Anirudh **Dagar**

IV Year Undergraduate · Machine Learning

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Education

Indian Institute of Technology Roorkee   *Roorkee, India*
Integrated M.Tech in Geological Technology   *July. 2016 - Exp. Jun. 2021*

- Cumulative Grade Point Average, CGPA:8.15/10

Publications

ProteinGCN: Protein model quality assessment using Graph Convolutional Networks   *Preprint*
[Paper] [GitHub]

Sanyal, S. and Anishchenko, I. and **Dagar, A**. and Baker, D. and Talukdar, P.   *Apr. 2020*

[Under Submission- Journal Of BioInformatics]   *link*

Experience

CERN   *Remote*
Google Summer Of Code [Official Release] [Blog]   *Jun. 2020 - Present*

- Mentor 2021. Student 2020.
- Development of **TMVA PyTorch Interface**.

Amazon Web Services, AI   *Seattle*
Software Development Engineer Intern   *Oct. 2020 - Jan 2021*

- PyTorch Framework Adaptation Author: Dive Into Deep Learning. [Open Source]
- Development of the MLA course "Graph Machine Learning" for MLU.
- Worked on GNNs for Heterogeneous Graphs with Deep Graph Library.

Vernacular.ai   *Bangalore, India*
Machine Learning Intern   *May. 2020 - Jul. 2020*

- Built a **Bad Audio Detection** model to reject noisy inscrutable audios.
- Built a Seq2Seq Resegmentation module for **D-Vector + Clustering** prediction outputs in the **Diarization** pipeline.
- Generated Simulated Mixture Dataset for Diarization.

ProteinGCN, MALL Lab (Prof. Partha P. Talukdar)   *IISc Bangalore, India*
Research Internship [Paper Link]   *May. 2019 - Jan. 2020*

- Introduced ProteinGCN, a novel method for Protein Model Quality Assessment using **GCNs**.
- Achieved 0.837 and 0.704 Pearson's r on global and residue level predictions respectively for Rosetta-300k.
- Multi GPU Parallelization of the complete training process to reduce train time achieving 40% speed ups.

Temporal Relation Classification, MALL Lab (Prof. Partha P. Talukdar)   *IISc Bangalore, India*
Research Internship [Project Report]   *May. 2018 - Jul. 2018*

- Built a pipeline to use TIME ML based TIME BANK Dataset for Temporal Relation Classification.
- Implemented (**GCN+biLSTM**) for classification on TB Dense Dataset.

Projects

Dive Into Deep Learning [https://d2l.ai]   *Roorkee*
Maintainer   *May. 2019 - Present*

- Framework Adaptation Author.
- Port MXNet code into PyTorch for the book Dive Into Deep Learning by Aston Jhang et al. (10k+ Github Stars)

GitHub Tracker [GitHub] [Download]   *Roorkee*
Developer   *Mar. 2021*

- Track Unfollowers with gh-tracker chrome extension.

PaperViz [GitHub]   *Roorkee, India*
Developer   *Apr. 2020 - Sept. 2020*

- Developed a web interface to visualize research papers based on similarity.
- Utilized SentBERT, SciBERT and SPECTER to create document embeddings.

Graph Representation Learning [GitHub]

Roorkee, India

DEVELOPER

Oct. 2019 - Jan. 2020

- PyTorch implementation & blogs on major Graph Representation Learning papers.
- Deep Walk , Graph Convolutional Networks, GraphSAGE, ChebNet, Graph Attention Networks

Local Neighborhood Graph Auto Encoder

Roorkee, India

DEVELOPER

Mar. 2019 - Apr. 2019

- Implemented the paper Multi-Task Graph Autoencoders (NeurIPS 2018 Workshop)
- Reproduced SOTA results using Multi Task Learning in PyTorch.
- Tested on PubMed, Cora, Citeseer, Protein Datasets.

Personal ChatBot

Roorkee

DEVELOPER

Mar. 2018

- Trained a Seq2Seq LSTM model with Teacher Forcing on personal scraped dataset from social networking platforms.

Satellite Image Classification in Remote Sensing Data Using Neural Nets

Roorkee

DEVELOPER

Feb. 2018

- Developed mutiple image classification models on the 21 Class UC Merced Land Use Dataset. [Report]

Achievements & Honors

2019	**All India Rank 7**, Flipkart GRID ML Competition Level 1	*Bangalore, India*
2019	**Overall 2nd**, Enigma Hackathon, Astrax IIT Mandi 2019 (Astronomy Competition)	*Mandi, India*
2018	**Scholar**, Won Chevron Scholarship Student Member AAPG 2018	*Roorkee, India*
2017	**2nd Position**, Table Tennis, Sangram'17 (Sports Fest IIT R)	*Roorkee, India*
2016	**Top 0.1%**, Qualified JEE Advanced 2016	*India*
2012	**State Level**, National Talent Search Examination 2012(NTSE)	*Ghaziabad, India*
2012	**Participant**, Bosch Indo-German 2012 Exchange Programme	*Ebern, Germany*

Skills

Programming	Python, C/C++, HTML, CSS, Javascript, Shell Scripting, LaTeX
Frameworks	PyTorch, Numpy, Keras, Tensorflow
Utilities	git, zsh, vim, MacOS X, Sublime, Adobe Photoshop, Sketch
Languages	English, Hindi

Relevant Coursework

Undergraduate

India

ML/DL/NLP/VISION

2016-Present

- CS 229: Machine Learning
- CS224W: Machine Learning with Graphs
- CS 224n: Natural Language Processing with Deep Learning
- CS 11-747: Neural Networks for NLP
- CS 231n: CNNs for Visual Recognition
- NPTEL-NOC 18: Deep Learning

Extracurricular Activity

Table Tennis Team IIT Roorkee

Roorkee

MEMBER

Jan. 2017 - Apr. 2021

- Participated in various tournaments represesnting the institute.

Data Science Group IIT Roorkee [Website]

Roorkee

PRESIDENT 2019-20

Jan. 2018 - Apr. 2021

- Headed projects and organized hackathons based on Machine Learning.
- Speaker, SDS Labs Srishti 2k19 Open Lecture Series: Security and Privacy of Machine Learning, *Link to Slides*

Positions Of Responsibility

2020	**Mentor**, Mentors Without Borders	*Africa*
2019	**President**, Data Science Group	*IIT Roorkee*
2019	**Mentor**, Student Mentorship Program	*IIT Roorkee*
2018	**UG, DAPC Representative**, Dept. of Earth Sciences, IIT Roorkee	*IIT Roorkee*