

Yash Sharma

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EDUCATION

Texas A&M University

Master of Science in Computer Science

College Station, Texas

May 2018

Birla Institute of Technology

Bachelor of Engineering in Computer Science

Mesra, India

May 2013

EXPERIENCE

Google

San Francisco

Senior Software Engineer/Tech Lead

August 2022 - Present

- Built and improved an **autonomous software-engineering agent** deployed across Google's monorepo; designed a context-compaction method that reduced token usage and execution time by **50%**. The agent has submitted **21,000+** code changes.
- Led experiments on self-improvement from human feedback using **10,000 rejected code changes**; designed the learning and evaluation workflow and found no statistically significant improvement sufficient for production deployment.
- Improved autonomous vulnerability repair by implementing bug-reproduction tests, increasing plausible fixes by **30%**; led evaluations for **Project Fortify**, Google's effort to secure its codebase from software vulnerabilities.
- Researching **specification-conditioned vulnerability detection and repair**, measuring scanner precision and autonomous-agent repair quality using **pass@k** and **valid@k**.
- Built a multi-agent system for **root-cause analysis of production failures**, inspired by [Google's AI Co-Scientist](#), and an error-explanation agent serving root-cause analyses for production issues to **50K Googlers**.
- Designed an automated evaluation pipeline, curated golden datasets, established quality metrics, and demonstrated that a **reference-free LLM autorater based on G-Eval** was effective for production root-cause analysis.
- Co-authored [Nature](#) and [Nature Medicine](#) work on [AMIE](#); developed an early differential-diagnosis prototype, trained and evaluated experimental model variants, and helped design the **top-K evaluation framework** on challenging clinical cases.
- Built synthetic-dialogue generation and **multimodal auto-evaluation infrastructure** for clinical documents, ECGs, and skin images as part of Multimodal AMIE.

Microsoft

Redmond, Washington

Software Engineer II

September 2018 - August 2022

- Built and owned the backend of a company-wide technical-debt management platform spanning detection, data ingestion, warehousing, and accountability workflows.
- Led migration of the [Windows source code to C++17](#); partnered with compiler engineers on optimizations that reduced the resulting Windows binary-size increase from **80 MB to 1.2 MB**.

Samsung Research India

Noida, India

Senior Software Engineer

June 2013 - July 2016

- Developed APIs and systems for [Samsung's MultiScreen Framework](#), improving smart-TV discovery by 10%, and implemented OpenSSL/BoringSSL and Android platform support.
- Automated cross-platform code integration for Samsung TV software, reducing build, verification, and release time by 30%.

PUBLICATIONS

- [Towards accurate differential diagnosis with large language models](#), *Nature* 2025 - **568 citations**
- [Advancing Conversational Diagnostic AI with Multimodal Reasoning](#), *Nature Medicine* 2026 - **26 citations**
- [Towards physician-centered oversight of conversational diagnostic AI](#), in review with *Nature* - **12 citations**

SCHOLARLY SERVICE

- [Program Committee, FSE 2026 IVR](#)
- [Peer reviewer for Nature Communications, Nature Biomed, npj Oncology and others.](#)