

Sagar Bhandari

sagar.bhandari@drake.edu | (515)-559-8204 | LinkedIn: [/in/realsagarbhandari](https://www.linkedin.com/in/realsagarbhandari/) | GitHub: [RealSagarBhandari](https://github.com/RealSagarBhandari)
Website: <https://sagarbhandari.vercel.app/>

EDUCATION

Drake University

Des Moines, Iowa

B.S. in Physics and Computer Science

Expected Graduation, May 2027

- **Minors:** Data Analytics and Mathematics
- **Related Coursework:** Machine Learning, Natural Language Processing, Data Structures & Algorithms, Linear Algebra, Artificial Intelligence, Differential Equations, Quantum Mechanics, Multivariable Calculus, Statistics & Applications, Human Computer Interface, Computational Physics

TECHNICAL EXPERIENCE

LLM-Based Physics Assistant (Professor Absolute Zero)

Python, LangChain, Ollama, Streamlit

- Designed and developed a local LLM-powered conversational agent with persistent memory using LangChain and Ollama (LLaMA3)
- Engineered advanced prompt architecture and system-level behavioral constraints to enforce consistent persona and contextual responses
- Implemented conversation state management, dynamically managing and injecting message history into the LLM context window
- Built dual interfaces, which include a Streamlit-based real time UI and a lightweight CLI for rapid testing

PURE RAGE – Full-Stack Battle Game (Lead Developer)

Python, Flask, SQL, JavaScript, Azure SQL, CSS

- Led development of a full-stack turn-based battle game with Flask backend and interactive JavaScript frontend
- Built RESTful APIs with authentication and session management
- Architected highly scalable character and combat system using JSON-driven configurations and object-oriented design
- Integrated Azure SQL database with dynamic query execution and fallback mock environment for local testing
- Implemented automated testing pipelines for backend validation using Pytest

PROJECTS

Stellar Classification (SDSS DR17 Dataset)

Python, Scikit-learn, Pandas, NumPy

- Analyzed and built an end-to-end ML pipeline to classify 100k+ celestial objects (stars, galaxies, quasars)
- Performed comparative analysis using various models, including kNN, Decision Trees, and Random Forest, and achieved >97% accuracy by using feature scaling, and used confusion matrices to analyze the results

Deep Learning: Image Classification (MLP vs CNN)

Python, PyTorch, Matplotlib

- Implemented and compared MLP and CNN architectures on CIFAR-10 dataset (60K images)
- Built custom training loops including forward/backpropagation and optimization pipelines
- Analyzed trade-offs between model complexity and spatial feature preservation

Natural Language Processing & LLM Systems

HuggingFace Transformers

- Developed multiple NLP pipelines including sentiment analysis, emotion classification, and summarization
- Evaluated transformer models using precision, recall, F1-score, and confusion matrices
- Designed benchmarking frameworks to analyze model limitations in reasoning and instruction-following
- Explored tokenization strategies (BPE, subword models) and their impact on language modeling

SKILLS

Programming: Python, Java, SQL, JavaScript, MATLAB,

Tools: Jupyter Notebooks, Git, LangChain, Ollama, HuggingFace Transformers, Scikit-learn, PyTorch, Pandas, NumPy, NetworkX, Streamlit, Azure SQL .