Anindya Mondal

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Education

Oct 2022 – Present **PhD Candidate in Artificial Intelligence**, *Surrey Institute for People-centred AI, CVSSP, University of Surrey*, Guildford, United Kingdom
Research Focus: Integrating Auxiliary Information for Representation Learning in Natural World

Aug 2018 – Jun 2022 **B.E. in Electronics and Telecommunication Engineering (Hons.); GPA: 8.79/10**, *Jadavpur University*, Kolkata, India

Research Focus

2023 – 2024 Vision-Language Integration, Multimodal Learning, Action Recognition, Text-to-Image Synthesis, Object Counting, and 3D/4D Content Generation.

2020 – 2022 Graph Neural Networks, Time-series Analysis, Graph Signal Processing, Neuromorphic Vision Systems, and Subspace Learning Techniques.

Publications

AAAI '25 **Anindya Mondal**, Sauradip Nag, Xiatian Zhu, Anjan Dutta, *"OmniCount: Multi-label Object Counting with Semantic-Geometric Priors,"* DOI: 10.48550/arXiv.2403.05435.

ICCVW '23 **Anindya Mondal**, Sauradip Nag, Joaquin M Prada, Xiatian Zhu, Anjan Dutta, *"Actor-agnostic Multi-label Action Recognition with Multi-modal Query,"* DOI: 10.1109/ICCVW60793.2023.00086.

ICASSP '23 JAC Correa, JH Giraldo, **Anindya Mondal**, et al., *"Time-varying Signals Recovery via Graph Neural Networks,"* DOI: 10.1109/ICASSP49357.2023.10096168.

EUSIPCO'22 **Anindya Mondal**, et al., *"Recovery of Missing Sensor Data by Reconstructing Time-varying Graph Signals,"* DOI: 10.23919/EUSIPCO55093.2022.9909940.

ICCVW '21 **Anindya Mondal**, R Shashant, et al., *"Moving Object Detection for Event-based Vision using Graph Spectral Clustering,"* DOI: 10.1109/ICCVW54120.2021.00103.

Research Experience

Oct 2022 – Present **Doctoral Researcher**, *Surrey Institute for People-centred AI, CVSSP, University of Surrey*, Guildford, UK

- Developed a diffusion-based text-to-image generation model for high-quality exemplar generation aimed at object counting.
- Created a class-agnostic object counting model utilizing semantic and geometric priors, enhancing system adaptability.
- Designed and implemented a transformer-based multimodal action recognition model, boosting recognition accuracy by 50%.
- Led a project to establish a benchmark for animal action recognition, including detection and segmentation tasks.

May 2022 – Aug 2022 **Research Intern**, *Indian Institute of Science*, Bengaluru, India

- Innovated a source-free domain adaptation method for image classification, improving robustness across different target domains.

Oct 2020 – May 2022 **Undergraduate Research Assistant**, *Jadavpur University*, Kolkata, India

- Implemented a Sobolev norm minimization technique for reconstructing time-varying graph signals, reducing errors significantly.
- Developed a semi-supervised learning framework for semantic segmentation using graph theory, demonstrating improved efficiency.
- Enhanced detection of moving objects from event data using an adapted graph spectral clustering approach.

Technical Skills

Programming Proficient in Python, MATLAB, C.

Libraries Experienced with PyTorch, TensorFlow, Scikit-Learn, NumPy, SciPy, Pandas.

Tools Proficient in Git, LaTeX, Jupyter Notebook, and Docker.

Awards and Honors

2022 Awarded the Postgraduate Studentship at the University of Surrey.

2022 Recipient of the Uplink Research Internship Award from ACM SIGKDD India Chapter.

Professional Experience

Teaching

2023 – 2024 Teaching Assistant for Applied Machine Learning (EEEM068) and Advanced Topics in Computer Vision and Deep Learning (EEEM071) at the University of Surrey.

Peer Review

2022 – 2024 Peer reviewer for ICASSP, ICCV Workshops, ECCV, NeurIPS, ICPR, ICASSP, Transactions on Signal Processing (TSP), Transactions on Signal and Information Processing over Networks (TSIPN).