SUBHOSHRI PAL

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Education

Indian Institute of Engineering Science and Technology, Shibpur   **August 2023 – Present**
BTech Course in Information Technology; CGPA: 9.2   *Shibpur, West Bengal*

Sun Valley International School   **April 2021 – March 2023**
Higher Secondary Diploma; Percentage: 95.6   *Ghaziabad, Uttar Pradesh*

Experience

Research Intern, Department of Electrical Engineering   **May 2025 – Present**
Indian Institute of Technology, Kharagpur   *Kharagpur, India*

- Conducting research on MRI reconstruction using FastMRI's multicoil dataset (14,000+ k-space slices).
- Handling .h5 files in PyTorch, and developing hybrid encoder-decoder architectures by integrating Swin Transformer encoders with CNN decoders in TransUNet model.
- Optimizing SSIM and PSNR scores, with regular presentation of progress and findings in weekly lab meetings.

Projects

Spam Detection | *Machine Learning, Scikit-learn*   **May 2025**

- Built an NLP-based spam detection pipeline using Scikit-learn with Logistic Regression and Naive Bayes, achieving 98.09% accuracy on the SMS Spam Collection dataset.
- Processed 5,572 SMS messages using TF-IDF vectorization; evaluated performance with precision, recall, and F1-score.
- Developed a command-line tool for real-time spam classification; scoped future upgrades using BERT and LSTM for enhanced model performance.

Contextual Chatbot | *Python, Flask, Machine Learning*   **December 2024**

- Engineered a chatbot using Flask, HTML, CSS, and JavaScript, featuring real-time message exchange.
- Integrated Backend Logic to process user inputs via Flask endpoints, ensuring smooth communication and enabling scalability for advanced AI/ML models.
- Designed Responsive UI with fixed backgrounds, seamless styling, and locally hosted resources to enhance reliability and user engagement.

Quidditch Quest | *HTML, CSS, Javascript*   **June 2024**

- Developed a side-scrolling web game with obstacles and interactive trivia challenges with real-time scoring inspired by the Harry Potter universe.
- Designed a responsive UI using HTML5, CSS3, and JavaScript, enhancing the gameplay experience with custom buttons and animations.
- Secured 4th place in the Web Game Challenge at IIEST Shibpur among 50+ participants.

Skills Summary

Languages: Python, C, C++, SQL, Javascript, MATLAB
Frameworks/Libraries: TensorFlow, PyTorch, Scikit-learn, Flask
Tools: Git, GitHub, VS Code, Google Colab, Jupyter Notebook

Achievements

Tensor Quest, IIEST Shibpur   **January 2025**
Led a team of 4 to secure 3rd place in Tensor Quest, a 50-hour Machine Learning Hackathon at IIEST Shibpur by delivering a working model under time constraints.

DataThon, IIEST Shibpur   **March 2024**
Secured 3rd place in Machine Learning Hackathon at IIEST Shibpur, constructing a predictive model in identifying data patterns of customers in retail.

Certificates

Certification of Clean and Prepare Data for Analysis | *MATLAB*   **March 2025**

Certification of Participation in MUN 2025 | *IIT Guwahati*   **February 2025**

Certification of Data Science Foundations | *Great Learning*   **May 2024**