Dr. Debasrita Chakraborty

debasritac@gmail.com
+91 9647518113
https://scholar.google.co.in/citations?hl=en&user=ff4DqA8AAAAJ
https://www.researchgate.net/profile/Debasrita_Chakraborty2
https://www.linkedin.com/in/debasrita-chakraborty-41a338b3/
C401, Green Manor, 45 Milan Pally, Deshapriya Nagar,
Belgharia, Kolkata 700056

Education

2015 – 2023 **Ph.D., Machine Intelligence Unit, Indian Statitical Institute, Kolkata, West Bengal, India** Thesis title: Feature Extraction using Autoencoders for Various Challenging Tasks of Pattern Recognition.

2012 – 2014 **M.Sc. Physics, University of Burdwan, Burdwan, West Bengal, India.**
Specialisation: *Nuclear and Particle Physics*. *First Class Honours.* 68.42%.

2009 – 2012 **B.Sc. (Hons) Physics, University of Burdwan, West Bengal, India.**
First Class Honours. 66.125%.

Employment History

Aug, 2022 – Present **Chanakya Post Doctoral Fellow.**
IDEAS-Technology Innovation Hub, Indian Statistical Institute, Kolkata, West Bengal-700108
Description: Developing smart traffic signal system for vehicle crowd detection and traffic monitoring

Aug, 2021 – July, 2023 **Machine Learning Engineer (Senior Lead).**
Codelogicx Technologies, Kolkata, West Bengal-700108
Description: Content Recommender Systems for *Storyscale*, Automatic Vehicle License Plate Verification System for *The 360*, ID Card Extraction and Authenticity Verification for *LPesa Microfinance*, Credit Scoring of Microfinance Customers *LPesa Microfinance*, Predictive AI ledger spreadsheet for *Proforce*

Jan, 2015 – Jul, 2015 **Project Linked Person.**
Machine Intelligence Unit, Indian Statistical Institute, Kolkata, West Bengal-700108
(Temporary position.)
Description: Object Tracking, Object Detection, Pattern Recognition

Sep, 2014 – Jan, 2015 **Post Graduate Teacher.**
Kendriya Vidyalaya No. 1, Salt Lake, Kolkata, West Bengal-700064
Description: Teaching Physics

Research Publications

Journal Articles

1. Chakraborty, D., Goswami, D., Ghosh, S., Ghosh, A., Chan, J. H., & Wang, L. (2023). Transfer-Recursive-Ensemble Learning for Multi-day COVID-19 Prediction in India using Recurrent Neural Networks. *Scientific Reports*, *13*(1), 6795.

2. Chakraborty, D., & Ghosh, A. (2022). Improving the Robustness of Federated Learning for Severely Imbalanced Datasets. *arXiv preprint arXiv:2204.13414*.

3. Chakraborty, D., Ghosh, S., & Ghosh, A. (2022). Autoencoder based Hybrid Multi-Task Predictor Network for Daily Open-High-Low-Close Prices Prediction of Indian Stocks. *arXiv preprint arXiv:2204.13422*.
4. Chakraborty, D., Ghosh, S., & Ghosh, A. (2021). Unsupervised Change Detection in Hyperspectral Images using Feature Fusion Deep Convolutional Autoencoders. *arXiv preprint arXiv:2109.04990*.
5. Chakraborty, D., Goswami, D., Ghosh, S., Ghosh, A., & Chan, J. H. (2021). Combination of Transfer Learning, Recursive Learning and Ensemble Learning for Multi-Day Ahead COVID-19 Cases Prediction in India using Gated Recurrent Unit Networks. *arXiv preprint arXiv:2108.09131*.
6. Ghosh, A., Chakraborty, D., & Roy, R. (2020). Activities of IEEE GRSS Kolkata Chapter [Chapters]. *IEEE Geoscience and Remote Sensing Magazine*, *8*(1), 160–165.
7. Chakraborty, D., Narayanan, V., & Ghosh, A. (2019). Integration of Deep Feature Extraction and Ensemble Learning for Outlier Detection. *Pattern Recognition*, *89*, 161–171.
8. Ghosh, A., Chakraborty, D., & Law, A. (2018). Artificial Intelligence in Internet of Things. *CAAI Transactions on Intelligence Technology*, *3*(4), 208–218.

Conference Proceedings

1. Chakraborty, D., Ghosh, S., Ghosh, A., & Ientilucci, E. J. (2023). Change Detection in Hyperspectral Images Using Deep Feature Extraction and Active Learning (M. Tanveer, S. Agarwal, S. Ozawa, A. Ekbal, & A. Jatowt, Eds.). In M. Tanveer, S. Agarwal, S. Ozawa, A. Ekbal, & A. Jatowt (Eds.), *Neural Information Processing, ICONIP 2022. Communications in Computer and Information Science*, Singapore, Springer Nature Singapore.
2. Chakraborty, D., Goswami, D., Ghosh, A., Chan, J., & Ghosh, S. (2021). Learning from Others: A Data Driven Transfer Learning based Daily New COVID-19 Case Prediction in India using an Ensemble of LSTM-RNNs, In *The 12th international conference on advances in information technology*.
3. Goswami, D., Law, A., Chakraborty, D., & Dey, A. (2020). Convolutional Neural Network for Prediction of COVID-19 from Chest X-ray Images, In *Csbio'20: Proceedings of the eleventh international conference on computational systems-biology and bioinformatics*.
4. Sahni, L., Chakraborty, D., & Ghosh, A. (2019). Implementation of Boolean AND and OR Logic Gates with Biologically Reasonable Time Constants in Spiking Neural Networks, In *Proceedings of the aaai conference on artificial intelligence*.
5. Chakraborty, D., Garg, D., Ghosh, A., & Chan, J. H. (2018). Trigger Detection System for American Sign Language using Deep Convolutional Neural Networks, In *Proceedings of the 10th international conference on advances in information technology*.

Skills

Languages	Strong reading, writing and speaking competencies for English, Hindi Bengali. Beginner level reading, writing and speaking competency for Hangul (Korean).
Programming	C, Python, Matlab, LaTeX
Expertise	Pattern Recognition, Computer Vision, Financial Forecasting, Remotely Sensed Data Analysis, Machine Learning and Data Mining. Flask, FastAPI, PySQL, AWS Sagemaker, Heroku, Keras, Tensorflow, Pandas, HTML Neural Networks, Deep Learning, Outlier Detection, Classification, Object Detection, Clustering, Ensemble Models, Feature Extraction, Feature Selection, Image Processing, Hyperspectral Image Processing, Transfer Learning, Time-series Prediction Models, Probabilistic Models, Natural Language Processing, Speech to Text, Chatbot, Statistical Evaluation.
Misc.	Academic research, teaching, training, consultation, LaTeX typesetting and publishing.

Miscellaneous Experience

Teaching Assistant

2019 Pattern Recognition and Image Processing course for M. Tech 2^{nd} Year during July, 2019 to December, 2019.

Internship Guide

Successfully managed and guided several research interns.

Lectures and Seminars Delivered

2019 **Deep Learning based Change Detection** at Workshop on Machine Learning and Big Data Analytics: Application to Remote Sensing, at Barad Sadan Academic Block, Sikkim University, Upper Tadong, Gangtok, Sikkim 737102

2017 **Hands-on tutorial on Deep Learning: RBM and Autoencoders** at Faculty Development Program on Shallow to Deep Learning at RCC Institute of Information Technology, Kolkata, West Bengal 700015

Certificates

2020 **AI in Healthcare**, Springer Nature

2019 **NVIDIA Deep Learning Institute Certificate of Competency** for demonstrating competence in the completion of Fundamentals of Deep Learning for Computer Vision, NVIDIA Deep Learning Institute

Awards and Achievements

2022 **First Winner**, Hyperspectral Image Classification (DLAI6 competition for hyperspectral image classification) `https://www.kaggle.com/competitions/hyperspectral-classification`

2020 **Third Winner**, DLAI3 Hackathon COVID-19 Chest x-ray challenge `kaggle.com/competitions/dlai3/overview`

2016 **Sangeet Bivakar**, Bangiya Sangeet Parishad, in Vocal Music

2009 **Merit Award**, All India 7th Rank in 10+2 Level Indian School Certificate (ISC) Examination, Council for the Indian School Certificate Examinations, New Delhi.

2007 **Hindi Scholarship**, Education Directorate, Bikash Bhavan, Bidhannagar, Kolkata 700091

Research courses attended with evaluation

- Data and Files Structure
- Computer Organization
- Discrete Mathematics
- Operating Systems
- Pattern Recognition and Image Processing
- Data Mining
- Computer Vision
- Research Methodology

References

Available on Request