

# ASWIN

## SOFTWARE ENGINEER

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.aswincloud.com](https://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](https://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.



**CONTACT**  
  
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**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 Actions](#) [pytest](#) [PyPI](#)  
[profilers](#)

**CLOUD / INFRA**  
Cloudflare — hosting, Tunnels, Zero Trust / Access; 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+ medals in C & Java  
◆ Python for Data Science — NPTEL  
◆ Great Learning — C, Java, OS & Memory Management  
◆ TCS ION — Career Edge