

SIDDHANTA MOHANTY

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EDUCATION

The Pennsylvania State University

Bachelor of Science in Computer Science

University Park, PA

Aug. 2022 – May 2026

- **Dean's List:** Fall 2023, Spring 2024, Fall 2025 **Relevant Coursework:** Data Structures and Algorithms, Theory of Computation, Computer Organization, Artificial Intelligence, Operating Systems, Introduction to the Theory of Computation

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
- 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 RAG pipeline**

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 tests

Data Analytics Intern

Elevatoz Loyalty

June 2024 – Aug. 2024

Bengaluru, India

- Analyzed large-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 reducing **MTTR 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**

Real-Time Collision Detection Engine | *JavaScript, Canvas API, Spatial Hashing*

[Source Code](#)

- Optimized **collision detection** using **spatial hashing** to eliminate **98%** of unnecessary pair tests; demonstrated **50x faster** broad-phase performance with identical collision output to brute force

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