Akhila Pingali

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PROFILE SUMMARY

Full-stack + AI/robotics engineer, recent graduate in Electronics & Communication Engineering, building real systems across ROS2, Python/FastAPI, TypeScript/React, and containerized pipelines. Strong at breaking fuzzy ideas into small, shippable services, wiring APIs, adding tests/CI, and documenting runbooks so others can extend. Worked on: real-time perception/voice DOA → servo control (ROS2), AI/LLM utilities (RAG, vector DBs), browser tooling (Chrome extension / Vite), and web-tooling for Baseline-safe code transforms. Comfortable in Linux, Git/GitHub, Docker, REST, and modern JS. Writes clean, readable code and learns fast.

EDUCATION

Bachelor of Technology – Electronics and Communications Engineering (4 years) 2021 - 2025

Vellore Institute of Technology, Vellore CGPA: 8.46
(Key coursework: Data Structures & Algorithms, Operating Systems, Computer Networks, Signals & Systems, DSP, Control, Software Engineering, Embedded Systems)

EXPERIENCE

AI AND ROBOTICS INTERN AT MACHANI ROBOTICS (RIA THE HUMANOID) January 6th 2025 – July 7th 2025

- Built/maintained **Python services** for data processing and model inference with structured logging, health checks, and CI; reduced API **p95 latency ~22%** through targeted profiling and batching.
- Analysed/extended **engagement computation** using gaze transforms and head-pose; verified TF frames and rates; **instrumented logs** for failure modes.
- **Tuned parameters** for more stable engagement states; **documented calibration steps and acceptance tests**.
- **Designed modular services** (vision tracking, voice DOA, and actuator control) with clear topic/API contracts and QoS for predictable latency.
- Exposed control utilities over a small **FastAPI** service; **containerized components** and wired CI with **GitHub Actions** for tests and image builds.
- **Added health checks, watchdogs, structured logging**, and **bounds checking** to improve reliability and recovery from sensor dropouts.
- Stood up three **Docker containers (Noetic, Foxy, ros1_bridge)** to pass topics/services between legacy ROS1 stack and new ROS2 nodes.

IoT AND ELECTRONICS ENGINEERING INTER AT INFINOS TECH – IIIT Hyd. August 2023 – September 2023

- Authored troubleshooting guides and **how-it-works** posts for field teams (sensors, telemetry, noise vs signal) using analogies and diagrams.
- **Designed and tested dual-temperature environment** for product based on user feedback.
- **Coordinated with engineers** to ensure **technical accuracy**; adapted drafts for slide decks and quick-read PDFs.

PROJECTS

BASELINE SURGEON- WEB TOOLING HACKATHON (TYPESCRIPT, CI, REPORTING

- Contributed to an open-source TS toolkit that **analyses web code and auto-transforms non-Baseline features** to safe patterns.
- Worked with: before/after view, explanations, and CI-friendly reporters (**Markdown / JSON / SARIF style**).
- **Deployed playground to the web** (Vercel-style flow) and focused on DX, fast feedback, and conservative transforms.
- **Stack:** TypeScript, monorepo structure, CLI usage.

*ENTROPY – AN IDEATION SaaS PLATFORM (WEBSITE: **https://entropyidea.com**) (ROLE: FOUNDER AND LEAD ENGINEER)*

- Designed and implemented an **end-to-end full-stack platform** enabling dynamic brainstorming through modular components.
- Architected database schemas and **REST APIs**, **integrated caching** for sub-100ms interaction latency.
- **Configured automated CI/CD pipelines** with **Docker** and **GitHub Actions** for fast feature deployment.

EPA – ENTERPRISE PROCESS AUTONOMIST | AWS AI AGENT GLOBAL HACKATHON 2025

- Built an **autonomous operations management system** leveraging **Amazon Bedrock (Claude)** for intelligent event reasoning and automated action execution across tools like Slack, Jira, and internal remediation workflows.
- Designed a **real-time, event-driven architecture** using AWS Lambda, API Gateway, and DynamoDB for scalable ingestion, policy-driven decisioning, and traceable action logging.
- Defined **modular interfaces** and message schemas between services; wrote **test plans** (unit/integration) and **acceptance criteria** tied to requirements.
- Implemented health checks, error budgets, and clear **rollback playbooks** to keep changes safe and auditable.

RESEARCH AND REVIEW PAPERS

RESEARCH PAPER: *MEMS CAPACITIVE PRESSURE SENSOR (PUBLISHED ON RESEARCHGATE):*
https://www.researchgate.net/publication/385362217_MEMS_capacitive_pressure_sensor_analysis_theoretical_modeling_simulation_and_performance_comparison_of_the_effect_of_a_conical_notch

REVIEW PAPER: *Enhancing Antenna Performance*- A Comprehensive Review of Metamaterial Utilization

SKILLS

- **Software Engineering:** API design, modularization, refactoring, code reviews, Git workflows
- **DevOps:** GitHub Actions CI, Docker images, reproducible environments, deployment scripts
- **Robotics:** ROS2 nodes, publishers/subscribers, TF, sensor integration, real-time considerations
- **Web:** React, TypeScript, state management, Vite, simple backend integration
- **AI/LLM:** RAG basics, vector DB usage patterns, agentic workflows, prompt-driven tools
- **QA:** unit/integration tests (pytest/RTL), health checks, regression harnesses
- **Platforms:** Linux (Ubuntu), containerized dev, Vercel-style deploys

CERTIFICATES

- Delft University of Technology: Introduction to Aerospace Structures and Material
- Google Data Analytics
- Design Thinking - For Innovators (Coursera)
- Skill badges in AI/ML on Google Cloud
- IBM Web Development
- Trinity Grade 2 certified in Western Violin