Joshua Herbert Japheth

AI & Python engineer — LLM agents, evaluation pipelines and well-tested Python backends.

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SUMMARY

I'm an AI & Data Science undergrad at RSET in Kochi. I build LLM agents, evaluation pipelines and well-tested Python backends. I build systems that show their evidence or abstain when it is thin. Open to internships and roles in AI & software engineering.

EDUCATION

B.Tech, Artificial Intelligence & Data Science 2024 – 2028

Rajagiri School of Engineering & Technology, Kochi · CGPA 8.52.

EXPERIENCE

Research Intern, Cochin University of Science and Technology (CUSAT) 29 Apr – 12 Jun 2026

- Worked under Dr. Sudheep Elayidom.
- Built Deep Learning Tutor, a Streamlit workbench for training and evaluating small neural networks, with Grad-CAM explanations and an AI tutor (Gemini or Ollama).
- Reworked it after completing the NPTEL Deep Learning course: a test set evaluated once, measured results, 478 tests in CI.

PROJECTS

Aegis — Incident root-cause analysis Python, FastAPI, PostgreSQL, TypeScript, React

- When a microservice breaks, Aegis names the service that caused it, shows the evidence — and says so plainly when it can't tell.
- 2 partly right · 6 "can't tell" · 0 confidently wrong on 8 held-out real incident captures (OpenTelemetry Demo) (0 fully correct. Abstaining is the design goal, but it means this shows no confident wrong answers on degraded telemetry — not accuracy. Small sample, no baseline comparison yet.).
- Solo project · design, architecture decisions, acceptance criteria, verification.

KeralaFloodBench — LLM GIS agent + benchmark Python, GeoPandas, Rasterio, Shapely, Ollama

- An AI agent that answers questions about the 2018 Kerala floods by writing and running real GIS code on satellite radar, elevation and map data.
- 39 of 40 failed runs were the agent misusing its tools — not missing flood knowledge (12 of 52 runs correct overall · one complete run · 23 questions).
- Solo project · built on the open-source GISclaw agent.

Cold Chain Handshake — Offline-first Android · hackathon winner Kotlin, Jetpack Compose, Room, Supabase

- An Android app that keeps a vaccine shipment's temperature history and chain of custody trustworthy — even when the network isn't.
- 1st place THROTTLE — a 16-hour inter-college hackathon (Team of four · I owned the dispatch and handover layer).

Deep Learning Tutor — Research internship · CUSAT Python, TensorFlow / Keras, Streamlit, Gemini, Ollama

- A Streamlit workbench for learning deep learning by doing: train small networks, watch live curves, see Grad-CAM, and ask an AI tutor in English or Malayalam.
- 478 tests hermetic — network blocked, every LLM call faked — run in CI on every push.
- Research internship project at CUSAT, under Dr. Sudheep Elayidom.

Grammar Tax — Performance study · llama.cpp Python, llama.cpp, perf, callgrind

- A study I designed and measured: what grammar-constrained (JSON-schema) sampling costs in llama.cpp on a CPU, and how much three small patches remove.
- 1.47× faster grammar mask with bit-identical output, across 206 of 206 grammars (about +1.5% end-to-end on llama.cpp's default path, +24% where the mask runs every step · not merged upstream).

Other projects

- **AI Resume Builder Assistant** — A chat assistant that builds a resume around the job you're applying for. Team project.
- **RuleLens** — Mines buying patterns from retail transactions with Apriori and FP-Growth, both written from scratch. Team project.
- **WebRank** — Ranks web pages by link structure — PageRank, HITS and community detection over a DuckDB warehouse. Team project.
- **Tern** — A Redis-inspired in-memory database server. In progress · no public repo yet.
- **UrbanTherm** — My entry to the NeST Digital GIS Mapathon. 4th place, NeST Digital GIS Mapathon.

AWARDS AND CERTIFICATIONS

- **THROTTLE** — 1st place with Cold Chain Handshake, team of four.
- **V-Guard Big Idea 2026** — One of 17 finalist teams from 1,000+, and a Special Jury Award — with teammates Rohith and Dane.
- **NPTEL Cloud Computing** — IIT Kharagpur · Elite + Gold · top 5%.
- **NeST Digital GIS Mapathon** — 4th place with UrbanTherm.
- **NPTEL Deep Learning** — IIT Ropar · Elite + Silver.

SKILLS

Languages: Python, Java, Kotlin, SQL

AI / ML: Agents & evaluation, LLM APIs (Gemini, Ollama), TensorFlow / Keras, Grad-CAM

Backend & data: FastAPI, PostgreSQL, Supabase

Mobile: Android (Jetpack Compose, Room)

Tools: Git, Docker, GitHub Actions, Pytest, Linux

Cloud & GIS: Google Cloud, Earth Engine, QGIS

Every number above links to its source on stredevirad.github.io/portfolio/. Facts last checked 2026-11-21.