DEBYENDU ROUTH

M.Sc. in Big Data Analytics
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🌐 Portfolio

PROJECTS

- **MathSage-AI:** LangGraph-Powered Agentic AI Workflow
  July 2025 - Aug 2025
  - **Tools:** LangChain ,LangGraph,IPython , Google API Key
  - **Models:** Google Generative AI model
  - **Agents:** Router Agent, Search Agent , Math Agent , Summarizer Agent.
  - **Features Of Workflow:** Automation, Branching, Looping,State Updating.

- **RAG , LLM And GenAI For Locally Question Answering:** Life Counsellor Using RAG In Light Of Swami Vivekananda's Teachings
  Ongoing
  - **Tools:** LangChain , Ollama, ChromaDB , JuPyter Notebook, Streamlit
  - **Models:** Sentence Embedding Models And LLM From LangChain
  - **Workflow:** PDF Loading, Document Identification, Dynamically Chunking Of Text, Vectorization, Retrieval , Augmentation, Feeding Chunks To LLM.

- **Stock Price Prediction:** Stock Price Prediction-A Regression Task
  Sep 2024 - Nov 2024
  - **Tools:** NumPy, Pandas, Matplotlib, scikit-learn
  - **EDA:** Feature Space Dimension Checking ,Nan-value Checking, Data Description, Multicollinearity Checking, Z-Score Normalization.
  - **Models:** Multiple Linear Regression , Regularized version of Linear Regression like ridge , Lasso and Elastic-Net.

- **Diabetes Prediction:** Diabetes prediction - A Classification Task
  Sep 2024 - Nov 2024
  - **Tools:** NumPy, Pandas, Matplotlib,seaborn, scikit-learn
  - **EDA:** Nan-value Checking, Class-Counts, Z-Score Normalization , Visualization of data through Pie-Chart and Bar-Chart, Visualization of overlapping of the classes through PCA projected data in 3D.
  - **Models:** SVM(With different kernels) With Confusion matrix , AUC-ROC curve , Decision Tree , Random Forest(Bagging) , KNN , Voting.

- **Brain Tumor Detection:** Brain Tumor Detection Using DL Model
  Jan 2025 - May 2025
  - **Tools:** NumPy, Pandas, Matplotlib,seaborn, scikit-learn,PyTorch
  - **EDA:** Visualizing The data (Images) , Class distribution through pie-chart and bar-chart.
  - **Models:** Developed a Custom CNN model .Implemented Transfer learning , finetuning the pre-trained model ResNet18,and compared the devoloped custom model(CNN) with the pre-trained ResNet18 model.

- **Facial Emotion Detection:** Facial Emotion Detection Using CNN
  Jan 2025 - May 2025
  - **Tools:** NumPy, Pandas, Matplotlib,seaborn, scikit-learn,PyTorch
  - **Model:** Developed a custom CNN model .

COURSEWORK

- ML,Deep Learning And NLP
- Probability And Statistics
- Econometrics & Finance
- Reinforcement Learning
- DBMS And Time Series

EXPERIENCE

- **Teaching Experience**
  - Taught Python At Udaynarayanpur Madhabilata Mahavidyalaya

EDUCATION

- **Ramakrishna Mission Vivekananda Educational and Research Institute, Howrah**
  M.Sc. in Big Data Analytics
  📅 2024 – Present   (Sem-1) CGPA: 7.04

- **Ramakrishna Mission Vivekananda Educational and Research Institute, Howrah**
  M.Sc. in Mathematics
  📅 2022 – 2024   CGPA: 9.14

- **Udaynarayanpur Madhabilata Mahavidyalaya**
  B.Sc in Mathematics
  📅 2018 – 2021   CGPA: 7.854

- **Khalatpur High Madrasah**
  Indian School Certificate (10+2)
  📅 2016 – 2018   Score: 83.4%

- **Udaynarayanpur Sarada Charan Institution(10)**
  📅 2016   Score: 74.8%

ACHIEVEMENTS

- **NPTEL: Joy of Computing with Python** – Secured a position in the **Top 5%** of learners nationwide

- **GATE Qualified in Mathematics** – Qualified the Graduate Aptitude Test in Engineering (GATE) in the Mathematics stream

- **Power BI for Beginners (Udemy)** – Completed a certified course covering data visualization, dashboards, Power Query, and DAX basics

- **Python and R (Level-1), Ramakrishna Mission Vidyamandira** – 40-hour certification (Apr–Jun 2023)

TECHNICAL SKILLS

- **Programming Languages:**Python, SQL, LaTeX

- **Libraries and Frameworks:** Pytorch,OpenCV,scikit-learn,Seaborn,PySpark,NumPy,Pandas, Matplotlib,Ollama and LangChain,LangGraph

- **Tools:**Git/Github, Power BI, MS Office, MS Excel

- **Operating System:**Windows, Linux (Ubuntu)

HOBBY

- Exploring spiritual texts , philosophical insights And Playing cricket