

# Sayantana Das

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**Research interests** Artificial Intelligence, Machine Learning, Deep Learning, Computer Vision.

**Education**

**Queen's University** Kingston, Canada  
MAsc in Electrical and Computer Engineering Sept 2021 – Present  
Mentor: Professor Ali Etemad. *GPA: 4.0/4.3*  
Teaching Assistantships: ELEC 390, APSC 143

**Maulana Abul Kalam Azad University of Technology** Kolkata, India  
BTech in Computer Science and Engineering July 2016 – July 2020  
Mentors: Professors Sourav Saha, and Amit Kumar Das. *GPA: 8.39/10.0*

**Publications**

**Unmasking Deepfakes: Masked Autoencoding Spatiotemporal Transformers for Enhanced Video Forgery Detection**  
Sayantan Das, Mojtaba Kolahdouzi, Levent Özparlak, Will Hickie, Ali Etemad  
*IEEE International Joint Conference on Biometrics (IJCB 2023)*

**Topo Sampler: A Topology Constrained Noise Sampling for GANs (Spotlight award)**  
Adrish Dey, Sayantan Das  
*NeurIPS 2020 Workshop TDA and Beyond*

**Dual Attention Residual Band Selection Network for Spectral-Spatial Hyperspectral Classification**  
Swalpa Kumar Roy, Sayantan Das, Tiecheng Song, Bhabatosh Chanda  
*IEEE Geoscience and Remote Sensing Letters (Impact Factor:3.38), 2020.*

**Work Experience**

**Ingenuity Labs Research Institute**  
Mentor: [Dr Ali Etemad](#) Sep 2021 – Present  
Applications of self-supervised Learning (SSL) methods on Facial Forensics.

**Weights and Biases (wandb)**  
Mentor: Justin Tenuto Apr 2021 – Jan 2022  
Worked as a technical content writer on contract. [My works.](#)

**ETH Zurich**  
Mentors: [Dr Bastian Rieck](#) Sep 2020 – Feb 2021  
Manifold Learning for Generative Models, Topological Data Analysis

**Indian Statistical Institute**  
Mentors: [Dr Bhabatosh Chanda](#), [Dr Swalpa Kumar Roy](#) Mar 2020 - Jul 2020  
Worked at the Computer Vision and Pattern Recognition Unit, ISI Kolkata under Prof. Bhabatosh Chanda on Hyperspectral Satellite Imagery applications.

**Indian Space Research Organisation**  
Mentors: Manavalu Ramanujam, Jalpa Modi June 2019 – Aug 2019  
Worked on Ground Moving Target Indication(GMTI) using Synthetic Aperture Radar(SAR) microwave images from Sentinel-2 and Indian satellites.

## Projects

### **BongoVaad**

BongoVaad is a python framework to transcribe Bengali YouTube videos using Whisper Large V2. I performed Low Rank Adaptation (LoRA) finetuning of this model on Mozilla Common Voice 13 dataset.

### **esrgan-cli**

The ESRGAN CLI package is a command-line tool that enhances images using the ESRGAN (Enhanced Super-Resolution Generative Adversarial Networks) algorithm. It provides a convenient interface to interact with an ESRGAN API service and process images for improved visual quality.

### **AskTRS**

A Gradio webapp (hosted on Huggingface Spaces) to perform vector-based search and response (Retrieval Augmented Generation in NLP) using Langchain, FAISS and OpenAI Embeddings.

## Technical Reports

### **Inject Noise to Remove Noise: A Deep Dive into Score-Based Generative Modeling Techniques**

### **The Geometry of Deep Generative Image Models**

### **Pivotal Tuning for Latent-Based Editing of Real Images**

## Academic Service

**Poster 27** Ontario Workshop on Computer Vision

**Program Committee, Reviewer** ICML 2021 - LatinX in AI

**Reviewer** AAAI 2023 - Representation Learning for Responsible Human-Centric AI, ICML 2021 - Computational Approaches to Mental Health

**Member** Applied Algebraic Topology Research Network.

## Awards

Queen's General Bursary 2022-23

Vector Institute Scholarship in Artificial Intelligence 2021-22

Pradeep Khare Memorial Scholarship 2021-22

## Test Scores

**GRE General Test - 317/340**

Quant-163, Verbal-154, AWA-4.0

**TOEFL iBT - 106/120**

Reading-28, Listening-29, Speaking-23, Writing-26

## Open Source

### **Google Code In 2019 Mentor**

Tensorflow: Mentored and assisted high school students in developing projects using tf, tf.js and tflite. Example tasks include reviewing pull requests to tensorflow/tfds repository

### **Code Contributions (more on GitHub)**

[torchsde](#), [torchdyn](#)

## Talks and Tutorials

**Is India prepared for emerging technologies?** Feb 2020

Panel discussion at IEEE CALCON 2020

**Point Target Analysis and Detection of Moving Targets in SAR Images**

June 2019

Talk on my research internship project at Indian Space Research Organisation.