SIDDHANTA MOHANTY

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EDUCATION

The Pennsylvania State University — University Park, PA
Bachelor of Science in Computer Science — *Aug. 2022 – May 2026*

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

EXPERIENCE

GenAI Intern — May 2025 – Aug. 2025
HCL Technologies — *Redmond, WA*

- Built an **agentic self-healing system** with dual-vector **RAG** over live error logs using Flask, LangChain, and FAISS, reducing support resolution time **50%** via automated triage and Slack alerts
- Orchestrated **multi-agent workflows** across APIs, file systems, databases, and Confluence using **MCP** and LangChain for automated knowledge retrieval and actions
- Established **AI governance practices** for secure RAG pipelines including access control, knowledge validation, and responsible LLM usage in production

Research Assistant — Sep. 2025 – Dec. 2025
Penn State University — *University Park, PA*

- Researched **Reinforcement Learning** approaches to improve two-LLM code verification pipelines through iterative prompt refinement and compiler feedback
- Designed integration strategies for combining **RL** with validation tools (**Klee**, **CodeQL**) to enable automated code evaluation and self-correction

Member — Feb. 2025 – Dec. 2025
Penn State Advanced Vehicle Team — *University Park, PA*

- Curated and annotated perception datasets in **Roboflow** for vehicle and traffic object detection model training
- Executed **ROS2** perception sensor pipelines on **rosbag** recordings to evaluate detection outputs and validate dataset quality

Data Analytics Intern — June 2024 – Aug. 2024
Elevatoz Loyalty — *Bengaluru, India*

- Analyzed datasets using **SQL** and **Python** (pandas, NumPy) and automated **ETL workflows**, reducing processing time **40%**

PROJECTS

Self-Heal System | *Flask, LangChain, FAISS, PostgreSQL, GPT-3.5, Slack* — Source Code

- Built an **AI self-healing pipeline** storing error context in PostgreSQL, generating embeddings with FAISS, and auto-generating fixes via LangChain + GPT; implemented severity-based Slack alerts reducing **MTTR 35%**

Prompt Tracer | *JavaScript, Chrome Extension API, Manifest V3* — Source Code

- Developed a **Chrome extension** for real-time prompt optimization across ChatGPT, Claude, Grok, and Gemini with analytics dashboard

Swipeflix | *TensorFlow.js, React, Node.js, MongoDB* — Demo | Source Code

- Built a personalized **movie recommender** using swipe feedback and TensorFlow.js achieving **75% accuracy**

yourAIbrief | *Next.js, TypeScript, Prisma, PostgreSQL, NextAuth, SendGrid, Vercel* — Demo | Source Code

- Built a full-stack **AI newsletter platform** that ingests AI news via APIs, curates articles with rule-based filtering, and delivers structured daily briefs using SendGrid, powered by Next.js API routes, Prisma-PostgreSQL, NextAuth (OAuth), GitHub Actions cron jobs, and Vercel deployment

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

- Implemented **spatial hashing** eliminating **98%** unnecessary collision checks, achieving $50\times$ faster broad-phase performance

TECHNICAL SKILLS

Languages: Python, C++, JavaScript, TypeScript, SQL, HTML/CSS
Frameworks: Flask, FastAPI, Node.js, React, LangChain, TensorFlow, Spring Boot
AI/ML Tools: RAG, Vector Databases (FAISS, Pinecone), LLMs, Model Context Protocol (MCP), Prompt Engineering, NumPy, pandas
Developer Tools: Git, Docker, VS Code, Postman, AWS, Google Cloud Platform, PostgreSQL, MongoDB, ROS2