GAUTAM S

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SKILLS

Languages	Rust, Python, C/C++, JavaScript/TypeScript
Systems & Infrastructure	Distributed Systems, Docker, Kubernetes, Linux, Git
AI & Engineering	PyTorch, Unsloth, OpenCV, LLM Fine-tuning, Numba JIT, Numpy, Prompt Engineering
Databases	PostgreSQL, Redis, LMDB, SQLite

EXPERIENCE

Lead Software Engineer Apr 2023 – Jun 2025
Automa (AI R&D Venture) *Bangalore, India*

- Architected and open-sourced **MoonLight**, an async agent framework that reached **3.4k+ global downloads** on PyPI with verified cross-platform distribution (macOS, Windows, Linux).
- Engineered an **Iterative Verification Protocol** where 'Critic' agents validated 'Actor' outputs in a loop, reducing hallucination rates by $\sim$40% ($n = 2000$ trials).
- Led **NOUAR** project, an offline GPS-driven naval automation system using NOAA astronomical calculations. Successfully demonstrated onboard INS Investigator J15, with formal evaluation leading to patent filing through Naval HQ.

Full Stack Engineer (Contract) Feb 2025 – Jul 2025
ANTARES Life Cycle Solutions GmbH *Bangalore, India*

- Engineered high-fidelity **technical prototypes** for industrial telemetry. Built interactive dashboards using **React (TypeScript)** to visualize COD/BOD sensor data, facilitating technical feasibility research and client demonstrations.

Technical Lead Jun 2023 – Sep 2023
SvaDhruthi (World Diabetes Forum Project) *Remote*

- Led the engineering of a RAG-based health platform that supported over 1,000 concurrent users, built on a Flask/MongoDB backend with a dual-agent RAG system (Generator + Verifier).

PROJECTS

- **Super V (Linux Clipboard Daemon):** Engineered a background daemon in **Rust** using a singleton architecture, **Unix Domain Sockets** for IPC, and ring buffers. Built a **GTK4** GUI with Wayland integration ('ydotool') for synthetic input injection and systemd service management.
- **Evolution (Rust & WebAssembly Simulation):** Architected an evolution engine in **Rust** compiled to **WASM**. Built a **Feed-Forward Neural Network** from scratch (no libraries) and implemented genetic algorithms (Rank Selection, Gaussian Mutation) to drive emergent agent behavior.
- **FaceSpace (Computer Vision):** Engineered a **Kubernetes** system to process **200 concurrent video streams** on one RTX 3090. Implemented a round-robin frame slicer across 20 pods, achieving $\sim$3 FPS/stream. Built an automated MLOps pipeline for hyperparameter prediction and hot-reloading weights via shared volumes.

TECHNICAL ACHIEVEMENTS

- Ranked 62nd globally out of 1400 finalists (from 150k+ submissions) in Listen Labs' Berghain Bouncer Challenge, solving a stochastic optimization problem using custom heuristics.
- Debugged and resolved a critical hardware/kernel interface failure during a live naval deployment by diagnosing signal interrupts and implementing a software-level fallback via VNC.

CERTIFICATIONS

- Stanford — Machine Learning Specialization

EDUCATION

Bachelor of Engineering, Electronics & Communication Engineering
Nitte Meenakshi Institute of Technology, Bangalore GPA: 8.77