Dhruv Sandhu

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Education

Indian Institute of Technology, Bhubaneswar GPA: 7.59
B.Tech And M.Tech (Dual Degree) Mechanical Engineering *Nov. 2021 - present*

Amity International School,Ghaziabad
CBSE *April 2005 - March 2021*

Experience

IIT Delhi (May 2024 - July 2024)
Summer Research Intern
- Worked upon finding correlation between different brain regions by analysing functional Magnetic Resonance Imaging(fMRI) which was labelled as Healthy Control(HC) or Major depressive disorder(MDD).
- The project was based on applying the AAC atlas in the multi site federated setting leveraging the use of GNN.
- Worked with different models like GCN and GAT and also used MOE i.e mixture of experts and adversarial domain adaption.

Coforge Ltd,Noida (May 2023 - July 2023)
NLP Research Intern at Coforge
- Built end to end pipeline which was required to extract the feedback data from the client pdf document and do sentiment analysis on the extracted feedback for customer retention, up-selling and cross-selling.
- I worked with tweaking each component of the pipeline like using a different word vector method, different ML models and finally how to optimize it.
- I also worked with transformers and used transfer learning with pretrained model like BERT, ROBERTa.
- I also explored NER using Bi-LSTM CRF.

Projects

USPTO(kaggle) *NLP*
- Ranked 139/571
- Worked with whoosh utility to generate query such that the required query is similar to the nearest neighbours provided in the google dataset
- Used optimizing techniques such as annealing and genetic algorithm to find the suitable query

Multi-site federated fmri analysis using GNN *GNN*
- We tried mapping the rois of an AAC atlas in the brain to their corresponding role.
- We did this so by collecting the data from various sites and in the federated setting ie privacy protection.
- The data contained the brain signals and their corresponding labels i.e Healthy Control(HC) or Major Depressive Disorder(MDD).
- We applied GCN and GAT along with various techniques such as MOE and adversarial domain adaption and calculated the correlation using Pearson's coefficient.

Handwriting to text *CV*
- Bronze medal in General Championship,IIT Bhubaneshwar.
- Applied varoius techniques like kalman filter to generate the correct prediction of numbers from the data provided by Arduino Nano 33 BLE

Key Skills

- **DSA,GenAI**
- **Programming Languages:** Python,Java,C,C++
- **ML technologies and architecture:** CV,NLP,Transformers,CNN,GNN,LSTM,RNN,GRU,Hugging Face
- **Framework/Libraries:** Pytorch,Tensorflow,Keras
- **Competitive Programming:** Pupil(Max:1293)@codeforces, 3 star@codechef, Ranked 182 out of 4084 in Feburary Cook Off-2023,Codechef
- **Deployment:** Langchain,Streamlit,AWS

Position of Responsibility

Data Science Head (July 2023 - May 2024)
Data Science Club, IIT Bhubaneswar
- Fostered a community of more than 100+ ML enthusiast
- Conducted various workshops explaining basic algorithms and giving insights on the topics

Mechanical ML lead (March 24 - April 24)
GC, IIT Bhubaneshwar
- Looked over a team of 15+ students and lead my branch to win bronze.

Research Paper collaborator (August 24 - Present)
IIT Delhi
- Currently working on multi- modatlity fMRI analysis using contrastive learning.
- It leverages the use of many Atlas as mulit modal setting to classify various diseases using the fMRI