Subhrajyoti **Dasgupta**

Kolkata, West Bengal, India

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Summary

A Computer Science graduate with keen interest in Deep Learning domains like Computer Vision and Generative Models. Presently, exploring areas like audio-visual learning, computational photography and different approaches towards building human-like 'generalist' artificial learning models. Extremely passionate about AI for Humanitarian causes that takes into account the current challenges that mankind is facing as a whole.

Education

Amity University
B.Tech. in Computer Science and Engineering

Kolkata, India
August 2016 - August 2020

- Final Year CGPA 9.52/10.0
- CGPA 8.66/10.0 (*First Class with Distinction*) [Dept. Rank - 4/98]

Don Bosco School, Bandel
Secondary and Senior Secondary School

Bandel, India
April 2008 - April 2016

- ISC Score - 91.5%

Publications

- Sanjoy Chowdhury, Aditya Prakash Patra, **Subhrajyoti Dasgupta**, Ujjwal Bhattacharya: AudViSum: Self-Supervised Deep Reinforcement Learning for diverse Audio-Visual Summary generation. *British Machine Vision Conference(BMVC) 2021. (Accepted)*
- Sanjoy Chowdhury, **Subhrajyoti Dasgupta**, Sudip Das, Ujjwal Bhattacharya: Listen to the Pixels. *International Conference on Image Processing (ICIP) 2021, Anchorage, Alaska, USA.* [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.* [paper]

Experience

TCS - Analytics & Insights
Data Engineer

Kolkata, India
October 2020 - Present

- Selected as a *Digital candidate* for top rank in national level programming contest 'Codevita'.
- Current Client - Amgen Inc.
- Solving the analytical challenges on Big-Data for the client.
- Responsible for large-scale data ingestion from different sources and maintenance of existing ingestion pipelines.
- Using CI/CD to create pipelines for large-scale data ingestion.
- Validating the data consistency of source and target data.
- Tools being used : Python 3, PySpark, Pandas, Numpy, Databricks, PostgreSQL, Gitlab, AWS.

Indian Statistical Institute
Visiting Researcher/Research Intern

Kolkata, India
January 2020 - Present

- ISI, Kolkata is an eminent institution of national importance with research focusing on different branches of Statistics.
- Under the guidance of Prof. Ujjwal Bhattacharya (CVPR Unit), currently exploring novel approaches for efficient audio-visual scene understanding, audio-visual summarization and illumination estimation & correction for in-the-wild scenes.
- Previously, I have worked on research projects involving audio-visual co-segmentation and privacy-preserving synthetic ECG signal generation.
- I am also trying to build insights to applications in the medical imaging domain.
- Tools being used : Tensorflow 2.0, Keras, Python 3, Pandas, Numpy, Matplotlib, Linux OS.

Bhabha Atomic Research Center
Deep Learning Project Trainee

Mumbai, India
June 2019 - July 2019

- BARC is the premier nuclear research organisation in India under Dept. of Atomic Energy (Government of India).
- I worked on a CTC-based Handwritten Text Recognition model for documents with Devanagari script characters with the help of Deep Learning.
- It involved cleaning and extraction of image data using conventional Image Processing techniques along with Data Augmentation.
- The images were then fed into a CNN model for feature extraction, which in turn was fed into an RNN-LSTM model for sequence understanding.
- The project also helped in studying and reviewing several state-of-the-art Deep Learning architectures from scratch.
- Tools used : Keras, OpenCV, Python3, Pandas, Numpy, Matplotlib, Linux OS.

Awards & Achievements

- Merit-based scholarship from Amity University for academic excellence
- TCS Codevita Season 8 - Top 2 %ile
- 1st Runner Up in the entire region at 'Exabyte'-2018 Programming Contest at St. Xaviers' College, Kolkata, India
- Amazon Web Services and Udacity Machine Learning Scholarship
- Facebook AI and Udacity Secure and Private AI Challenge Scholarship
- Winner in Debating at Don Bosco School, Bandel, India
- Champion in Regional Abacus Competition at Kolkata
- Top Performer of University in November '17 & March '18 at Codechef Competitive Programming Challenge

Projects

Study and implementation of widely accepted works in Deep Learning *Ongoing*
INDEPENDENT STUDY

- Weight Uncertainty in Neural Networks
- Photo-Realistic Single Image Super-Resolution Using a Generative Adversarial Network

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.

Skills & Courses

Languages/Frameworks/Tools	Java, Python, SQL, Tensorflow, Keras, OpenCV, Scikit-learn, Pandas, Numpy, PySpark, Matplotlib Git, Jupyter, Databricks
Relevant Courses	Deep Learning, Machine Learning, Probability and Statistics, Discrete Mathematics Applied Mathematics(Linear Algebra and Calculus), Algorithms and Data Structures

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

Volunteer Experience

- Google Developers Group, Kolkata
- Developer Students Community (by Google Developers)
- United Nations Volunteers, India
- FIFA U17 World Cup, India

Languages

English, Hindi, Bengali, French.