SIDDHANTA MOHANTY

+1 (814) 280-7096 | siddhantamohanty22@gmail.com | State College, PA, USA | linkedin.com/in/siddhanta-mohanty-13aa92222

ABOUT ME

I'm a senior at Penn State majoring in Computer Science with a minor in Mathematics, passionate about building thoughtful systems that solve real-world problems. I've developed a self-healing backend that uses GPT-4o and vector search to turn raw error logs into human-readable insights—complete with a chatbot interface for interactive debugging. My work also explores how AI tools can simplify everyday decisions, like recommending camera settings in dynamic environments through Photobot. Whether refining autonomous-vehicle perception modules or working on collaborative side projects, I'm drawn to challenges where structure, curiosity, and creativity quietly make life easier. I enjoy exploring new ideas and keeping up with breakthroughs that challenge how we think about technology and its possibilities.

EDUCATION

Pennsylvania State University - University Park **August 2022 - May 2026**
Bachelor's, Computer Science *GPA: 3.36*
- CMPSC465: Data Structures and Algorithms; CMPSC461: Programming Language Concepts; CMPEN331: Computer; CMPSC442: Artificial Intelligence

CERTIFICATIONS

AI For Everyone – Coursera
Issued by: DeepLearning.AI
Completion Date: [May, 2024]

- The meaning behind common AI terminology, including neural networks, machine learning, deep learning, and data science
- Gained foundational knowledge of AI, machine learning, and deep learning
- Learned to identify realistic AI applications and limitations
- Explored AI-driven problem-solving strategies for organizations
- How to work with an AI team and build an AI strategy in your company
- How to navigate ethical and societal discussions surrounding AI

PROFESSIONAL EXPERIENCE

HCL Technologies **Remote**
GenAI Intern *May 2025 - July 2025*
- Designed and deployed a Model Context Protocol (MCP) system that enables LLMs to autonomously execute dynamic, multi-step workflows across APIs, file systems, and databases using structured context prompts and LangChain agents.
- Engineered an agentic RAG pipeline utilizing dual vector databases—one for historical error embeddings and another for internal documentation (e.g., Confluence)—to support contextual reasoning and automated solution generation.
- Integrated a chatbot assistant with access to the system's database, enabling users to interactively troubleshoot, explore related incidents, and escalate persistent issues—all without requiring manual error definitions.
- Created Photobot, an AI-powered camera assistant chatbot using RAG and LangChain, capable of recommending DSLR settings based on user queries and parsed camera manuals.

Penn State Advanced Vehicle Team **State College, PA, USA**
Member *February 2025 - Present*
- Develop and optimize algorithms for object detection, road marking recognition, and localization using Python, C++, and OpenCV to enhance autonomous vehicle perception.
- Integrate data from cameras, radar, LiDAR, and GNSS with ROS (Robot Operating System) and PCL (Point Cloud Library) to improve perception accuracy.
- Process real-time sensor data using NumPy, Pandas, and MATLAB for improved autonomous vehicle decision-making.
- Collaborate with a multidisciplinary team to refine perception pipelines and enhance system performance using Git and Docker for efficient development.

Elevatoz Loyalty **Bengaluru, KA, India**
Intern *June 2024 - August 2024*
- Extracted and manipulated large datasets using SQL (basic functions) to generate actionable insights for business intelligence purposes. Learnt about how the company strategizes and builds model to help clients retain customers.
- Built and deployed machine learning models using Python libraries (e.g., scikit-learn, pandas, NumPy) for predictive analytics on customer behavior data from the datasets present on Kaggle. Utilized Kaggle for hands-on machine learning projects

PROJECTS

Self-Heal System *June 2025 - Present*
- Developed a robust error-handling pipeline that intercepts system errors in real-time, logs them with detailed context, and converts them into vector embeddings using FAISS for semantic retrieval—cutting manual debugging by 40% and improving response time for non-technical users."
- Used GPT-4o to generate clear, plain-English explanations and actionable fix suggestions—designed to support users without deep technical expertise.
- Built a chatbot assistant integrated with the system's database, enabling users to ask follow-up questions, receive clarification, and track persistent or recurring issues over time.
- Designed for extensibility beyond databases, allowing seamless integration into any backend system where automatic error diagnostics and support are critical.

Photobot *May 2025 - Present*
- Built an AI assistant that answers user questions and recommends optimal camera settings based on PDF manuals of multiple camera models.
- Used LangChain + FAISS to semantically retrieve relevant content by environment (e.g., "Astrophotography", "sports photography" or "indoor concert") and respond with camera-specific suggestions using GPT-4.
- Created an intuitive frontend to query manuals for DSLRs, mirrorless, or point-and-shoots and receive detailed, model-specific configuration tips (ISO, shutter speed, white balance, etc.).

Swipeflix *January 2025 - Present*
- A web application designed to help users discover movies through an engaging, swipe-based interface inspired by popular dating apps. The platform aims to make movie selection fun and interactive, allowing users to quickly indicate their preferences and receive tailored recommendations.
- Simplifies the process of finding movies to watch by combining a visually rich, cinematic UI with personalized suggestion algorithms.
- Built with React for the frontend, Tailwind CSS for styling, and JavaScript for application logic. Utilizes browser local storage to save user preferences and quiz results, ensuring a personalized experience without requiring user accounts.

HackPSU(Oct 2024)
CourseScheduler
- Developed an academic planning tool using Node.js and MongoDB to manage complex degree requirements for students with multiple majors/minors.
- Built a React frontend using Tailwind CSS and NLP (Python) for conflict-free, personalized graduation planning.

HONORS/AWARDS

Dean's List Fall 2023, Spring 2024

SKILLS

Languages & Web: Python, C++, javascript, HTML/CSS, Tailwind CSS, JavaScript
Frameworks & Libraries: LangChain, Flask, FAISS, Pinecone, LLM, REST APIs, Postman, Streamlit
Tools: Git, Github, Docker, VS Code, cursor, GDB
AI Technologies: RAG, Agentic RAG, MCP Server, Vector DBs
Databases : MySQL, PostgreSQL

PROFESSIONAL REFERENCE

Abhinav Bhan
Senior Managing Director
Union Pacific Railroad