatbot, Google Maps integration, multi- step job applications portal, 3D-elements and various interactive react components and SEO-optimized pages.
- **Policy Management System** *(Next.js, TypeScript, Express.js, Firebase, RBAC)* – Built an admin-first policy management app with secure CRUD operations, RBAC and Firestore-based versioning for tracking.

PROJECTS

ASTRA – Platform for Outbreak Prediction and Community Care   **Aug 2025 – Present**
FastAPI, Next.js, REST APIs, LSTM, XGBoost/LightGBM, Prophet, Docker   github.com/asmitgh/astra-official

- Built an ML-driven outbreak forecasting concept using an **ensemble** approach (sequence + tabular + time-series models) to estimate case surges and resource readiness.
- Implemented backend prediction endpoints using **FastAPI** with production-style API design for downstream dashboards and integrations.
- Designed a provider-facing dashboard flow to visualize predicted outbreak risk and support triage-oriented decision-making.

ALARMS – IoT Predictive Heart-Health Monitoring   **Jun 2025 – Jul 2025**
Python, Flask, TensorFlow/Keras, MQTT, ESP32, WebSockets, AWS, Next.js   github.com/asmitgh/alarms

- Created an end-to-end vitals anomaly detection pipeline (heart rate, body temperature, accelerometer) achiev- ing **AUC 0.8** and **84% validation accuracy**.

- Implemented real-time ingestion and alerting using **MQTT** + Flask **REST APIs**; supported continuous sensor streaming from **ESP32** with low-latency monitoring.

- Delivered a monitoring UI with live updates via **WebSockets**, enabling remote tracking and event-driven alerts.

NEXUS – Computer Vision Traffic & Emergency Pre-emption   **May 2025 – Jun 2025**
Python, PyTorch, YOLOv5, OpenCV, Docker, MQTT, PyQt5, AWS   github.com/asmitgh/traffic-signal

- Fine-tuned a YOLOv5 detection pipeline for multi-vehicle, emergency-vehicle, and accident detection achieving **81% precision** and **80% recall**.

- Engineered an inference service with parallel video processing using **ThreadPoolExecutor**; containerized execution using **Docker** for reproducible runs.

- Implemented adaptive signal-control logic with emergency pre-emption for time-critical routing and reduced response delays in simulated scenarios.

AI-Powered LMS – Real-Time Lecture Intelligence   **Mar 2025 – Apr 2025**
Python, Express.js, AWS, Whisper, Firebase, REST APIs   github.com/asmitgh/edu-tech

- Built an AI-enabled LMS for real-time lecture transcription, automated note generation, quiz creation, and contextual Q&A using **Whisper** and retrieval-based generation.

- Integrated advanced AI modules including handwritten mathematical OCR–NLP (94% accuracy), RAG chatbot (89% relevance), multilingual subtitles (15+ languages), achieving **80%** reduction in manual note-taking and **95%** reduction in quiz creation effort.

- Designed and deployed a scalable AWS backend with optimized lecture metadata storage, retrieval workflows, and low-latency inference.

ACHIEVEMENTS

- **Qualified – Smart India Hackathon 2024 (SIH) (Team Lead):** Built and pitched **NEXUS**, an automation solution for the Ministry of Transport focused on traffic management and optimization using ML & computer vision.
- **Top 30 – HackHeritage 3.0 (Team Lead):** Developed **ASTRA**, a healthcare platform featuring triage support and ML-based outbreak prediction for provider-side readiness.
- **Second Runner-Up – Tech Knights 2.0 Hackathon (Team Lead):** Presented **ALARMS**, an IoT + ML heart-health monitoring system with real-time vitals streaming and anomaly detection.