Nihal Rodge

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Education

- **Rashtrasant Tukadoji Maharaj Nagpur University** — Nagpur, India
  Bachelor of Technology in Artificial Intelligence — *Expected May 2027*
  – **Certifications**: IIT Bombay – Advanced C, C++, Python, PHP, and MySQL

Experience

- **MetaCall** (Google Summer of Code) — Remote
  Open Source Software Engineer — *May 2026 – Aug 2026*
  – **Memory Safety**: Merged 12 pull requests into `metacall:develop`; built a two-stage Memory Sanitizer (MSan) bootstrap pipeline and fixed two real memory bugs – a leak in `detour_unload()` and an uninitialized iterator in `adt_trie.c`
  – **CI/CD**: Shipped MSan, Valgrind/memcheck, and a combined AddressSanitizer + ThreadSanitizer CI matrix; extended `metacall-configure` with a `--memcheck` flag gating every pull request on leak-free execution
  – **Documentation**: Authored the Docker-based MSan local development workflow; passed midterm, final submission accepted by mentor @viferga
- **Zendalona – LIOS** (Google Summer of Code) [GitHub] — Remote
  Open Source Software Engineer — *May 2025 – Aug 2025*
  – **Test Automation**: Authored 20+ automated test files across OCR engines, scanner drivers, and the GTK UI; built a GitHub Actions matrix (Python 3.9–3.11) with pytest-xvfb for headless testing and coverage reporting
  – **Bug Resolution**: Resolved 30+ production bugs, including an OCR/screenshot race condition, scanner device misidentification, and packaging failures across 6 Linux distributions
- **Zendalona** (Accessibility Technology Startup) — Remote
  Software Developer Intern and Team Lead — *Aug 2025 – Present*
  – **z.WIOS** [Microsoft Store]: Built and shipped z.WIOS, live on the Microsoft Store – a Windows desktop OCR app integrating Tesseract OCR and Poppler PDF; managed the full packaging pipeline from EXE to MSIX for Store certification
  – **GTK to PyQt5 Migration**: Led a 6-person team through migration of 15,000+ lines of Python code across all UI layers while maintaining full feature parity
  – **Driver and Stability**: Built a driver abstraction layer for 50+ scanner models; wrote a multi-threaded stress test harness that exposed and fixed production race conditions
- **Calpe Multiaventura** [Live Site] — Calpe, Spain (Remote)
  Freelance Web Developer — *2026*
  – **Client Delivery**: Built and shipped the public website for a PADI Dive Resort and water sports operator, taking the project end-to-end – requirements, responsive build, and deployment – for an international client
- **Ahalia School of Engineering and Technology** (Invited by Zendalona) — Palakkad, India
  Faculty Development Programme (FDP) Trainer – AI for Educators — *1 Week*
  – **FDP Delivery**: Led a week-long training for faculty on AI tools, prompt engineering, and practical classroom applications

Projects

- **Beatful: The Card Game (Flutter, Node.js, Android)**: Sole developer of a Google Play multiplayer card game (Sevens) – Flutter client backed by a Node API; shipped to production and serving a live daily player base
- **FixMySlop (Python, PyPI, LLM)**: Local AI code analyser running Ruff, Bandit, and Semgrep alongside a local Ollama model, zero cloud dependency; published on PyPI – 13+ stars, 4 forks
- **Universal Tesseract Path Finder (Python, Cross-Platform)**: Auto-configuration library cutting OCR setup failures by 70%; used in 3 production apps with 500+ active users

Technical Skills

- **Languages**: Python, C, C++, SQL, Dart | **Familiar With**: Java, PHP, JavaScript
- **Frameworks and Tools**: PyQt5, GTK, Flask, Flutter, Node.js, TensorFlow, Valgrind, Memory/Address/Thread Sanitizers, GitHub Actions, Docker, pytest, Git
- **Packaging and Platforms**: MSI, MSIX, RPM, DEB, APK, PyPI – Windows, Linux (Ubuntu, Fedora, Arch, Debian), Android
- **Core Skills**: Systems Programming, Memory Management, Test Automation, CI/CD, Debugging, Cross-Platform Development, Code Review, Working with Ambiguous Requirements

Achievements

- **2x Google Summer of Code (2025 and 2026)**: Selected in two consecutive years across two different organizations – Zendalona/LIOS and MetaCall
- **Microsoft Store Publisher**: Sole developer of z.WIOS – built, packaged as MSIX, and certified for the Microsoft Store
- **National Conference Speaker**: Invited speaker, National Symposium on Bhashini Technologies, Punjabi University, 2025