

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.

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.

Publications

Preprints

- Arxiv '24 **Anindya Mondal**, Sauradip Nag, Xiatian Zhu, Anjan Dutta, “*OmniCount: Multi-label Object Counting with Semantic-Geometric Priors*,” DOI: 10.48550/arXiv.2403.05435.

Peer-Reviewed Publications

- 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.

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).