AVIRUP DAS

M.Sc in Big Data Analytics
RKMVERI, Belur Math, West Bengal, India

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PROJECTS

- **Real-Time AI-Powered Sun Salutation Coach(Ongoing)**
  OpenCV | MediaPipe | CNN [Link] *June 2024 - Ongoing*
  - Developed a real-time system for Sun Salutation guidance, leveraging **MediaPipe** and a **Quadtree CNN** for accurate pose recognition.
  - Implemented multi-dimensional pose assessment (static and transition quality) with **AI-powered natural language feedback** via the **Gemini API**.
- **Speech Emotion Recognition**
  Deep Learning | ANN | CNN [Link] *Jan 2025 - May 2025*
  - Developed a deep learning-based Speech Emotion Recognition system using ANNs and CNNs on RAVDESS, CREMA-D, and SAVEE datasets.
  - Implemented extensive MFCC feature extraction and data augmentation to enhance model generalization and robustness.
  - Evaluated model performance with accuracy, precision, recall, and F1-score, demonstrating improved human-computer interaction through emotion interpretation.
- **AirDraw: AI-Enhanced Touchless Gesture Drawing System**
  OpenCV | MediaPipe Hands | AI (Gemini)[Link] *Jan 2025 - May 2025*
  - Developed a real-time system for touchless drawing using **MediaPipe Hands** for gesture recognition on a virtual canvas.
  - Integrated **Google Generative AI (Gemini)** to provide intelligent, contextual feedback on drawings via dynamic prompts for versatile applications.
  - Implemented intuitive gesture controls for drawing, input confirmation, and canvas management, showcasing advanced human-computer interaction.
- **Graph-Based Hybrid Recommendation System**
  Neo4j | Python | Pandas | Scikit-learn | TF-IDF | Cosine Similarity [Link] *Jan 2025 – Apr 2025*
  - Built a hybrid recommendation engine combining **content-based**, **collaborative**, and **session-based** filtering approaches using graph modeling.
  - Modeled user-item interactions with **Neo4j**, leveraging Cypher queries and cosine similarity for personalized recommendations.
  - Engineered TF-IDF vectors on genre metadata and implemented user-user/item-item/session-item similarity to enhance accuracy across recommendation modes.
- **Pneumonia Classification Using Machine Learning**
  Scikit-learn | OpenCV | Matplotlib[Link] *Sep 2024 - Nov 2024*
  - Developed and evaluated multiple Machine Learning models (SVM, Random Forest, Bagging, Voting Classifier) for binary classification of pneumonia from chest X-ray images.
  - Implemented comprehensive data preprocessing, including class balancing (upsampling) and image resizing (64x64 pixels) for optimal model input.

COURSEWORK

- Machine Learning
- Deep Learning and NLP
- Computer Vision
- Data Structures and Algorithms
- Probability and Stochastic Process
- Finance and Econometrics
- Time Series
- Deep Reinforcement Learning
- DBMS
- Mining of masive dataset

ACHIEVEMENTS

- Gold Medal (1st Class 4th Position) Graduation, RKMRC,2024
- Top 5% in NPTEL,Joy of Computing with Python
- Ray Martin Scholarship-Awarded for WBBSE 2019
- NMMSE Scholaraship-Awarded forqualifying the NMMSE 2016

EXPERIENCE

Summer Research Intern

FLAME UNIVERSITY

June 2025 - July 2025 | Pune, India

Real-time interactive system for the **"Sun Salutation Pose Guide"**. under the supervision of Dr. Chiranjoy Chattopadhyay.

EDUCATION

- **Ramakrishna Mission Vivekananda Educational and Research Institute, Howrah**
  M.Sc in Big Data Analytics
  2024 – Present (Till Sem-1) CGPA: 8.10
- **Ramakrishna Mission Residential College , Narendrapur**
  B.Sc in Mathematics
  2021 – 2024 CGPA: 9.10
- **A.C Institution**
  Higher Secondary (10+2) |
  2019 – 2021 Score: 88.2%
- **Birampur High School**
  Secondary (10) |
  2013 – 2019 Score: 95.8%

TECHNICAL SKILLS

- **Programming Languages**: Python, C, R
- **Libraries & Frameworks**: Pytorch,OpenCV,scikit-learn,Seaborn,PySpark,Neo4j,Ray,NumPy,Pandas, Matplotlib,Unity
- **Operating System** : Windows,Linux(Ubuntu)

ACTIVITY

- **Placement Coordinator, RKMVERI**
  - Manage Placement Cell for the Batch of 2024-26
- **Chegg (Remote) - Subject Matter Expert (Mathematics)**
  - Provided detailed step-by-step solutions for Computer Science problems
- **Fest Organiser**
  - Core Committee Member **Perceptron 2025** Auction Group
  - Core Organizing Team Member **Infinity 2024** at RKMRC

HOBBY

- Reading Books , Watching Movies , Playing Cricket