Subhrajyoti **Dasgupta**

Montréal, Canada

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Education

Université de Montréal / Mila - Quebec AI Institute

Montréal, Canada

MSc Computer Science - specialization in Artificial Intelligence

September 2022 - Present

- Expected Graduation: August, 2024; CGPA 4.0/4.33
- Part of the Mila MSc in Machine Learning program; Program supervisor - Prof. Yoshua Bengio

Amity University

Kolkata, India

B.Tech. in Computer Science and Engineering

August 2016 - August 2020

- CGPA 8.66/10.0 (*First Class with Distinction*)

Research

- Sanjoy Chowdhury, Sreyan Ghosh, **Subhrajyoti Dasgupta**, Anton Ratnarajah, Utkarsh Tyagi and Dinesh Manocha: AdVerb: Visually Guided Audio Dereverberation. *IEEE/CVF International Conference on Computer Vision(ICCV) 2023. ICCV 2023.* [paper]
- **Subhrajyoti Dasgupta**, Arindam Das, Sudip Das, Andrei Bursuc, Ujjwal Bhattacharya, Senthil Yogamani: UnShadowNet: Illumination Critic Guided Contrastive Learning For Shadow Removal. *IEEE Access*. [paper]
- Sanjoy Chowdhury, Aditya P Patra, **Subhrajyoti Dasgupta**, Ujjwal Bhattacharya: AudViSum: Self-Supervised Deep Reinforcement Learning for diverse Audio-Visual Summary generation. *British Machine Vision Conference(BMVC) 2021. BMVC 2021.* [paper]
- Sanjoy Chowdhury, **Subhrajyoti Dasgupta**, Sudip Das, Ujjwal Bhattacharya: Listen to the Pixels. *International Conference on Image Processing (ICIP) 2021, Anchorage, Alaska, USA. ICIP 2021.* [paper]
- **Subhrajyoti Dasgupta**, Sudip Das, Ujjwal Bhattacharya: CardioGAN: An Attention-based Generative Adversarial Network for Generation of Electrocardiograms. *International Conference on Pattern Recognition (ICPR) 2020, Milan, Italy. ICPR 2020.* [paper]

Experience

ML Research Intern

Montréal, Canada

BIOS Health [Advisor - Prof. Guillaume Lajoie]

May 2023 - Present

- Designing algorithms to predict cardiac activity from neural activity.
- Developing algorithms for efficient decoding of neural signals.
- Tools used : Pytorch, Python 3, Pandas, Numpy, Scikit-learn, MLFlow, Linux OS.

Visiting Researcher(Earlier - Research Intern)

Kolkata, India

Indian Statistical Institute [Advisor - Prof. Ujjwal Bhattacharya]

January 2020 - August 2022

- Designed novel approaches for audio-visual scene understanding & summarization, and illumination estimation & correction for natural scenes.
- Developed projects involving audio-visual co-segmentation and privacy-preserving synthetic ECG signal generation.
- Explored self-supervised learning, generative models, attention mechanism and other advanced deep-algorithms.
- Collaborated with internal and also senior industry researchers which resulted in top-tier publications.
- Tools used : Tensorflow 2.0, Keras, Python 3, Librosa, Pandas, Numpy, WFDB, Scikit-learn, Linux OS.

Data Engineer

Kolkata, India

Tata Consultancy Services [Client - Amgen Inc.]

September 2020 - August 2022

- Selected as a *Digital candidate* for top rank in global programming contest 'Codevita' (among ~ 60k participants).
- Designed pipelines for large-scale(multi terabytes) data ingestion and maintained existing ingestion pipelines.
- Subject Matter Expert (SME) on 'Logistic Service Provider(LSP)' ingestion pipeline.
- Innovated and implemented CI/CD feature enhancements reducing pipeline deployment time by 80%.
- Trained and mentored new associates about different running ingestion architectures, technical know-hows, etc.
- Tools used : Python 3, PySpark, Databricks, PostgreSQL, Pandas, Numpy, CI/CD, Gitlab, AWS, Airflow.

Deep Learning Project Trainee

Mumbai, India

Bhabha Atomic Research Center

June 2019 - July 2019

- Developed a CTC-based Handwritten Text Recognition model for documents with Devanagari script characters with the help of Deep Learning.
- Studied and used zero/few-shot learning and transfer learning techniques to address very limited training data.
- Incorporated cleaning and feature extraction of image data using conventional Image Processing techniques along with Data Augmentation.
- The project also helped in studying and reviewing several state-of-the-art Deep Learning architectures from scratch like EAST, FOTS, etc.
- Tools used : Keras, OpenCV, Python3, Pandas, Numpy, Matplotlib, Linux OS.

Awards & Achievements

- Selected for DLRL Summer School 2023 by CIFAR/Mila/Vector Institute/Amii
- Recipient of UdeM Exemption Scholarship valued at CAD ∼10,000/year
- Merit-based scholarship waiving partial tuition fees from Amity University for academic excellence
- 1st Runner Up in the entire region at 'Exabyte'-2018 Programming Contest at St. Xaviers' College, Kolkata, India (among 500+ participants)
- Amazon Web Services and Udacity Machine Learning Scholarship
- Facebook AI and Udacity Secure and Private AI Challenge Scholarship

Skills & Courses

Languages/Frameworks/Tools	Java, Python, SQL, Tensorflow, Keras, Pytorch, OpenCV, Scikit-learn, Pandas, Numpy, PySpark Git, Jupyter, MlFlow, Databricks, Agile
Relevant Courses	Deep Learning, Machine Learning, Data Science, Probability and Statistics, Discrete Mathematics Applied Mathematics(Linear Algebra and Calculus), Algorithms and Data Structures
Languages	English, French(beginner), Hindi, Bengali.

Volunteer Experience

- Developer Students Community (by Google Developers) - Hosted technical talks, seminars and mentored students with AI research.
- United Nations Volunteers, India - Helped raise awareness about Plastic Pollution. Conducted campaigns and drives in the entire city.
- FIFA U17 World Cup, India - Helped organize first ever FIFA tournament in India as a Media Operations Volunteer.
- Helped more than 1000 families from the start of the pandemic with ration and women hygiene kit.

Projects

Image Super-Resolution *2019*

Academic Project

- Implemented an adversarial resolution-enhancement solution for pixelated images.
- Implemented several types of CNNs using methods like dense connections, pyramid pooling, progressive upsampling and iterative upsampling to reconstruct the image.
- Studied and evaluated the performance by using different loss functions like content loss, pixel loss, texture loss and adversarial loss. Performance evaluation was done using metrics like PSNR, SSIM.

Studying ways to solve challenges faced by the LHC (CERN) with Machine Learning *2018*

Academic Project

- A humongous amount of data is produced by the LHC per day. This data needs to be processed and used efficiently for further research.
- This study was on how Machine Learning can be implemented for particle identification, particle track reconstruction, clustering of particles based on similarity, and identifying rare decays.
- A study on the proposed SHiP experiment, with the scope of Machine Learning in it, was also done.

MOOCs

- Deep Learning Specialization, deeplearning.ai - Coursera
- Machine Learning, Stanford University - Coursera
- Introduction to Data Science using Python, University of Michigan - Coursera
- Programming, Data Structures and Algorithms in Python, Indian Institute of Technology, Madras - NPTEL

Languages

English, French(beginner), Hindi, Bengali.