

SUDIPTA SARKAR

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Objective

A highly motivated Computer Science postgraduate student with a strong academic background and a deep interest in **Deep Learning, Computer Vision and Generative Modeling**. Proficient in multiple programming languages and theoretical computer science concepts. Enthusiastic about research and innovation, actively contributing to projects that push technological boundaries. Seeking opportunities to apply and enhance my skills in dynamic and collaborative environments.

Education

Ramakrishna Mission Residential College

M.Sc. in Computer Science with CGPA :- 10.00 out of 10.00

Sept. 2023 – Present

Narendrapur, Kolkata, India

Ramakrishna Mission Vivekananda Centenary College

B.Sc. in Computer Science with CGPA :- 9.72 out of 10.00

Sept. 2020 – May 2023

Rahara, Kolkata, India

Relevant Coursework

- Data Structures
- Design and Analysis of Algorithms
- Theoretical Computer Science
- Database Management
- Digital Image Processing
- Artificial Intelligence
- Machine Learning
- Deep Learning
- Computer Vision
- Generative Models

Technical Skills

Languages: C, C++, Python, Java, SQL

Developer Tools: VS Code, Jupyter Notebook, Qt Creator

Technologies/Frameworks: OpenCV, Numpy, Pandas, Scikit, TensorFlow, PyTorch, Linux, GitHub, LaTeX

Projects and Research works

Resource efficient Learning for Video Scene Understanding (RLV) | *PyTorch, Activity Detection* Ongoing

- Deep learning is crucial for applications like self-driving cars, virtual assistants, and healthcare but requires significant computational resources. While model, implementation, and arithmetic-level optimizations have been explored, we aim to develop resource-efficient deep learning techniques across these levels, identifying research gaps and future trends
- This is my final year M.Sc project work and it is being supervised by Dr.Abir Das, Assistant Professor at IIT Kharagpur

Image Steganography And Steganalysis | *Python, Steganography, Deep Learning, CNN, LSTM* Ongoing

- The goal of steganography is to insert a message into a carrier signal so that it cannot be detected by unintended recipients and Steganalysis attempts to discover hidden signals in suspected carriers or at the least detect which media contain hidden signals. Therefore, an important consideration in steganography is the robustness of a particular technique to detection. We review existing steganography and steganalysis techniques and discuss their limitations and some possible research directions.
- A more effective messages hiding technique by using Steganography hence, applying Steganalysis.
- Here our objective is to use some randomization in image hiding and apply some Optimizers (like PSO) to maximize the PSNR and NCC value, then Apply Steganalysis using CNNs and LSTMs .
- It is being supervised by Dr. Siddhartha Banerjee, Associate Professor at Ramakrishna Mission Residential College and Bibek Ranjan Ghosh, Associate Professor at Ramakrishna Mission Residential College.

Human Facial Expressions Detection | *Python, Deep Learning, CNN* May 2023

- Facial Expression Recognition (FER) is a computer vision task aimed at identifying and categorizing emotional expressions depicted on a human face. The goal is to automate the process of determining emotions in real-time, by analyzing the various features of a face such as eyebrows, eyes, mouth, and other features, and mapping them to a set of emotions such as anger, fear, surprise, sadness and happiness.
- The primary idea of our project is to process the input images of human facial emotion to train the model on datasets. In this project we can use a popular deep learning method (Convolutional Neural Networks) to identify the key human emotion .
- Validation Accuracy :- 61.25 percent after 42 epoch.

- This is my final year B.Sc project, supervised by Prasenjit Das, Assistant Professor at Ramakrishna Mission Vivekananda Centenary College and Dr. Chayan Halder, Assistant Professor (co-guide) at Ramakrishna Mission Vivekananda Centenary College.

Nuclei Segmentation using UNet | *Python, Deep Learning, UNet*

March 2023

- Cell nuclei segmentation is a fundamental task in microscopy image analysis, based on which multiple biological-related analyses can be performed. Although deep learning (DL) based techniques have achieved state-of-the-art performances in image segmentation tasks, these methods are usually complex and require the support of robust computing resources.
- This is my summer internship under Dr. Biswajit Biswas, Assistant Professor at Ramakrishna Mission Vivekananda Centenary College.

Community Service Experience

IT Sub-Committee Member Of Vidyarthi Sabha 2023- 2024

Sept. 2023 – Sept. 2024

IT Consulting

Narendrapur, Kolkata, India

- I am one of the IT Sub-Committee Member Of Vidyarthi Sabha at Ramakrishna Mission Residential College (Autonomous), Narendrapur.

Co-Organizer of Neuroverse Coding Competition

March 2023 – April 2023

Question Setter

Rahara, Kolkata, India

- Neuroverse is a coding competition organised by Ramakrishna Mission Vivekananda Centenary College, Rahara. I am one of the problem setters of this coding competition.

Achievements

- **Selected for National Scholarship for Post Graduate Studies** Oct 2024
 - Awarded to the top 10,000 students per year across India.
- **3rd Rank in RKMVERI M.Sc Admission Test** June 2023
 - Ramakrishna Mission Vivekananda Educational and Research Institute, Belur Math, Howrah, India
- **3rd Rank Holder in B.Sc Course** May 2023
 - Ramakrishna Mission Vivekananda Centenary College, Rahara, Kolkata, India
- **1st Rank in Intra College Coding Competition** May 2022
 - Ramakrishna Mission Vivekananda Centenary College, Rahara, Kolkata, India

Research Interests

- Computer Vision
- Deep Learning
- Generative Models
- Pattern Recognition
- Video Action Recognition
- Activity Detection

Languages

- English (Professional working)
- Hindi (Elementary proficiency)
- Bengali (Native proficiency)

Interests

- Coding
- Reading
- Cricket

Referees

• Dr. Chayan Halder

- Assistant Professor, Department of Computer Science
- Ramakrishna Mission Vivekananda Centenary College, Rahara, Kolkata, India
- Email: chayan.comp@rkmvccrahara.org

• Dr. Siddhartha Banerjee

- Associate Professor and Head of the Department, Department of Computer Science
- Ramakrishna Mission Residential College, Narendrapur, Kolkata, India
- Email: sidd0102@yahoo.com