

SIDDHANTA MOHANTY

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ABOUT ME

Results-driven Computer Science senior specializing in AI/ML, backend development, and scalable software systems. Delivered production-ready LLM/RAG pipelines, computer vision algorithms, and backend architectures that cut resolution time by 50% and reduced debugging effort by 40%. Skilled in Python, C++, Flask, LangChain, and PostgreSQL, with a proven ability to turn complex problems into high-impact, maintainable solutions.

EDUCATION

Pennsylvania State University - University Park

August 2022 - May 2026

Bachelor's, Computer Science

- CMPSC465: Data Structures and Algorithms; CMPSC461: Programming Language Concepts; CMPEN331: Computer Organization And Design; CMPSC442: Artificial Intelligence

CERTIFICATIONS

AI For Everyone – Coursera Issued by: DeepLearning.AI Completion Date: [May, 2024] - Gained foundational knowledge of **AI, machine learning**, and **deep learning terminology** and applications - Learned to identify realistic AI applications, limitations, and ethical considerations in organizational contexts

SKILLS

- **Languages & Web:** Python, C++
- **Frontend:** HTML/CSS, Tailwind CSS, JavaScript
- **Backend & Frameworks:** Flask, REST APIs, Node.js
- **AI & Machine Learning:** RAG, Agentic RAG, Vector Databases (Pinecone, FAISS), LLMs (GPT-4, OpenAI API), MCP (Model Context Protocol), Tensorflow, NumPy
- **Databases:** MySQL, PostgreSQL
- **Development Tools:** Git, Docker, VS Code, Postman, Streamlit, GitHub, Google Cloud Platform
- **Other:** GDB, Cursor IDE

PROFESSIONAL EXPERIENCE

HCL Technologies

Redmond, WA, USA

GenAI Intern

May 2025 - August 2025

- Reduced support resolution time by 50% by engineering an agentic RAG pipeline with dual vector databases for historical error embeddings and internal documentation.
- Automated complex, multi-step workflows across APIs, file systems, and databases via a Model Context Protocol (MCP) system using LangChain agents.
- Designed a Confluence ingestion pipeline integrated with MCP and LangChain, enabling RAG-based contextual search across organizational documentation to improve developer efficiency.

Penn State Advanced Vehicle Team

State College, PA, USA

Member

February 2025 - Present

- Worked as part of the Perception Team to build ROS2-based algorithms detecting and tracking traffic lights, signs, road markings, parking spaces, and static/dynamic obstacles with >90% accuracy.
- Developed multi-sensor fusion and localization systems combining LiDAR, radar, camera, and IMU to ensure accurate navigation under degraded GPS conditions.
- Contributed to competition-ready frameworks including CAN message integration and perception pipelines aligned with SAE Year 4/5 challenge requirements.

PennState University

University Park, PA, USA

Research Assistant

September 2025 - Present

- Research Assistant on a project integrating Reinforcement Learning (RL) into a multi-stage large language model (LLM) system for code and content verification.
- Designed the RL layer that leverages reports from a secondary LLM to generate improved prompts and feedback signals for the primary LLM.
- Worked within a pipeline where outputs from the main LLM are analyzed by compilers and static analysis tools (Compiler, Klee, CodeQL) before refinement through RL.

Elevatoz Loyalty

Bengaluru, KA, India

Intern

June 2024 - August 2024

- Applied SQL and Python (pandas, NumPy) to extract, manipulate, and analyze large datasets for business intelligence and customer insights.

PROJECTS

Self-Heal System

June 2025 - Present

- Reduced manual debugging effort by 40% via an AI-driven error-handling pipeline that intercepts and logs system errors, converts them into FAISS embeddings, and retrieves fixes with GPT-4o.
- Built an interactive troubleshooting chatbot allowing users to query past errors and track recurring issues.

Photobot

May 2025 - Present

- Created an AI-powered photography assistant using RAG + LangChain to provide DSLR/mirrorless settings tailored to context (e.g., astrophotography, sports).
- Cut configuration decision time by 60% through semantic retrieval from PDF manuals.

Swipeflix

January 2025 - Present

- Built a personalized movie/TV recommender using quiz-based profiling + real-time swipe feedback, improving recommendation accuracy over time with TensorFlow.js.
- Developed a responsive React frontend with smart filters for language, age rating, and genre.

Prompt Tracer

July 2025 - Present

- Designed a browser extension to optimize AI prompts across ChatGPT, Claude, Grok, and Gemini with real-time scoring and recommendations.
- Implemented privacy-first architecture with local processing and cross-platform integration.

HackPSU(Oct 2024)

CourseScheduler

- Developed an NLP-powered academic planner with Node.js + MongoDB backend and React/Tailwind CSS frontend for conflict-free graduation scheduling.

HONORS/AWARDS

Dean's List Fall 2023, Spring 2024