SAPTARSHI MANDAL

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EDUCATION

Indian Institute of Science, Bengaluru, Karnataka — Enrolled: July 2023 — Expected: June 2025
M.Tech in Signal Processing — *CGPA: 8.8/10*

Jadavpur University, Kolkata, West Bengal — Enrolled: August 2018 — Completed: May 2022
B.E (Hons.) in Electrical Engineering — *CGPA: 9.12/10.0*

EXPERIENCE

CESC Limited, Kolkata, West Bengal — July 2022 - June 2023
Management Trainee

- 6kV, 11kV, 3.3kV, 20kV HT Cable Fault Management
- 1.1kV UG Cable Joint Inspection

CESC Limited, Kolkata, West Bengal — June 2021 - July 2021
Summer Intern

- Identified and Analyzed the problems arising from over-voltage and under- voltage in station LTAC Network of EHV Substations and Distribution Stations under CESC Ltd.
- Study of Protection Co-ordination and Standardization in station LTAC Network of EHV Substations and Distribution Stations under CESC Ltd.

PROJECTS

1. **Exploring the Impact of Image Pre-Processing on Human Face Detection in Poor Quality Images**
   Associated with IISc Bangalore, Bangalore | Prof. Soma Biswas/ Prof Rajiv Soundarajan — Oct 2023 - Nov 2023
   - Implementation of Wiener Filtering, PCA, Non-Local Means based Image Reconstruction, and Haar-Cascade Detector for Face Detection.
   - Achieved IoU increase of 0.34 and Average Recall increase of 0.46 after Image Pre-Processing
2. **Time Frequency Analysis of Smartphone Sensor Data for User Identification**
   Associated with Jadavpur University, Kolkata | Prof. Sarbani Roy — August 2020 - March 2021
   - Feature Extraction using FFT and Short-Time Fourier Transform (STFT)
   - Proposed CNN Model demonstrates superior performance (Accuracy = 0.98, Precision = 0.96, Recall = 0.98 and AUC = 0.995) compared to LeNet, AlexNet and ZFNet for Gait Based User Identification
3. **Study of Voltage Disturbances and Protection Co-ordination in Station LTAC Network**
   Associated with CESC Ltd., Kolkata |Mr. Sujit Kumar Pathak — June 2021 - July 2021
   - Identification, analysis of the Surge Voltage and Fire-Fighting Pump Induction Motor Starting Problem in Different EHV Substations.
   - Study of the protection coordination scheme in the stations auxiliary LTAC (415V) networks of different EHV Substations and Distribution Stations.

PUBLICATIONS

1. **User recognition in participatory sensing systems using deep learning based on spectro-temporal representation of accelerometer signals**
   Knowledge-Based Systems, Elsevier — Dec 22, 2022
2. **Privacy protected user identification using deep learning for smartphone-based participatory sensing applications**
   Neural Computing and Applications, Springer London — Jul 21, 2021

Relevant Coursework

- Digital Image Processing
- Time Frequency Analysis
- Pattern Recognition and Neural Networks
- Random Process
- Linear and Non-linear Optimization
- Advanced Image Processing

- Introduction to Natural Language Processing
- Matrix Theory
- Detection and Estimation Theory
- Signal Processing in Practice

ACHIEVEMENTS

1. **GATE Rank in Electrical Engineering** 2022
   AIR 136 (Score - 828)
2. **First Prize in UNMESH-2021 (Flagship Internship program of CESC Ltd.)** 2023

TECHNICAL SKILLS

- **Language | Libraries/Tools: Python, MATLAB** | Numpy, Matplotlib, Keras, Sklearn, Pandas, CV2, Skimage, PyTorch, Scipy,
- **Domains:** NLP, Image/Video Processing (including Computer Vision), Signal Processing, Data Science.