

Subhrajyoti Dasgupta

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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

Kolkata, India

B.TECH. IN COMPUTER SCIENCE AND ENGINEERING

August 2016 - August 2020

- Final Year CGPA 9.38/10.0
- CGPA 8.66/10.0 (*First Class with Distinction*) [Dept. Rank - 4/98]

Don Bosco School, Bandel

Bandel, India

SECONDARY AND SENIOR SECONDARY SCHOOL

April 2008 - April 2016

- ISC Score - 91.5%

Publications

- **Subhrajyoti Dasgupta**, Arindam Das, Sudip Das, Andrei Bursuc, Ujjwal Bhattacharya, Senthil Yogamani: UnShadowNet: Self-Supervised Shadow Removal using Contrastive Learning. [Under Review]
- 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*. [[paper](#)]
- 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

Kolkata, India

DATA ENGINEER

October 2020 - Present

- Selected as a *Digital candidate* for top rank in global programming contest '[Codevita](#)' (among ~ 60k participants).
- Solving the analytical challenges on Big-Data for Amgen Inc.
- Responsible for large-scale(multi terabytes) data ingestion from different sources and maintenance of existing ingestion pipelines.
- Using CI/CD to create pipelines for large-scale data ingestion.
- Building scripts for validating the data consistency of source and target data.
- Developed Infrastructure tools to improve System Data Quality.
- Tools being used : Python 3, PySpark, Pandas, Numpy, Databricks, PostgreSQL, Gitlab, AWS.

Indian Statistical Institute

Kolkata, India

VISITING RESEARCHER/RESEARCH INTERN

January 2020 - Present

- Advisor - [Prof. Ujjwal Bhattacharya](#)
- ISI, Kolkata is an eminent institution of national importance with research focusing on different branches of Statistics.
- 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

Mumbai, India

DEEP LEARNING PROJECT TRAINEE

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.
- Studied and used few-shot learning and transfer learning techniques to address very limited training data.
- It also involved cleaning and 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

- Merit-based scholarship from Amity University for academic excellence
- TCS Codevita Season 8 - Top 2 %ile (among ~ 60k participants)
- 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
- Winner in Debating at Don Bosco School, Bandel, India
- Champion in Regional Abacus Competition at Kolkata (among 1000+ participants)
- 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

- 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. Project still ongoing.

Languages

English, Hindi, Bengali, French.