

Nikhil Agarwal

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About: Experienced backend engineer with a strong focus on automation, cloud infrastructure, and scalable system design. Skilled at troubleshooting, building CI/CD pipelines, and improving system reliability through test automation and cloud deployments.

Experience

Oppia Foundation | Full-Stack Engineer (July 2023 - Present)

- Built a scalable admin interface for Oppia's voiceover system using Python and Angular, enabling streamlined management of voiceovers across the platform.
- Developed tools for efficient administration of key tasks, including accent assignment, new language onboarding, and voiceover migration monitoring, significantly improving internal workflows.
- Led the migration of voiceover data using Apache Beam, transitioning from a language-only schema to a language-and-accent model, enhancing accessibility and personalization for learners.
- Handled server operations such as managing server jobs and deploying applications on Google Cloud Platform, maintaining high availability, and system reliability.
- Engineered an automated voiceover generation pipeline using Azure Text-to-Speech, replacing manual voiceover creation with a consistent, scalable solution, filling content gaps and elevating voiceover quality across educational lessons.

Amazon | Support Engineer Intern (January 2023 - June 2023)

- Designed and implemented API validation and backend architecture for Alexa Mobile Accessories (AMA) using Python, ensuring robust integration and system reliability.
- Enhanced the existing test suite by removing deprecated methods, optimizing test logic, and improving overall maintainability.
- Developed hardware-aware stress tests, accounting for device performance to ensure system stability under load.
- Automated key test cases, increasing testing efficiency and accuracy across the pipeline.
- Established a streamlined framework for writing test cases, improving the quality assurance process, and enabling faster onboarding of future tests.

Google Summer of Code student 2022 (June 2022 - November 2022)

- Developed a recommendation system for students by utilizing full-stack development, including Python and Angular, to analyze and recommend topics based on test performance dynamically. Additionally, a suite of unit tests and E2E tests was created and used to verify the system.
[Project link](#), [Technical design doc link](#)

Google Summer of Code student 2021 (June 2021 - September 2021)

- Developed a schema validation system as measured by a decrease in backend errors by designing and implementing a system that normalizes arguments and raises errors when they do not match the corresponding schemas. [Project link](#), [Technical design doc link](#)

Technical skills

- **Programming languages:** Python, C++, JavaScript, TypeScript, Java, MySQL, NoSQL, JSON, OOPs, bash.
- **Frameworks:** Apache Beam, Django, Angular, React (Beginner)
- **Tools:** Google BigQuery, Git and GitHub, REST APIs, UNIX, Mypy, Pylint, Selenium, CI/CD pipelines, MS Azure, Google Cloud, AWS (Beginner)

Leadership & Collaboration

- Served as **Google Summer of Code Org Admin (2025)** and **Mentor (2023, 2024)**, leading program coordination, guiding student contributors, and supporting mentors to ensure successful project delivery and smooth organization operations.

Education

Narula Institute of Technology | Computer Science & Engineering | 2019 - 2023 | 8.9 GPA