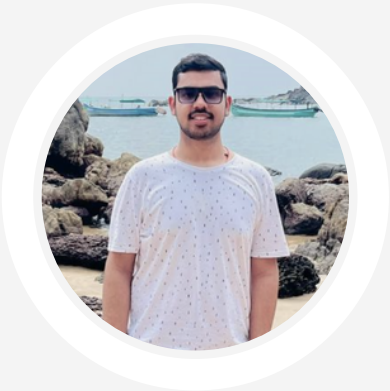

Harsh Pandey

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ABOUT

I am excited about Deep Learning and solving some real world problems by understanding and exploiting the power of these deep neural models.

EDUCATION

M.S.(R) Computer Science IIT, Delhi 2021-2023	8 GPA ongoing
BTech, Kamla Nehru Institute of Technology 2016-2020	81.42%
12th CBSE, Central Academy 2015-2016	86.6%

TECHNICAL SKILLS

Languages

- Python, pytorch, scikit-learn, conda, C++, Java, C, React

ML

- Implementing complex algorithms in pytorch and scikit-learn, Training deep neural models, Inferencing and exploiting these models.

M.S.(R) THESIS

- Our frst work aims at finding **data-dependant properties of neural networks** using which we can guarantee **generalization** (old link). We have submitted a draft to the journal **Transactions on Machine Learning Research**.
- Next, we are working on using the above theoretical result to come up with a better approach for **training GCN** by introducing a **novel data normalization** method.
- Finally, we are developing a **fast binary classifer** with **high generalization guarantees**. We learn 'good' vectors in the space of data such that the projections of points on these vectors are seperated for diferent classes, and we use these vectors to classify new points.

Projects

- **Temporal Causal Reasoning from Videos** (Prof. Parag Singla) **(Jan, 2023 - May, 2023)**
  - The objective was to perform good on **CLEVERER dataset**. First, we tried some baseline architectures, like using CNN (get frame embeddings) + BERT. We also finetuned VideoCLIP architecture as well.
  - Then we tried our **own architectures based on CNN and BERT** and then compared results by training the **Slot Former** (a paper of ICLR 2023).
- **Classifcation on Graph with tabular data** (Prof. Srikanta Bedathur) **(Aug, 2022 - Dec, 2022)**
  - Using a combination of a **GCN and FROCC** (a fast one-class classifer) we developed an architecture to classify graphical tabular data and achieved similar performance to paper **Boost Then Convolve**.
- **Object Detection and Classifcation on Pascal VOC** (Prof. Brejesh Lal) **(Mar, 2022 - Apr, 2022)**
  - We used a **VIsion Transformer** by considering images as a sequence of patches and compared it with simple CNN architecture. We trained and tested the performance of **RCNN**, **Fast RCNN**, **Faster RCNN** and **YOLO**.
- **Play with MNIST** (Prof. Brejesh Lal) **(Feb, 2022 - March, 2022)**
  - Explored the efects of **L2 regularization**, **Dropout** and **Early Stopping** on CNN architecture**.** We **developed ResNet-18** architecture in PyTorch, used diferent **data augmentation** techniques, used pre-trained weights and visualized the activation of CNN.
- **Automatic Playlist Continuation** (Prof. Srikanta Bedathur) **(Oct, 2021 - Dec, 2021)**
  - Treating each playlist as vectors and tracks as dimensions, we calculated the cosine similarity, which represents the similarity between playlists. This was done on the **Spotify million playlist dataset**. - We also did **Re-ranking** by **generating a co-occurrence matrix of tracks**. This method uses track co-occurrence within the same playlist and gives a better-ranked playlist.

Work Experience

Global Logic, Noida (Dec, 2020 - July, 2021)
Worked as a full stack developer with Ruby on Rails in backend and React on frontend. I worked on a live project (UpLaunch) and implemented some useful functionalities.