

ASWIN

SENIOR SOFTWARE ENGINEER

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Senior 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

Senior Software Engineer

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

- 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

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

- 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.

ttperf.aswincloud.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.aswincloud.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

Performance

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

Languages

Python, C++, C, Java, SQL

AI Hardware

AI-accelerator software stacks, compute-kernel development

Tooling

Git & GitHub, CI/CD (GitHub Actions), pytest, PyPI, device/kernel profilers

Cloud / Infra

Cloudflare — site 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