

# Atmadeep Banerjee

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## LINKS

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

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

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

LinkedIn:  
[www.linkedin.com/in/atmadeep-banerjee-a12539149](https://www.linkedin.com/in/atmadeep-banerjee-a12539149)

## COURSEWORK

### COMPUTER SCIENCE

- Foundations of Data Science
- Theory of Computation
- Principles of Programming Languages
- Computer Architecture
- Operating Systems
- Data Structures and Algorithms
- Microprocessors and Interfacing
- Database Management Systems
- Logic in Computer Science
- Discrete Structures for Computer Science
- 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)

## 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 CAMPUS 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 crop yield prediction.
- Worked on a novel technique for segmenting buildings and roads from three channel satellite imagery.

Website: <https://pixxel.co.in>

### 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.

Website: [www.titanicapp.co](http://www.titanicapp.co)

## RESEARCH EXPERIENCE

### FEW SHOT OBJECT DETECTION FROM SATELLITE IMAGERY

August 2019 - Present | Advisor: Dr. Pratik Narang

- Currently working on a research project to detect objects from satellite imagery using limited training samples.

### 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

### 2016

- Kishore Vaigyanik Protsahan Yojana (KVPY) Fellow

### 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

### 2019

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

## 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.

<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 a Kaggle private test set (13,000 images).

[https://github.com/Atom-101/DR\\_detection](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**

Scrape pokemon images from the internet through DuckDuckGo image search. Generate new Pokemon images using a Wasserstein GAN trained on the dataset.

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