

KEEGAN PAUL COLACO

Storage & Firmware Engineer

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Summary

Software Engineer with 3+ years validating firmware for SMR and Hybrid-SMR SATA hard drives at Toshiba. Builds the Linux and Windows tooling that stress-tests firmware, decodes failure dumps, and benchmarks drive performance. Strong in C/C++ and Python, with a test-and-quality mindset and an active move toward next-generation SSD technologies. Published deep-learning researcher.

Core Skills

Storage & Firmware: SMR / Hybrid-SMR HDD firmware validation, stress testing, failure-dump analysis, SATA, next-gen SSD (in progress)

Languages: C, C++, Python, HTML/CSS **Performance:** FIO, VDBench, benchmarking, performance data analysis & visualization

Platforms & Tools: Linux, Windows, Git, SVN, wxWidgets **Practices:** Agile, Software Quality Assurance

Spoken: English, Japanese (JLPT N5)

Experience

Software Engineer | Toshiba Software India Pvt. Ltd. — HDD Division
Bengaluru, India

Jan 2023 – Present

- ▶ Develop and maintain Linux-based stress-testing software in C that validates SMR HDD firmware through long-duration I/O and zone-operation workloads, surfacing defects before customer release.
- ▶ Built features for a Windows GUI debugging tool (C++ / wxWidgets) that decodes firmware data from HDD failure dumps, measurably improving firmware-debugging efficiency.
- ▶ Evaluate drive performance with FIO and VDBench; build CLI and web tools that parse, visualize and analyze high-volume HDD performance data.
- ▶ Collaborate across timezones with US-based counterparts on firmware validation and releases.

Selected Projects

- ▶ **HDD Stress-Testing Tool** (C, Linux) — validates SMR firmware via sustained I/O and zone-operation workloads for stable, robust releases.
- ▶ **HDD Snapshot / Debug Tool** (C++, wxWidgets) — turns raw HDD failure dumps into analyzable firmware data for faster debugging.
- ▶ **HDD Performance Tool** (FIO, VDBench) — CLI and web tooling for parsing, visualizing and analyzing drive performance metrics.

Research

Development of a Pothole Detection System Using Deep Learning Techniques and Depth Estimation — Springer Nature, Communications in Computer and Information Science (CCIS, vol. 2176). YOLOv8-based detection with depth estimation on a purpose-built dataset.

Education

B.Tech, Computer Science Engineering — SRM Institute of Science and Technology, Chennai
CGPA 9.54 • Specialization in Software Engineering (Agile, Software Quality Assurance).

2019 – 2023

Honors & Awards

2nd Runner-Up, The Hult Prize (2022) • 1st Runner-Up, MozoHack 3.0 (2022) • Winners, ThinkTech 2k21 (2021) • 1st Runner-Up, Hack With Us (2021) • SRMIST Merit Scholarship (2021).