Harshit Singh

Ghaziabad, UP | Software Engineer | Java/Python • REST APIs • TensorFlow • Applied ML

+91-8826483132 | harshit.workmain@gmail.com | linkedin.com/in/harshit-singh-3b8467300 | github.com/harshitworkmain | portfolio-website-harshit-08.vercel.app

Education

Vellore Institute of Technology, Chennai — Chennai, India
*B.Tech, Electronics and Computer Engineering — CGPA: **7.97*** — *2023 – 2027*

New Era School (CBSE) — Ghaziabad, Uttar Pradesh
*Class XII: **87.16%** — Class X: **89.83%*** — *2020 – 2023*

Experience

AI & Robotics Intern — Autonomous Mobile Robotics [**Certificate**] [**GitHub**] — Jul 2025 – Aug 2025
STEMTEC AI & Robotics Technology Pvt. Ltd. — *Chennai, India*

- Engineered a **15 Hz** non-linear Extended Kalman Filter (EKF) state-estimation pipeline in ROS 2 (`robot_localization`) fusing 50 Hz wheel-encoder odometry with 30 Hz 6-DOF IMU telemetry, cutting mean spatial drift by **60%** (**0.45 m → 0.18 m**) and orientation error by **69.2%** (7.8° → 2.4°) across 10 m ground-truth trials.
- Built a real-time LiDAR perception and reactive control node in Python processing **∼3,600 points/sec** at **10 Hz**, applying circular modulo array-index filtering over a 60° frontal sector, achieving **95% collision-free navigation accuracy** at **sub-50 ms** latency.

Projects

SPARC — Edge ML & Multi-Modal Perception Engine *(PyTorch, YOLOv8, TensorFlow.js)* [**Demo**] [**Web-App**]

- Built a real-time multi-modal perception pipeline (<**8ms/sample**, **30 FPS**) on **ARM Cortex-A72** edge hardware, compressing raw camera frames into **229-dim** landmark vectors (**99.97%** size reduction) to cut CPU inference load by **35%**.
- Achieved a **Top 5 finalist** result among **500+ teams** at SIH 2025 by orchestrating **YOLOv8 Nano** and **CNN** inference over a **45-frame** sliding-window buffer, cutting false-positive detections by **94%**. [**Certificate**]

TRIDENT — Emergency Command Platform *(Flask, SQLite, PyTorch, Docker)* [**Live**] [**Demo**] [**GitHub**]

- Containerized and deployed an emergency command platform exposing **25 REST API endpoints** over a **6-table** relational schema (**63 columns**, **4 FKs**), implementing a deterministic **15-factor** triage engine (**1≤P≤5**) with atomic auto-dispatch for priority ≥ **4** incidents.
- Optimized the production **Docker** image by ∼**80%** (**CPU-only PyTorch** wheels, **15-package** manifest) via **Gunicorn WSGI** deployment on Render, powering a **2,960-line** dashboard with **11 Chart.js** visualizations.

NeuroBridge AI — Multimodal Clinical ML Platform *(MediaPipe, TensorFlow.js, Node.js)* [**Live**] [**GitHub**]

- Architected a full-stack platform with a **91-endpoint** REST API (**Express 5**, **Node.js 22**) and a **25-table SQLite** schema in **WAL mode**, implementing **JWT** auth and dual IP-level rate limiting.
- Built an edge CV pipeline (**MediaPipe FaceLandmarker**, **WebGL**) extracting **468** 3D landmarks at **30 FPS** in-browser, fused into a multi-factor clinical risk triage engine.

Skills

Languages: Java, Python, SQL
ML/DL Frameworks: TensorFlow/Keras, OpenCV, Scikit-Learn
Computer Vision, NLP & Edge ML: YOLOv8, MediaPipe, NLP, Model Serialization, Edge Inference Optimization, Time-Series Forecasting
Databases, Cloud & DevOps: SQLite, Relational Schema Design, Docker, CI/CD, Linux (Ubuntu), Bash, ROS 2, Git, GitHub
Core CS & Professional Skills: Data Structures & Algorithms, OOP, System Design, AWS, Data-Driven Problem Solving, Cross-Functional Collaboration, Communication, Time Management

Achievements & Leadership

- **3rd Place, Technovation 2025** (Kurukshetra '25, CEG Guindy, Anna University) — ranked **2nd Runner Up out of 50+** teams; **INR 15,000** award. [**Certificate**]
- **Winner, Innovate X Impact (V-NEST)** — secured **1st Position out of 35** teams; **INR 5,000** award.
- **Deputy Operations Lead, Team Namo Nirvana (VIT Chennai)** — led **100+ member** teams across **5–6 competitions/semester**, boosting efficiency by **35%** and securing **2 sponsors.** [**LOA**] [**Certificate**] [**LOR**]
- **National & University-Level Basketball Player**, **Ex-NCC Cadet** (1 TN BN, Corporal), active social outreach volunteer (VITeach), and occasional quizzer (VIT Chennai Quiz Club).

Languages

English (Fluent) | **Hindi** (Native)