

Swastika Bhattacharjee

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EDUCATION

University of Kalyani

B.Tech in Electronics and Instrumentation Engineering (EIE)

Kalyani, West Bengal

2024 – 2028

EXPERIENCE

Research Intern (Autumn Internship)

IDEAS-TIH, Indian Statistical Institute (ISI) Kolkata

Kolkata, West Bengal

Aug 2025 – Nov 2025

- **Guide:** Mr. Avijit Guha | **Project:** The Fitness Guide Agent
- Completed a 10-week internship focusing on Agentic AI systems, developing a health recommendation engine.
- Attended 30+ hours of specialized training in Machine Learning (Regression/Classification), Deep Learning, and NLP fundamentals.
- Successfully submitted a project report and received certification for 120+ hours of dedicated research and development work.

PROJECTS

GenZ AI Chatbot (Agentic AI) | Python, Streamlit, Gemini API, Tool Calling

[Live Demo](#) | [GitHub](#)

- Engineered a persona-driven AI agent using **Google Gemini 2.5 Flash**, utilizing advanced system prompting to strictly enforce linguistic patterns (slang, emojis) without breaking character.
- Implemented **custom tool-calling logic** that autonomously detects user intent to trigger a "Meme Generator" function, dynamically rendering images alongside text.
- Developed a responsive frontend with **Streamlit**, utilizing session state for context retention and Streamlit Secrets for secure API key management.

NeuroFlow - ADHD Friendly Assistant | Python, Langflow, Streamlit, OpenAI/Gemini

[Live Demo](#) | [GitHub](#)

- Developed an accessible AI productivity tool designed to reduce cognitive load for neurodivergent users by breaking complex goals into manageable micro-tasks.
- Integrated **LangFlow** to orchestrate agentic workflows that adaptively guide users through tasks using a non-overwhelming, step-by-step interface.
- Designed a clean, distraction-free UI using Streamlit to enhance user focus and task completion rates.

The Fitness Guide Agent (ISI Internship Project) | Python, Streamlit, Data Science

[Live Demo](#) | [GitHub](#)

- Developed "The Fitness Guide Agent" under the guidance of Mr. Avijit Guha at ISI Kolkata, focusing on personalized wellness.
- Integrated **Streamlit** for widget handling and database management to create an interactive health recommendation system.
- Utilized Machine Learning techniques for data visualization and personalized user feedback based on health metrics.

Mini GPT (LLM from Scratch) | Python, PyTorch, Transformers

[GitHub](#)

- Implemented a character-level **Generative Pre-trained Transformer (GPT)** from scratch using **PyTorch**, building core components like Self-Attention, Multi-Head Attention, and LayerNorm manually.
- Trained the model on the **Tiny Shakespeare dataset** to generate coherent, Shakespearean-style text, optimizing hyperparameters to minimize validation loss.

Amazon Sentiment Analysis (NLP) | Python, NLTK, Scikit-learn, Pandas

[GitHub](#)

- Developed a sentiment analysis pipeline to classify customer reviews, implementing text preprocessing (tokenization, stop-word removal, lemmatization) using **NLTK**.
- Trained and evaluated classification models (Naive Bayes, Logistic Regression) using **Scikit-learn** to detect positive and negative sentiment patterns.
- Visualized dataset insights and sentiment distributions using **Matplotlib** and **Seaborn** to drive data-driven decision making.

TECHNICAL SKILLS

Languages: Python, C++, JavaScript, SQL

AI & LLM: Agentic AI (CrewAI, LangGraph, LangFlow), PyTorch, Transformers, RAG, Gemini API, OpenAI API

Web Development: Streamlit, Django, FastAPI, Next.js, Astro, HTML/CSS

Developer Tools: Git, GitHub, VS Code, Google Cloud Platform (GCP), Streamlit Cloud

ACHIEVEMENTS

LeetCode: Solved 850+ coding problems; consistent problem solver.

Content Creation: Run a YouTube channel (@Swastika-j6x) documenting AI/ML learning journey and project showcases.