Yashraj Gavhane

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Education

University of California San Diego — **San Diego, CA**
Master of Science in Computer Science (GPA - 4.0/4.0) — *September 2024 – March 2026*

Pune Institute of Computer Technology — **Pune, India**
Bachelor of Engineering in Information Technology (GPA - 9.8/10) — *August 2018 – May 2022*

Technical Skills

- **Programming & Frameworks** - Python, Java, C, C++, Go, JavaScript, SQL, PyTorch, TensorFlow, React, REST API
- **Cloud & DevOps** - AWS, Azure, GCP, Linux, CI/CD, Docker, Kubernetes, Terraform, Jenkins
- **AI/ML** - NLP, Computer Vision, LLMs, RAG, LangChain, Multi-Agent Systems, Vector Databases, OpenAI APIs

Experience

Amazon Web Services (AWS) — **Seattle, WA**
Software Development Engineer Intern - Route 53 — *June 2025 – September 2025*

- Architected and developed **Host Radar**, an autonomous AI agent system using **AWS Strands SDK** and **Model Context Protocol (MCP)** tools to orchestrate intelligent infrastructure failure management, automating **90%** of detection and diagnosis workflows across Route 53's edge fleet.
- Designed **multi-agent architecture** with specialized AI agents for diagnostic analysis, failure classification, and repair coordination, leveraging **MCP tools** for seamless integration with AWS services, IPMI systems, and external ticketing platforms.
- Implemented sophisticated **agentic workflows** using **AWS Bedrock** with custom MCP tools for autonomous decision-making, pattern recognition, and intelligent escalation, reducing manual intervention from hours to **minutes**.
- Built **human-in-the-loop agent orchestration** with intelligent threshold monitoring and approval workflows, enabling AI agents to make autonomous decisions while maintaining safety controls for critical infrastructure operations.
- Developed **multi-modal AI agents** capable of analyzing shell diagnostics, system event logs, and hardware sensor data through coordinated MCP tool execution, achieving **100%** automation of repair ticket generation with comprehensive AI-generated analysis.

UC San Diego Shiley Eye Institute — **San Diego, CA**
Student Researcher — *September 2024 – June 2025*

- Developed novel machine learning-based AI solutions for early glaucoma detection using **multimodal analysis** of OCT scans and fundus images combined with clinical data.
- Finetuned **LLaMA 3.2 Vision** model on a retinal imaging dataset of 15,000+ annotated samples using **LoRa** and **PEFT** techniques to generate diagnostic text descriptions.
- Implemented **vision-language models** for cross-modal retrieval between medical images and diagnostic reports using contrastive learning.
- Collaborated with ophthalmologists to validate model outputs against gold-standard clinical assessments and FDA-cleared devices.

ZS Associates — **Pune, India**
Business Technology Solutions Associate — *July 2022 – July 2024*

- Led the technical aspects of multi-million dollar projects in pharmaceutical and hospitality sectors, managing operations and stakeholders across **AMER**, **EMEA**, and **APAC** regions.
- Utilized Python, **Natural Language Processing (NLP)**, and various **AWS services** to develop automated solutions for extracting contract metadata and revenue data, reducing processing time by **85%**.
- Implemented **CI/CD** pipelines to streamline software deployment, ensuring continuous integration and delivery of solutions, resulting in a **40%** reduction in deployment time.
- Presented technical solutions and project outcomes to senior leadership, contributing to strategic decision-making and fostering innovations.

Publication

- Published and presented **Multi-labelled Ocular Disease Diagnosis Enforcing Transfer Learning** at the **2021 Conference on Information Sciences and Systems (CISS)**, an **IEEE** conference held at **Johns Hopkins University**. The paper introduced a novel approach to multi-label classification of ocular diseases, utilizing transfer learning techniques to improve diagnostic accuracy.

Projects

Ocular Disease Recognition | *Computer Vision, PyTorch, Multi-label Classification*

- Developed a multi-label classification model to diagnose 8 ocular diseases from the **ODIR-5K dataset**.
- Enhanced image quality and model accuracy using preprocessing techniques, including **CLAHE**.

LifeCode | *QR-based Emergency System, Medical Data Integration*

- Engineered a QR-based emergency system to provide first responders with critical victim data including contacts and medical history in under **10 seconds**, reducing medical response time by up to **30%**.