Shivam Kumar Singh

Roll No.: 210150022
B.Tech - Data Science and Artificial Intelligence
Minor in Computer Science and Engineering
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Education

Degree/Certificate	Institute/Board	CGPA/Percentage	Year
B.Tech. Major	Indian Institute of Technology, Guwahati	8.51 (Current)	2021-Present
B.Tech. Minor	Indian Institute of Technology, Guwahati	8.00 (Current)	2021-Present
Senior Secondary	CBSE Board	91.6%	2020
Secondary	CBSE Board	93.8%	2018

Experience

- **Adobe** *May 2024 - Jul. 2024*
  Product Intern in Adobe InDesign Noida
  - **Prompt Engineering:** Crafted and iteratively refined prompts for various tasks such as summarization, bullet point creation, elaboration, and rephrasing, specifically tailored for LLMs like GPTs.
  - **LLM Response Evaluation Framework:** Developed a framework to assess the accuracy of LLM-generated responses, utilizing sentence embedding techniques and similarity metrics to ensure precise outcomes based on user input.
  - **Harm and Bias Filtering:** Enhanced prompts to prevent the generation of harmful or biased content, and evaluated the effectiveness of various LLMs in filtering such inputs.
  - **Implementation Workflow:** Designed a comprehensive workflow for generating multiple responses in a single API call, including selecting LLM models and estimating essential parameters such as MaxToken, Temperature, MaxWords, etc. based upon user input and action.
  - **UXP Panel Integration:** Developed a React-based Text-to-Copy panel for seamless integration into the InDesign app, featuring capabilities like summarization, bullet point creation, elaboration, and rephrasing.

- **MFSDSAI** *April 2023 - May 2024*
  ***UG representatives** in Web Developement, under Prof. Neeraj Kumar Sharma* IIT Guwahati
  - Contributed many features, improved Codebase & assist in maintaining our School Website by working together with Web Team.

Projects

- **Multi-modal Deepfake Detection** *July 2024 - May 2025*
  Bachelor Thesis Project under Prof. Prashant W. Patil Ongoing
  - Developing a multimodal deepfake detection system to classify videos as visual/audio fake or real, utilizing **cross-modal dependencies** for comprehensive analysis.
  - Building capabilities to identify specific types of **visual manipulations**, including face-swaps, face-reenactment, and attribute manipulation.
  - Enhancing detection accuracy through advanced model architectures to improve robustness against sophisticated deepfake techniques.

- **Crop And Fertilizer Recommendation System** *March 2024 - April 2024*
  Internet of Things Course Project Github
  - A **IoT** System using **ESP32** to collect agricultural data (N, P, K, Temperature, Humidity, Rainfall) via **MicroPython**.
  - Implemented **MQTT communication** with **HiveMQ broker** for real-time data publishing and subscribing.
  - Integrated **MongoDB** to store and manage agriculture data received from MQTT clients.
  - Trained multiple ML models **(Decision Tree, Naive Bayes, SVM, Logistic Regression, Random Forest, XGBoost)** for Crop and Fertilizer Recommendation.

- **MERN-Chat-App** *June 2023 - July 2023*
  Coding Club, IIT Guwahati Github | Website
  - Developed personal/group chat with real time messaging using **Socket.io** & store it in **MongoDB** for efficient storage.
  - Build fully responsive and interactive UI using **React** and **Tailwind** & used **Express.js** to manage servers and routes.

- **Departmental Research Portal** *March 2023 - May 2023*
  DBMS Course Project, under Prof. Debanga Raj Neog Github | Website
  - Used **PHP** in backend, **MySQL** as a database & Build a responsive UI using **Bootstrap**.
  - User can search for any Research Paper, Research Domain, Professor or Year, will get filtered tabular result containing Paper Title, Professor, Publisher, Conference, etc. & plot result - No. of Research Paper per Professor and Domain.
  - An analysis page contains plots using **CanvasJS** about the count of Research Paper & Citations per Professor & Domain.

- **Disease Prediction & Medicine Reccomodation** *October 2023 - December 2023*
  Big Data Analytics Course Project Github
  - Developed a Disease Prediction System integrating frontend technologies (HTML, CSS, JavaScript, Bootstrap) with **Python Flask** as the backend, leveraging machine learning algorithms including **Multinomial Naive Bayes**, **Decision Tree**, and **Random Forest** for accurate disease prediction based on symptoms.
  - Implemented web scraping techniques using **BeautifulSoup** and dynamic content extraction with **Selenium** to retrieve comprehensive disease descriptions and medicine prescriptions from external sources, enhancing the system's capability to provide detailed medical information to healthcare professionals and individuals.

Technical Skills

- **Programming**: C/C++, Python, JavaScript, PHP, R
- **Data Science**: Pandas, Matplotlib, Numpy, Seaborn
- **ML & DL**: PyTorch, Keras, TensorFlow, Sklearn
- **Web Development**: HTML, CSS, React, Node.js
- **Database Management**: MySQL, MongoDB
- **Miscellaneous**: Next.js, Express.js, Bootstrap, Tailwind, Mongoose, Socket.io
- **Operating System**: Windows, MacOS, Linux

Key courses taken

- **Computer Science**: Introduction to Computing*, Automata Theory, Data Structure and Algorithm*, Database Management System*, Computer Network, Operating System, Software Engineering, Privacy & Information Security
- **Data Science**: Introduction to Data Science*, Statistical Foundation for Data Science, Big Data Analytics: Tools & Techniques*, Multi-modal Data Processing & Learning, Applied Time Series Analysis, Data Visualization Lab, Data Analytics for Finance, Bioinformatics
- **Artificial Intelligence**: Introduction to Artificial Intelligence*, Python Programming Laboratory, Machine Learning*, Internet of Things*, Deep Learning*, Data Mining*, FATE in AI Models, Recommendation System
- **Mathematics**: Linear Algebra, Basic Calculus, Discrete Maths, Probability & Random Processes, Introduction to Optimization

** (Theory + Lab)*