

Vighnesh Prabhu

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EDUCATION

The Ohio State University, College of Engineering

Columbus, OH

Bachelor of Science in Computer Science and Engineering

August 2023-Present

GPA: 3.82

- **Specialization:** Artificial Intelligence, **Minor:** Mathematics.
- 5x Dean's List (August 2023-Present), UG Research Scholarship Recipient.

WORK EXPERIENCE

Summer Undergraduate Research Fellow

Columbus, OH

The Ohio State University

May 2026- July 2026

- Selected for the competitive, funded, College of Engineering SURE program.
- Developed a query-conditioned attention framework that reconstructs complete spatial fields from sparse, cloud-masked satellite observations.

AI/ML Undergraduate Researcher

Columbus, OH

The Ohio State University- RAMSIS Lab

January 2026- Present

- Developing probabilistic and uncertainty-aware machine learning models for risk-informed geotechnical site characterization, integrating spatial modeling techniques to support decision-making under subsurface uncertainty.
- Contributing to research on AI-driven infrastructure risk assessment.

AI Engineer

Pittsburgh, PA

ConnectiveRx

June 2025- August 2025

- **Engineered an AWS Q Developer-powered OCR and agentic AI pipeline** that ingests PDFs, applies advanced prompt-engineering to extract layout and styling, and automatically generates high-fidelity HTML, CSS, and JavaScript microsites, cutting manual prototyping effort by over 80%.
- **Built and deployed autonomous AI agents in a full-stack SDLC**, collaborating with senior engineers to author production-quality services for dynamic task orchestration, designing system architecture, writing comprehensive unit and integration tests, and refining prompt-engineering strategies for reliable, end-to-end automation.

Machine Learning Researcher

Remote

Algoverse

October 2024- May 2025

- Conducted applied research in multimodal learning and representation alignment, focused on enhancing retrieval performance across domain-specific datasets.
- Designed and trained **Distill-CLIP**, a distilled multimodal model accepted to **ICCV 2025 (CLVision)**, achieving +14-20% Recall@10 on zero-shot image-text retrieval.

PROJECTS

SignalSmith- Data & GenAI Analytics Platform

October 2025

- Built a **LLM-powered analytics platform** combining **RAG over financial news** and **NL2SQL on Postgres + pgvector** to deliver grounded, cited answers from natural-language queries, with strict SQL guardrails.
- Designed a **production-style data pipeline and eval harness**, ingesting large-scale market data and measuring **NL2SQL accuracy, retrieval recall@k, latency, and cost**, deployed as a Dockerized **FastAPI + React** app.

F1 Strategy Room- Python, FastAPI, Next.js, scikit-learn

August 2025

- Built a predictive tyre degradation model using polynomial regression and Monte Carlo simulation on **50K+** lap telemetry records, achieving **$R^2 > 0.85$** for race strategy simulation
- Developed a full-stack analytics platform with **REST API** and **React** dashboard; deployed via **Docker**.

Multimodal Image-Text Retrieval (CLIP fine-tune)

March 2025

- Built a **CLIP-based retrieval system** that ranks images for natural-language queries; fine-tuned on a 5–10k pair subset (COCO-style) with contrastive loss; **+14–20% Recall@10** over zero-shot baseline.
- Implemented **data pipeline** (caption cleaning, tokenization, image transforms), **hard-negative mining**, and **ANN search (FAISS)** for sub-100ms queries on CPU.

LEADERSHIP & INVOLVEMENT

OHI/O (OSU's premier hackathon club) - Sponsorship & Sustainability Committee

August 2023– Present

- Facilitated networking and sponsorship efforts, establishing connections and securing **\$200K+** in funding.

OSU Boxing Club - Coach

August 2023- Present

- Coordinated thrice-weekly practice sessions while fostering an inclusive environment and enhancing engagement.

Other Student Orgs: OSU VexU Robotics Club (exec board member), AI club, Actuarial Science Club, ACM

HONORS INVOLVEMENT & TECHNICAL SKILLS

- **Honors** Engineering, Entrepreneurship and Innovation **Scholars**, **STEP OSU**, **SOA Financial Math Certified**
- **Back/ Front End:** Python (FastAPI, scikit-learn, PyTorch, NumPy), Azure AI, SQL (Postgres, SQLite), JavaScript/ TypeScript, React, Next.js, Docker, REST APIs, LLM tooling (RAG, NL2SQL, LangChain), Git