MRIGANKA NATH

Pytorch Contributor Kaggle Expert Technical Blogger

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EDUCATION

B.Tech in National Institute of Technology(N.I.T), Silchar July 2018-2022 (expected)

- Currently studying in 8th Semester in Electronics and Communication Engineering.
- Overall GPA: **9.05**/10.0

Kendriya Vidyalaya Maligaon

- 12th Grade|Overall Percentage: 85.6% March 2018
- 10th Grade | CGPA: 10/10 March 2016

EXPERIENCE

Max Planck Institute for Dynamics of Complex Technical Systems July 2021 – Nov 2021

Intern

- Worked under Dr. Pawan Goyal to understand Dynamical systems using Deep Learning.
- Learnt skills include Pytorch's autograd library , Einops

Indian Institute of Science (IISc), Bengaluru May 2021- June 2021

Summer Research Fellow

- Worked under Dr. Sundeep Chepuri, Department of Electrical Communication Engineering.
- Learnt the basics of Graph Neural Networks and Geometric Deep Learning and implemented renowned algorithms.
- Worked in the domain of Knowledge Graphs and Entity Alignment.
- Learnt skills include Deep Graph Library, Pytorch Geometric.

Computer Vision Lab, N.I.T Silchar August 2019 – March 2020

Research Associate

- Worked under Dr Chandrajit Choudhury to study the impact of Deep Learning and Computer Vision.
- Learnt the basics of working with Medical Data and Image classification.
- Learnt how Object detection works and learnt about models like RCNN, YOLO and FasterRCNN.
- Learnt skills include Keras, Pandas, Albumentations, Pytorch.

PROJECTS

Product matching algorithm March 2021 – May 2021

Personal Project

- Built an algorithm that could work with both product images and text to determine whether they are same.
- Based on the data from a Kaggle competition.
- Software/Framework used: Pytorch , Albumentations, RAPIDS

Wheat head detection Aug 2020 – Sept 2020

Kaggle competition

- Built an object detection model which will detect wheat head in different light conditions.
- Implemented a robust object detection model with Deep learning using convolutional neural network.
- Based on the data from a Kaggle competition.
- Software/Framework used: - Python, Pytorch, Pandas, Numpy, ScikitLearn, Albumentations.

Sentiment Analysis Jan 2020-March 2020

Personal Project

- Classified a collection of movie reviews into positive or negative.
- Built a model using recurrent neural network (RNN) and using word embedding.
- Software/Framework used: - Python, Pytorch, Pandas, Numpy, ScikitLearn.

POSITIONS OF RESPONSIBILTY

Machine Learning Club, N.I.T Silchar July 2019 - present

Core Member

- Organise classes and teach students of our college the fundamentals of Machine Learning and Deep Learning.
- Conducted various competitions and hackathons related to Machine Learning where one can test their understandings.

PUBLICATIONS

- **Mriganka Nath,Chandrajit Choudhury "Pneumonia Detection from Chest X-Ray"** , accepted at the 2nd International Conference on Machine Learning, Image Processing, Network Security and Data Science (MIND 2020).**(URL)**

- **Mriganka Nath,Subhasish Goswami "Toxicity detection in Drug Candidates using SMILES" ,** accepted at International Journal of Computer Applications 175(21):1-4. **(URL)**

ACHEIVEMENTS

ML4SCI Hackathon(URL) Nov 2021

- **Second runners-up** for the particle classification challenge.
- Used Transfer Learning to classify Energy density images.

Kaggle Brain Tumour Radiogenomic Classification (URL) Sept 2021

- Ranked **4th place** in this challenge, out of 1555 other teams.
- Used 3D convolutions with an ensemble with many model to get the final score

KEY COURSES UNDERTAKEN AND TECHNICAL STRENGTHS

- **Computer Science and Engineering:** Neural Networks and Fuzzy Logic ,Machine Learning ,Data Structures and Algorithms , Signals and Systems, , Digital Signal Processing ,Control System ,Deep Learning[1],
- **Mathematics**: Linear Algebra, Calculus, Probability and Statistics, Random Processes
- **Programming** : Python, C,C++ ,MATLAB
- **Frameworks/Libraries Used**: Pytorch ,Pandas, ScikitLearn, Numpy, Seaborn, Keras ,OpenCV, Scipy
- **Interests**: Computer Vision, Multimodal Learning, Graph Neural Networks, Self-Supervised Learning

[1]CS230 : Deep Learning Course by Stanfordonline