



ASWIN

SOFTWARE ENGINEER

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PROFILE

Software engineer working close to the metal on next-generation AI accelerator hardware. I build and optimize low-level compute kernels, profile and benchmark tensor operations, and hunt bottlenecks across the stack to drive device throughput — and own end-to-end model tracing and validation plus the tooling and infrastructure around it.

EXPERIENCE

Software Engineer Jun 2023 – Present MulticoreWare Pvt Ltd · Chennai, India

- ▶ Software engineering for a leading AI silicon company's accelerator stack — developing and optimizing the software that runs on next-generation AI chips.
- ▶ Work as part of an element-wise operations team — contributing kernel development, code review, and CI health for unary/binary element-wise ops.
- ▶ Author and optimize low-level compute kernels with broad data-type coverage (fp32, bf16, int32, uint8/16/32) and hardware-specific instruction-level work verified against ISA documentation.
- ▶ Own end-to-end model tracing and validation with sweeps — reconstructing real model operation traces from a database and validating them against generated sweep tests for exact-match coverage.
- ▶ Profile and benchmark kernels with the device profiler, tracking kernel execution time and diagnosing per-core load imbalance to guide optimization.
- ▶ Maintain performance-tracking automation and daily/weekly reporting pipelines that flag regressions against historical baselines and correlate them to commits.

Industrial Project Engineer Jun 2022 – May 2023 Lenovo Pvt Ltd · Pondicherry, India

- ▶ Developed and maintained a smart attendance system using face-recognition technology with database integration.
- ▶ Built an ESD tester with database-backed logging for real-time test workflows.
- ▶ Worked on computer-vision algorithms, biometric authentication, and real-time data processing.

PROJECTS

ttperf — AI-Accelerator Performance Profiler

CLI tool that profiles AI-accelerator compute tests and extracts device kernel performance metrics. Wraps the device profiler with pytest, parses result CSVs, and reports total kernel duration. Published on PyPI. [Python](#) · [pytest](#) · [PyPI](#) — ttperf.aswinccloud.com

Eltwise Performance Tracker

Day-by-day performance monitoring for element-wise operations on AI-accelerator hardware — tracks kernel-timing trends across dates, correlates regressions to git commits, and sends automated alerts on >20% changes. ttnn-eltwise-performance.aswinccloud.com

Academic Projects — B.Tech ECE

Embedded & hardware builds: DDS-based portable function generator (up to 12 MHz), Arduino-based portable oscilloscope, 0–30 V / 0–2 A regulated power supply, and a non-contact AC/DC line tester.

SKILLS

LANGUAGES

[Python](#) [C++](#) [C](#) [Java](#) [SQL](#)

PERFORMANCE

Profiling, benchmarking, kernel optimization, bottleneck analysis, low-level compute kernels

AI HARDWARE

AI-accelerator software stacks, compute-kernel development

TOOLING

[Git](#) [GitHub Actions](#) [pytest](#) [PyPI](#) [profilers](#)

CLOUD / INFRA

Cloudflare — hosting, Tunnels, Zero Trust / Access auth; self-hosted services

OTHER

PCB design, Linux & shell scripting

EDUCATION

B.Tech, Electronics & Communication Engineering

Sri Manakula Vinayagar Engineering College, Puducherry
2019 – 2023 • CGPA 8.5 / 10

CERTIFICATIONS

- SkillRack — 300+ problem-solving medals in C & Java
- Python for Data Science — NPTEL
- Great Learning — C, Java, OS & Memory Management
- TCS iON — Career Edge

