Neelesh Roy

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Education

University of California - San Diego — San Diego, CA
Bachelor of Science in Computer Science (Junior) — *September 2026 – June 2028*

University of California - Riverside — Riverside, CA
Bachelor of Science in Computer Science — *September 2024 – August 2026*

Experience

Full-Stack Web Developer — March 2026 – August 2026
CE-CERT, UC Riverside — *Riverside, CA*

- Drove 7 major platform upgrades on a Laravel app (Laravel 11 and 12, Livewire 3, Tailwind, Vite, Flowbite, FullCalendar v7, Maizzle v6) while shipping work across 40+ feature/fix tickets to ensure security and reliability
- Resolved 120+ WCAG/SiteImprove issues across 10+ pages, improving accessibility for users
- Engineered a no-show policy system (UI, business logic, migrations) that tracks missed appointments per customer, enforces a two-miss limit, and notifies customers at each step
- Built admin controls that switch the site's automated jobs (e.g., feed imports) between automatic and manual, enabling on-demand execution

Projects

Lecture Studio | *Ollama, Gemma 4, Gemini Live, ElevenLabs, WebSockets* — April 2026
Best Education Track — *Citrus Hack*

- Built a real-time AI system (solo) to make lectures interactive beyond the classroom, enabling students to navigate, understand, and query lecture content
- Created a local context-aware memory system using Ollama + Gemma 4, linking professor's annotations to live speech, enabling Gemini to give responses grounded in lecture content
- Built a custom WebSocket proxy connecting Gemini Live (reasoning) with ElevenLabs (cloned professor voice) for low-latency, natural-sounding speech responses

Navis | *Gemini Live API, Groq, PDF.js* — April 2026
Runner-up Healthcare Track — *PantherHacks*

- Built a full-stack platform (solo) for interactive medical document navigation with real-time conversational AI (Gemini Live API), voice controls, and exportable insights (PDF/ICS/Maps)
- Implemented PDF.js rendering for auto-scrolling, LLM pipelines (Gemini/Groq), and trained a lightweight dataset for ASL recognition to make it accessible
- Designed an end-to-end privacy architecture handling PHI securely via client-side redaction and safe data transmission through APIs

Research Experience

Undergraduate Student Researcher — June 2026 – August 2026
DeltaSearch Framework — *Riverside, CA*

- Implemented parallel Russian Doll Search algorithms in C++ for graph optimization problems, with custom vertex search strategies, and benchmarked performance across MWIS, MCDS, and UCFL instances

Undergraduate Researcher — January 2026 – June 2026
UCR's AI Tutor Research Project (ScottGPT) — *Riverside, CA*

- Analyzed anonymized survey responses and usage logs from 121 students across 1,540 AI tutor conversations using PostgreSQL (pgvector) to identify engagement patterns and common difficulties
- Developed 10+ Python-based visualizations of usage frequency, question types, and user satisfaction to communicate insights to the development team for improving the AI tool

Technical Skills

Languages: C/C++, Python, PHP, HTML, CSS, SQL (Postgres), JavaScript, TypeScript
Frameworks: React, Node.js, Next.js, Laravel, Flask
AI: LLM APIs (Gemini, Groq), Ollama, MediaPipe, RAG
Tools and Platforms: REST APIs, Git, Docker, Supabase, PHPUnit, Laravel Sail, WordPress