

Atmadeep Banerjee

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LINKS

Personal Website:
<https://atmadeep.bss.design>

Github:
<https://github.com/Atom-101>

Kaggle:
<https://www.kaggle.com/atmadeepb>

LinkedIn:
www.linkedin.com/in/atmadeep-banerjee-a12539149

COURSEWORK

COMPUTER SCIENCE

- Neural Networks and Fuzzy Logic
- Machine Learning
- Foundations of Data Science
- Theory of Computation
- Operating Systems
- Data Structures and Algorithms
- Database Management Systems
- Object Oriented Programming
- Computer Programming

MATHS

- Applied Statistical Methods
- Maths-III (Differential Equations)
- Maths-II (Linear Algebra and Complex Numbers)
- Probability and Statistics
- Maths-I (Calculus Univariate and Multivariate)

ONLINE COURSES

- Machine Learning (Prof. Andrew Ng's course audited through Coursera)
- DeepLearning.ai Specialization (audited through Coursera)
- Convolutional Neural Networks for Visual Recognition (CS 231n Stanford University, Spring 2017)
- fast.ai V3

EDUCATION

BIRLA INSTITUTE OF TECHNOLOGY AND SCIENCE, PILANI

B.E. IN COMPUTER SCIENCE WITH MINOR IN DATA SCIENCE (IN PROGRESS)

August 2017 - Present | Pilani, India

- Cum. GPA: 8.69 / 10

CALCUTTA BOYS' SCHOOL

March 2004 - April 2017 | Kolkata, India

- XII, Senior Secondary
 Indian School Certificate (ISC) Examination 2017 | 95.75%
- X, Secondary
 Indian Certificate of Secondary Education (ICSE) Examination 2015 | 96.4%

EXPERIENCE

PIXXEL | AI TEAM LEAD

May 2018 - Present

- Pixxel is a Remote Sensing startup working towards building a constellation of nanosatellites to provide real time imagery and analytics. It is the only Asian startup to have been selected into NASA's Techstars Startburst Program in 2019.
- Worked with multispectral data for prediction of crop(wheat) yield of Indian states at district level.
- Worked on a novel deep learning model using perceptual loss for segmenting buildings and roads from three channel satellite imagery. Oversaw the creation of a proprietary road segmentation dataset for India.

Website: <https://www.pixxel.space/>

TITANIC APP | MACHINE LEARNING INTERN

May 2018 - June 2018

- Trained a ResNet-50 classifier written in Tensorflow using transfer learning, to detect offensive images.
- Wrote the prediction module to run inference on unseen images.

RESEARCH EXPERIENCE

FEW SHOT IMAGE SEGMENTATION

August 2019 - Present | Advisor: Dr. Pratik Narang

- Currently working on a research project to segment objects from images using limited training samples.
- Implemented Meta-SGD and Reptile algorithms for Few Shot Classification on Omniglot dataset.

ROAD SIGN DETECTION USING CNNs

August 2018 - November 2018 | Advisor: Dr. Kamlesh Tiwari

- Worked on a project sponsored by MapMyIndia, for detecting and classifying various Indian road signs using their proprietary dataset.
- Studied various region based and single-shot object detection algorithms.
- Trained a network based on YOLO v3 algorithm, achieved a mAP score of 89.71 and F1-score of 0.94

SKILLS

PROGRAMMING

Python • Java • C • C# • Prolog

ML FRAMEWORKS AND LIBRARIES

Fastai • Pytorch • Tensorflow • Keras • Numpy • Pandas • OpenCV • Scikit-Learn • Unity3D ML Agents

SOFTWARES

• Unity3D

ACCOMPLISHMENTS

2019

- **Kaggle Silver Medal**

Won a silver medal(rank 131 in private leaderboard) in APTOS 2019 Blindness Detection competition.

2018

- **Philips Data Science Hackathon Finalist**

Was among the top 14 teams across India to qualify for the final round of Philips Data Science Hackathon at Philips Innovation Campus, Bangalore, India

2016

- **Kishore Vaigyanik Protsahan Yojana (KVPY) Fellow**

PROJECTS

- **Modular CNN library written in Numpy**

A library to build Convolutional Neural Networks and train them on image datasets. Focuses on simplicity, shows how various layers of a neural network work. Written completely in Python and Numpy. Python performance issues dealt with using Numba just-in-time compiling.

<https://github.com/Atom-101/NumPyML>

- **Diabetic Retinopathy Diagnosis**

Trained a CNN model to detect the occurrence of Diabetic Retinopathy from fundus photography. The model outputs an integer between 0 to 4 with 0 indicating no DR and 4 indicating proliferative DR. Achieved a quadratic Kappa score of 0.922 on Kaggle's private test set (13,000 images).

https://github.com/Atom-101/DR_Detection

- **Sentiment Analysis using a Convolutional Neural Network**

Stream tweets or news articles in real-time, depending upon search term given by user. Read streamed text corpuses using a CNN model and word2vec embeddings, and calculate mean sentiment on a scale of 0 to 1.

<https://github.com/Atom-101/SentimentAnalysis>

- **Generating Pokemon images using a GAN**

Scraped Pokemon images from the internet through DuckDuckGo image search. Trained a Wasserstein GAN trained on the dataset to generate new Pokemon images.

<https://github.com/Atom-101/PokeGAN>