

# Siddhanta Mohanty

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## EDUCATION

### The Pennsylvania State University

Bachelor of Science in Computer Science

University Park, PA

Aug. 2022 – May 2026

- **Relevant Coursework:** Data Structures and Algorithms, Introduction to the Theory of Computation, Computer Organization And Design, Artificial Intelligence, Operating Systems Design & Construction

## EXPERIENCE

### GenAI Intern

HCL Technologies

May 2025 – Aug. 2025

Redmond, WA

- Reduced support resolution time 50% via agentic self-healing system using **Flask**, **LangChain**, **FAISS** with dual-vector **RAG** over error logs and documentation
- Built 7-category error classifier with severity-based **Slack** alerts and chatbot integration for sub-5-minute triage
- Automated workflows across **APIs**, file systems, databases via **MCP** using **LangChain** agents; created **Confluence** ingestion pipeline enabling **RAG** search

### Research Assistant

Penn State University

Sep. 2024 – Present

University Park, PA

- Designed **Reinforcement Learning** framework for multi-stage **LLM** pipeline improving code verification via iterative prompt refinement
- Integrated compiler toolchain (**Klee**, **CodeQL**) with **RL** system for automated validation and self-correction of generated code

### Member

Penn State Advanced Vehicle Team

Feb. 2025 – Present

University Park, PA

- Optimized perception accuracy via Kalman and particle filtering for traffic signs, lane markings, obstacles in **ROS2** pipelines
- Enhanced localization through multi-sensor fusion debugging (**LiDAR**-camera overlays) and validated modules in simulation and field tests

### Data Analytics Intern

Elevatoz Loyalty

June 2024 – Aug. 2024

Bengaluru, India

- Analyzed Kaggle-scale datasets using **SQL** and **Python** (**pandas**, **NumPy**) for business intelligence; automated ETL workflows reducing processing time 40%

## PROJECTS

### Self-Heal System | *Flask, LangChain, FAISS, PostgreSQL, GPT-3.5, Slack*

[Source Code](#)

- Built AI self-healing pipeline storing error context in **PostgreSQL**, generating **embeddings** via **FAISS**, auto-generating fixes through **LangChain** + GPT-3.5
- Deployed severity-aware slack alerting with 7-type taxonomy and auto-fixable classification, reducing mean time to resolution 35%

### Prompt Tracer | *JavaScript, Chrome Extension API, Manifest V3*

[Source Code](#)

- Built **Chrome Extension** with real-time prompt optimization across **ChatGPT**, **Claude**, **Grok**, **Gemini** and analytics dashboard with performance metrics

### Swipeflix | *TensorFlow.js, React, Node.js, MongoDB*

[Demo](#) | [Source Code](#)

- Developed personalized movie recommender using quiz profiling and swipe feedback with adaptive **TensorFlow.js** model achieving 75% accuracy

### Photobot | *LangChain, RAG, Python, OpenAI API*

- Created AI photography assistant using **RAG** and **LangChain** for DSLR configuration recommendations, reducing decision time 60%

## TECHNICAL SKILLS

**Languages:** Python, C++, JavaScript, TypeScript, SQL, HTML/CSS

**Frameworks:** Flask, FastAPI, Node.js, React, LangChain, TensorFlow, Spring Boot

**Developer Tools:** Git, Docker, VS Code, Postman, AWS, Google Cloud Platform, PostgreSQL, MongoDB, ROS2

**AI/ML Tools:** RAG, Vector Databases (FAISS, Pinecone), LLMs, Model Context Protocol (MCP), NumPy, pandas, Klee, CodeQL