Sagar Patel

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Summary

PhD researcher at the University of Maryland Eastern Shore and full-stack developer. Recent work includes a multi-user VR classroom for Meta Quest, an LLM agent that acts on live security alerts, and an unsupervised detection pipeline on a real Active Directory domain.

Experience

University of Maryland Eastern Shore, Princess Anne, MD

Graduate Research Assistant NSF VR Learning Project — Jun 2026 – Present

- Built a multi-user WebXR classroom (IWSDK, Three.js, TypeScript) for Meta Quest headsets. A 50-minute class runs as three or four cycles of a lecture video, a challenge on that topic, and a debrief for questions.
- Designed the PostgreSQL backend on self-hosted Supabase with 11 RPC functions and row-level security that keeps the answer key off the client.
- Hosted the server for a two-week class playtest with six students (CSDP 99, Nov 2026) using WSL and a Cloudflare tunnel, and handled builds and logging.
- Currently build scenes in Blender, lead a team of two, and work with university IT on planning the production setup.

Graduate Teaching Assistant — Sep 2025 – May 2026

- Teaching assistant for three courses per semester over two semesters: Software Engineering, Database Management, and Probability for Computer Science.
- Prepared exams, quizzes, and assignments, tracked attendance, and ran weekly tutoring sessions.

System Administrator | **Shayona Pharmacy**, Salisbury, MD — Feb 2024 – Feb 2025

- Administered the pharmacy network, firewall rules, access control, and backups.

Full Stack Developer | **The Actor-Cafe**, Freelance — Jul 2021 – May 2023

- Built a subscription website for working actors in Laravel 8 (PHP) on a four-person team. It creates acting resumes as print-ready PDFs in US and Japanese formats.

Junior Python Developer | **August Infotech**, Surat, India — Jan 2021 – Dec 2021

- Developed an online assessment web application for recruiters and its back-end APIs with JWT authentication.

Full Stack Developer | **Parul University**, Vadodara, India — Jan 2020 – Dec 2020

- Built and maintained university event websites and provided IT support.

Publication

Patel, S., Malomo, B., Ma, Y., Hanson, J., Liu, C., Cao, L. (2026). *Adaptive AI Educator: A Multi-format Learning Platform for Aquatic Invasive Species Education and Outreach - A Blue Catfish Case Study.* HCII 2026, LNCS vol. 16733, pp. 596–613. Springer.

First author | presented at HCII 2026 | DOI 10.1007/978-3-032-30784-2_37

Skills

Languages
Python, TypeScript / JavaScript, PHP, SQL, HTML / CSS, C / C++, Swift

Web & XR
React, Next.js, Vue.js, Laravel, Node / Express, Flask, Django, WebXR, Three.js

Data & Cloud
PostgreSQL (Supabase), MySQL, MongoDB, Docker, Cloudflare, Git / GitHub

Security, AI & Systems
Wazuh / SIEM, Active Directory, pfSense, Sysmon, Ollama / local LLMs, CUDA, OpenMP

Selected Projects

AI Agent for Threat Hunting
Python, Wazuh, Ollama, pfSense, Active Directory
Reads Wazuh alerts live, profiles each user, and uses a local LLM to choose a response, such as disabling an AD account.

Insider Threat Detection
Isolation Forest, LOF, One-Class SVM
Unsupervised detection on Windows file-share events (4656 / 5145) in a live AD lab: 18,572 events, 58 user sessions, 12 behavioral features.

GPU vs. CPU Performance Study
CUDA, OpenMP, C / C++
AES-128 key search over 4.29B keys ran 32× faster in CUDA than OpenMP (123.5 s against 3,928 s).

Education

Univ. of Maryland Eastern Shore
Ph.D., Applied Computing & Engineering (Software Engineering)
GPA 4.0 | Jan 2025 – Present

Univ. of Massachusetts Lowell
M.S., Computer Science
GPA 3.8 / 4.0 | Dec 2023

Parul University
B.Tech, Information Technology
GPA 8.5 / 10.0 | May 2021