Avideep Mukherjee

CONTACT
INFORMATION

RM-504, Rajeev Motwani Building,
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EXPERIENCE

Indian Institute of Technology Kanpur, Kanpur, India
❑ Senior Student Research Associate   August, 2022 - July 2024
❑ Tutor   January, 2019 - July, 2022
❑ Teaching Assistant   July, 2018 - July, 2023

LinkedIn Corporation, Bangalore, India
❑ Software Development Engineer Intern   June, 2021 - August, 2021

Indian Statistical Institute, Kolkata, India
❑ Summer Intern   May, 2017 - July, 2017

EDUCATION

Indian Institute of Technology Kanpur, Kanpur, India
❑ PhD in Computer Science and Engineering   July, 2018 - Present
    Advisor : Prof. Piyush Rai, Prof. Vinay P. Namboodiri (External)

Ramakrishna Mission Vivekananda Educational and Research Institute, Belur, West Bengal, India
❑ MSc in Computer Science   August, 2016 - June, 2018
    • Dissertation Topic: A Medoid-Based Weighting Scheme for Qualitative Improvement of Nearest Neighbor Decision Rule
    • Advisor: Dr. Tanmay Basu

Ramakrishna Mission Vidyamandira, University of Calcutta, Kolkata, West Bengal, India
❑ Bachelor of Science   July 2013 - May, 2016
    • Honours: Computer Science

RESEARCH
INTERESTS

Machine Learning, Deep Generative Modelling, Computer Vision

TECHNICAL
SKILLS

Python, LaTeX, R, MatLab, GNU Octave, NLTK Scikit-Learn, Keras, TensorFlow, PyTorch, DialogFlow, NVIDIA Jetson TX2, OpenCV, C, C++, Java, Shell Scripting

PUBLICATIONS

❑ **Mukherjee, Avideep**, Soumya Banerjee, Piyush Rai, and Vinay P. Namboodiri. "RISSOLE: Parameter-efficient Diffusion Models via Block-wise Generation and Retrieval-Guidance." In Proceedings of the 35th British Machine Vision Conference (BMVC 2024), Glasgow, UK, November 25-28, 2024.
❑ **Mukherjee, Avideep**, Badri N. Patro, and Vinay Namboodiri. 'Attentive Contractive Flow with Lipschitz Constrained Self-Attention.' In 34th British Machine Vision Conference 2023, BMVC 2023, Aberdeen, UK, November 20-24, 2023. BMVA, 2023.

❑ Pandey, Kushagra, **Avideep Mukherjee**, Piyush Rai, and Abhishek Kumar. 'DiffuseVAE: Efficient, Controllable and High-Fidelity Generation from Low-Dimensional Latents.' Transactions on Machine Learning Research, 2022.

❑ Banerjee, Soumya, Vinay K. Verma, **Mukherjee, Avideep**, Deepak Gupta, Vinay P. Namboodiri, and Piyush Rai. 'Verse: Virtual-gradient Aware Streaming Lifelong Learning with Anytime Inference.' In Proceedings of the IEEE International Conference on Robotics and Automation (ICRA), 2024.

❑ Pandey, Kushagra, **Mukherjee, Avideep**, Piyush Rai, and Abhishek Kumar. 'VAEs meet diffusion models: Efficient and high-fidelity generation.' In NeurIPS 2021 Workshop on Deep Generative Models and Downstream Applications. 2021.

❑ Tripathi, Sachchida, Vaishali Jain, **Mukherjee, Avideep**, Sandeep Madhwal, Michael H. Bergin, Prakash Bhave, David Carlson, Ziyang Jiang, and Piyush Rai. 'A Hybrid Approach for Integrating Micro-Satellite Images and Sensors Network-Based Ground Measurements Using Deep Learning for High-Resolution Prediction of Fine Particulate Matter (PM2.5) over an Indian City, Lucknow.' Manuscript under review at Atmospheric Environment.

❑ Tripathi, Sachchida, Vaishali Jain, **Mukherjee, Avideep**, Soumya Banerjee, Piyush Rai, and Sandeep Madhwal. Predicting PM2. 5 based on micro-satellite imagery and low-cost sensor network using CNN-RT-RF Joint Model. No. EGU23-12426. Copernicus Meetings, 2023.

❑ **Mukherjee, Avideep**, and Tanmay Basu. 'A medoid-based weighting scheme for nearest-neighbor decision rule toward effective text categorization.' SN Applied Sciences 2 (2020): 1-9.

❑ **Mukherjee, Avideep**, and Tanmay Basu. 'An effective nearest neighbor classification technique using medoid-based weighting scheme.' In Proceedings of international conference on data science. CSREA Press, pp. 231-234. 2018.

PROJECT
WORKS

- **Predicting PM2.5 concentration from satellite images and meteorological features**: To develop algorithms to predict particulate concentration in areas such as Delhi, Lucknow, or Bihar using satellite images and/or meteorological features like air temperature, pressure, or relative humidity.

- **Event Recognition On Unconstrained Videos**: An algorithm was devised to identify events in unconstrained videos based solely on spatial features from frames. *This project was awarded a special mention among other projects in the summer school.*

- **A Medoid-Based Weighting Scheme for Qualitative Improvement of Nearest Neighbor Decision Rule**: Some of the limitations of the k nearest neighbor classification technique are addressed, and a novel weighting scheme is proposed based on medoids of different class regions.

- **Empirical Analysis of various Machine Learning and Deep Learning Algorithms on different Domains**: A course project for the course CS771A: Introduction to Machine Learning.

- **A Conversational Assistant for the CSE Department at IIT Kanpur**: A course project for the course CS727: Topics in Internet Technologies.

- **Assisting in Disaster Management by Analyzing Micro-blogs**: A course project for the course CS685: Data Mining

- **Drone Swarm Development for Humanitarian Assistance and Disaster Relief**: Worked in the vision team that detects a person(s) from a height between 50 and 80 meters in real-time and delivers a payload within a threshold radius.

VOLUNTEERING ACTIVITIES	• Served as a reviewer in WACV, AAAI, ICCV, ACCV, ECCV, and BMVC. • PG Coordinator for Association for Computing Activities, CSE (2019 - 2022) • System Administrator of the CSE Servers under Prof. Sunil Simon (2019 - Present) • Core Team Member (Web Designer) of Spic Macay, IIT Kanpur Chapter (2019 - Present) • Academic Mentor of some UG CSE Students at IIT Kanpur (2019 - 2022) • Volunteer in Counselling Service, IIT Kanpur (2019)
RELEVANT ACHIEVEMENTS	• Qualified NET examination with Lectureship. • M.Sc Gold Medalist. • Got Selected for Admission to PhD Programme in IIT Gandhinagar and IIT Patna • Qualified GATE 2018 with 95.62 Percentile. • Google India Challenge Scholarship Awardee.
PERSONAL INFORMATION	Date of Birth: November 27, 1995 Languages Known: English, Bangla (Read/Write/Speak), Hindi (Speak only)

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