

Vivek Patel

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EDUCATION

The Pennsylvania State University

Bachelor of Science in Computer Science, Minor in Economics | GPA: 3.4/4.0

- Awards and Honors: Dean's List FA-23, FA-24, Ida C Koran Scholarship

University Park, PA

Aug. 2023 – May 2027

PUBLICATION

Feng, R., Gupta, V., Patel, V., Ernampati, V. R., & Saha, S. (2025). *Can large language models simulate symbolic execution output like KLEE?* arXiv. <https://arxiv.org/abs/2511.08530>

EXPERIENCE

Research Assistant - Program Analysis

Jan 2025

Penn State University

- Co-authored published paper testing whether LLMs can simulate KLEE symbolic execution output (DOI: 10.48550/arXiv.2511.08530)
- Researching LLM-driven optimization of symbolic execution paths to cut computational cost
- Developing training pipeline to flag critical program regions and prune redundant execution paths
- Building KLEE-based path validation system to generate and analyze symbolic execution data
- Benchmarking model performance and efficiency gains against traditional symbolic execution

PROJECTS

Front Run - AWS Builder | *Next.js, Multi-agent AI, SEC EDGAR*

July 2026

- Built autonomous AI sales rep mining free same-day SEC filings to hit freshly-funded startups on day zero — before news breaks or rivals lead
- Automated outreach end to end — detecting the raise, finding the contact, drafting emails, and booking meetings with no human in the loop
- Auto-researched each company so emails read human, not spam, opening with a specific, credible hook
- Built send-and-reply core where multi-agent AI reads each reply, judges intent (interested/unsure/not), drafts next move, and books the meeting itself
- Integrated four workstreams into one deployable full-stack Next.js app, owned deploy, shipped real-time dashboard tracking every lead — team of 4, 8-hour build

OCR Pipeline - Penn State | *Python, Google Vision OCR, Selenium*

May 2024 – Present

- Built full-stack automation pipeline processing 1,000–1,500 packages daily across 70,000+ students
- Extracted student names, tracking numbers, and carrier info from package labels via Google Vision OCR
- Implemented fuzzy matching to resolve name discrepancies (“Abby” vs. “Abigail”) for accurate student identification
- Automated data entry into API-less eLiving housing portal via Python + Selenium browser automation
- Triggered email notifications through eLiving entries, cutting manual entries and pickup delays
- Ensured full FERPA compliance — no personally identifiable data stored or exposed outside secure internal systems

IdeaStruct - HackMIT 2024 | *Python, Flask, OpenAI API, Neo4j, Cytoscape.js*

September 2024

- Built AI-powered Flask web app to create and query dynamic knowledge graphs
- Integrated OpenAI GPT for NLP with robust Neo4j and in-memory database backend
- Engineered interactive Cytoscape.js interface for advanced data visualization
- Delivered project with team of 4 under HackMIT time constraints

TECHNICAL SKILLS

Languages

C, Python, Java, JavaScript/TypeScript, SQL

AI / ML

PyTorch, TensorFlow, Transformers, HuggingFace, Scikit-Learn, OpenAI & Claude APIs

Frameworks

React, Next.js, Flask, FastAPI, Node.js, Tailwind CSS

Tools & Platforms

Git, Vercel, Selenium, Neo4j, Google Cloud Vision, Cytoscape.js, REST APIs & Webhooks