

# DEBYENDU ROUTH

M.Sc. in Big Data Analytics

Ramakrishna Mission Vivekananda Educational and Research Institute, Belur Math, West Bengal, India

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Portfolio

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## PROJECTS

- **RAG , LLM And GenAI For Locally Question Answering:** Life Counselor Using RAG In Light Of Swami Vivekananda's Teachings  
Ongoing
  - **Tools:** LangChain , Ollama, ChromaDB , JuPyter Notebook
  - **Models:** Sentence Embedding Models And LLM From LangChain And Ollama
- **Stock Price Prediction:** Google 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, Data Description, Class-Counts, Feature Space Dimension Checking ,Z-Score Normalization (Before PCA Projection), Visualization of data through Pie-Chart and Bar-Chart, Visualization of overlapping of the classes through PCA projected data in 2D and 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:** Devolped a Custom CNN model .Implemented Transfer learning , finetuning the pre-trained model ResNet18,and compared the devolped 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

- Deep Learning And NLP
- Computer Vision
- Time Series & Survival Analysis
- Machine Learning
- Probability And Statistics
- Econometrics & Finance
- Reinforcement Learning
- Database Management System
- Linear Algebra

## 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,  $\text{\LaTeX}$
- **Libraries and Frameworks:** Pytorch,OpenCV,scikit-learn,Seaborn,PySpark,NumPy,Pandas, Matplotlib,Ollama and LangChain
- **Tools:**Git/Github, Power BI, MS Office, MS Excel
- **Operating System:**Windows, Linux (Ubuntu)

## HOBBY

- Exploring spiritual texts , philosophical insights
- Playing cricket