

HARSHIT SHARMA

Software Engineer

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PROFESSIONAL SUMMARY

Software Engineer with 3 years at Samsung R&D Institute building internal platforms and automation used in production. Built a full-stack test-automation management platform serving ~100 engineers across 4 teams; an embedded MCP server delivering C++ code context to AI coding tools over a RAG pipeline; and a computer-vision system that validates Smart LCD UI against Figma designs across 1000+ app states. Works end-to-end across React/TypeScript, Node.js, and Python, with a focus on systems that hold up under real usage.

TECHNICAL SKILLS

Languages: Python, JavaScript (ES6), TypeScript, C/C++, SQL

Frameworks & Libraries: React.js, Next.js, Node.js, Express.js, FastAPI, REST APIs, WebSockets, Zod, Microservices

AI / ML: RAG Pipelines, MCP, LangChain, LLM Agents, Semantic Search, Vector Embeddings, Prompt Evaluation

Automation: Computer Vision, OpenCV, IoU Matching, Template Matching, OCR, PyTest, Figma API

Databases & Tooling: Postgres/pgvector, MongoDB, Docker, Linux, Git/GitHub, CI/CD, BullMQ, Langfuse

PROFESSIONAL EXPERIENCE

Software Engineer, Samsung R&D Institute

Feb 2024 – Present

Noida, India

- **React / TypeScript:** Built the frontend for a **test-automation management platform** holding model-wise specifications and automation test scripts and handling new test requests, adopted by **~100 engineers across 4 teams**.
- **Node.js / REST APIs:** Developed **~20 REST APIs** and the underlying data models powering script storage, retrieval, and request management across the platform, including **auto-generated step-wise test combinations** that eliminated duplicate test code and expanded scenario coverage.
- **C++ / Applied AI:** Designed and built an embedded **REST-based MCP server** serving Tizen C++ code context to AI coding tools via a **RAG pipeline with semantic search** over **2.5K source files and 300 pages** of internal documentation, returning results in **under 200ms**.
- **Python / Computer Vision:** Built an **automated design-compliance system** for Smart LCD UI that self-navigates **1000+ app states**, maps runtime elements to **Figma nodes** via semantic and IoU matching, and flags color, layout, geometry, and alignment defects.

Software Engineer Intern, Samsung R&D Institute

Aug 2023 – Jan 2024

Noida, India

- **React / Node.js:** Built the evaluation harness and comparison logic validating the **Family Hub** refrigerator's camera-based food-detection pipeline against labeled ground truth, scaling coverage from ~200 manually staged items to a **75K-image dataset** and cutting a full evaluation cycle from **3 days to 6 hours**.
- **React / Python:** Built the log-parsing and per-stage timing pipeline behind a launch-performance profiling portal adopted by **~100 dev and SQA engineers**, computing load times against app-lifecycle checkpoints and prompting an **internal LLM** with stage deltas and known Tizen bottlenecks to rank probable causes for the slowest transitions.

Software Development Engineer Intern, Coscholars

Feb 2022 – May 2022

United Kingdom (Remote)

- **Node.js / Express.js:** Developed **15+ REST APIs** for an EdTech platform delivering one-to-one online tutoring to UK students, spanning scheduling, payments, and course management.
- **MERN:** Built student and tutor dashboards with chat, video calling, Stripe Connect payments, and course purchasing.
- **MongoDB:** Designed and implemented **10+ database models** using OOP design patterns, covering users, sessions, courses, and transactions.

PROJECTS

Lecture Lense — Video-to-Notes RAG Platform (Open Source) | *Next.js, TypeScript, BullMQ, Postgres/pgvector, FastAPI, faster-whisper, Gemini, Docker*

- Built a **10-stage BullMQ pipeline** (self-hosted Whisper → LLM transcript correction → chapters → notes/flashcards → pgvector indexing) processing a **1-hour lecture in ~6 min for under \$0.05** in LLM cost.
- Implemented **hybrid retrieval (pgvector + full-text, RRF-fused)** behind a streaming chat whose answers cite exact timestamps and seek the player; **~0.82 precision@5** on a 40-question golden set.
- Added **CI-gated prompt evals (Promptfoo + LLM-as-judge)** and per-stage cost tracing; LLM correction hit **~88% edit precision** vs. a dictionary baseline, and model tiering cut per-recording spend **~70%**.

EDUCATION

Bachelor of Technology, Information Technology | **CGPA: 8.34/10.0**

Aug 2019 – Aug 2023

JSS Academy of Technical Education, Noida, India

ACHIEVEMENTS

- **Protostar Award, Samsung R&D (2024)** — 1 of 10 awarded company-wide to engineers with under 2 years of tenure.
- **750+ problems** solved on LeetCode, focused on data structures and algorithms.