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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 occurence 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