

ATHARV NAMDEO

Robotics & Autonomous Systems · Full-Stack Engineer · Quantitative Research

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EDUCATION

Vellore Institute of Technology (VIT), Vellore 2025 - 2029
Bachelor of Technology (B.Tech) in Computer Science and Engineering (Core)

TECHNICAL SKILLS

LANGUAGES:	Python, C/C++, TypeScript, JavaScript, SQL, Rust (familiar), Shell Scripting.
ROBOTICS & UAV:	PX4 Autopilot, MAVLink, ArduPilot, ROS / ROS2, Gazebo, Rocker-Bogie Kinematics, 4-DOF Arm Control, IMU/GPS/LiDAR sensor fusion, Gas sensors (MQ-7, MQ-9, MQ-135).
AI & VISION:	PyTorch, OpenCV, YOLOv8/v11 (aerial SAR fine-tuning), 3D Gaussian Splatting (nerfstudio/gsplat), GeoCLIP, HuggingFace Transformers, FinBERT.
FULL-STACK & CLOUD:	Next.js (App Router), React, Fastify, FastAPI, Node.js, Streamlit, PostgreSQL, Prisma, DuckDB, Redis, Docker, PWA, Tailwind CSS.
QUANT & DATA:	Pandas, NumPy, SciPy, Plotly, Custom Backtesting Engine, Deflated Sharpe Ratio, Bonferroni/Šidák P-Hacking Corrections.

SELECTED ENGINEERING PROJECTS

SAR Autonomous Drone Swarm & GCS Mission Control 2026 · Python, PX4, YOLO, FastAPI

- Engineered an autonomous multi-UAV Search and Rescue platform with coordinated flight telemetry, dynamic search-grid partitioning, and tactical Ground Control Station (GCS) map dashboard.
- Fine-tuned lightweight YOLO models for top-down 40m aerial human detection, overcoming severe scale invariance; integrated with ground scout rover carrying MQ-7/MQ-9 gas sensors for hazardous zone exploration.
- Cleared the **Smart India Hackathon (SIH 2026)** internal round (Team Flying ACE, Problem SIH2617).

Silver Rover — Planetary Rocker-Bogie Rover 2026 · C++, ROS, Microcontrollers

- Designed and built a 6-wheel rocker-bogie planetary rover with articulated 4-DOF manipulator arm for obstacle clearing and soil sampling at the **TechnoXian World Robotics Championship**.
- Implemented inverse kinematics for arm control, differential suspension for high-roughness terrain traversability, and telemetric radio link.

QuantZen — NIFTY 500 Quantitative Research System 2025-2026 · Python, DuckDB, Streamlit

- Built an institutional-grade swing-trading backtesting engine on the NIFTY 500 universe with point-in-time constituent filters, avoiding survivorship bias across 44MB DuckDB database.
- Integrated Indian transaction cost model (STT, brokerage, market-impact slippage), deflated Sharpe ratio validation, and a hypothesis registry preventing false discoveries.

GeoTrace — AI Video Geolocation Intelligence 2026 · PyTorch, GeoCLIP, FastAPI

- Created a forensic OSINT platform predicting video coordinates via keyframe scene decomposition, OCR landmark recognition, sun-shadow orientation, and GeoCLIP geographic embedding search.

Hive — Realtime Student Community Platform (Not Public Yet — Private Monorepo) 2026 · Next.js, Fastify, Socket.IO, Postgres

- Architected a verified campus platform with Fastify WebSockets, Redis pub/sub, HMAC-hashed anonymous aliases with cryptographic reveal auditing, and 147 green automated integration tests.

HONORS & LEADERSHIP

- IOQM 2024-25 Merit Certificate:** Ranked in top 10% nationally in the Indian Olympiad Qualifier in Mathematics.

- **Co-Founder & Autonomy Lead, ACE Robotics (Feb 2026 – Present):** Leading rover autonomy, hardware fabrication, and competition entry.
- **Junior Core Member, VinnovateIT (Dec 2025 – Present):** Technical developer and UI/UX designer for MessIT, Latch, StudyHub, and B3.
- **Hackathons:** Finalist at Equinox 2026 (Robovitics); 5th Position at InnovAct 2026 (IIC, VIT).