

Pratik Vora

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SUMMARY

I completed my MTech in Machine Intelligence and Data Science at IIT Delhi in June 2024, focusing on Data Science, Computer Vision, Graph Machine Learning and Reinforcement Learning, with research in AI for Earth Observation. Previously, I worked as a software developer at Informatica Business Solutions, Bengaluru, for 1.5 years in the R&D department.

EDUCATION

2022 - 2024	M.Tech (Machine Intelligence & Data Science) at IIT Delhi	(CGPA: 8.46/10.00)
2016 - 2020	B.Tech (Information Technology) at Nirma University	(CGPA: 8.51/10.00)
2016	Class 12th Gujarat Board	(86.67%)
2014	Class 10th Gujarat Board	(92.33%)

PROJECTS

Segment Anything for Earth Observation, *Prof. Sudipan Saha*

Lack of labelled satellite data motivated us to devise an unsupervised solution for segmentation using state-of-the-art vision foundation model - Segment Anything (SAM) combined with other computer vision methods. We formed a novel methodology that took only one labelled training image and was able to provide segments for all the other images in dataset. The IoU score of proposed method over benchmark Potsdam dataset was 0.693 as compared to 0.3214 for a U-Net based supervised method.

Image Segmentation using Graph Machine Learning, *Prof. Sandeep Kumar*

Utilized a pretrained vision transformer to extract patchwise feature vectors from images, treating each patch as a graph node. Employed a Graph Convolutional Network (GCN) to learn node embeddings and applied a classifier for patch classification. Implemented graph coarsening (graph compression) to enhance segmentation accuracy and computational efficiency. Achieved an IoU score of 0.654, significantly outperforming the baseline model's 0.382 with no GCN and coarsening.

Traffic Estimation using Graph Neural Networks, *Prof. Sayan Ranu*

This project was prepared in two stages where we first converted city's traffic data into a graph with every intersection as node and roads as edges. We trained graph convolution models like GCN and GAT and temporal graph networks like Graph LSTM to predict the traffic at an intersection using the time series traffic data at other intersections.

Brain Image Augmentation using Generative Adversarial Networks, *Prof. Rupal Kapdi*

We used BrATS-2019 dataset containing MRI images of brains of 4 styles - T1, T1-Gd, T2 and T2-FLAIR. GAN architectures like CollaGAN and CycleGAN were used to perform style transfer and gain one type of image from the others. The framework used was PyTorch and the erroneous images were imputed successfully using the other styles.

Word Sense Disambiguation, *Prof. Shivani Desai*

Word sense ambiguity is a major problem in natural language processing (NLP). We used SemCor and MASC datasets with bi-directional LSTM with attention heads which were state-of-the-art at the time of the project. The accuracy achieved over the dataset was 78%.

WORK EXPERIENCE

Associate Software Engineer

Aug 2020 - Sept 2021

I worked as UI software developer for the Enterprise Data Catalog (EDC) UI team (R&D department) at Informatica Business Solutions, Bengaluru. My work was aimed at security enhancements of the website apart from addressing regular customer requirements. One of the projects that I was part of was Catalog Proxy Layer Removal which reduced loading time by a factor of 70% without any regression issues. I was also one of the few members of our team who got to work on both Catalog and Admin modules.

COURSES

Artificial Intelligence, Data Mining, Mathematics for AI, Machine Learning, Computer Vision, Reinforcement Learning, Graph Machine Learning, AI for Earth Observation, Social Network Analysis, Stochastic Processes, Ethics in AI.

SKILLS

Conceptual	Artificial Intelligence, Data Science, Computer Vision, Deep Learning, Graph ML
Languages & Tools	Python, Java, JavaScript, SQL, MongoDB, C++, C, Latex
Hobbies	Sports: Chess and Table tennis, Reading, Movies and Travelling