

# AVIRUP DAS

M.Sc in Big Data Analytics

RKMVERI, Belur Math, West Bengal, India

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🌐 Portfolio



## PROJECTS

- **Real-Time AI-Powered Sun Salutation Coach**  
OpenCV | MediaPipe | (CNN-LSTM) [Link] *June 2024 - Ongoing*
  - Developed a real-time system for Sun Salutation guidance, leveraging **MediaPipe** and a **CNN-LSTM** for accurate 3D pose recognition and **dynamic sequence tracking**.
  - Implemented multi-dimensional pose assessment (static and transition quality) with **AI-powered natural language feedback** via the **Gemini API**.
  - System provides personalized visual (red/green skeleton) and textual corrections, enhancing user form and preventing injuries.
- **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.
- **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.
  - Achieved high classification accuracy (e.g., 86% with Random Forest) and optimized models using GridSearchCV for robust medical image analysis.

## COURSEWORK

- Machine Learning
- Deep Learning and NLP
- Computer Vision
- Data Structures and Algorithms
- Probability and Stochastic Process
- Finance and Econometrics
- Time Series

## ACHIVEMENTS

- 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 Scholarship-Awarded for qualifying 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