Project Proposal COL-865

-by Harsh Pandey

1. Class of Project- Innovate

2. Problem definition and basic approach – Using FROCC as an encoding mechanism (instead of GBDT) along with GNNs to learn unstructured data on lines similar with the paper Boost then Convolve: Gradient Boosting Meets Graph Neural Networks, for Res-GNN.

The **basic idea** is to use a **different way of encoding instead of GBDT's residue** and **test how FROCC handles these tabular datasets**

For encoding using FROCC, we will **encode each row to a different set of random projections say p projections in R^d (i.e., in d dimension**).

The rest of the task is same as that of the paper Boost then Convolve, Res-GNN. We will use this encoding to give node their values and then train the GNN (only).

3. Dataset – Idea is to test on same datasets as on the mentioned paper (House, County, VK, Avazu, Wiki)

4. Metrics of evaluation – Accuracy, and RMSE

5. Related papers –

ConvolveBoost then Convolve: Gradient Boosting Meets Graph Neural Networks

FROCC: Fast Random projection-based One-Class Classification

6. GitHub Link - https://github.com/abstruse020/COL-865-Project

7. Overleaf link - https://www.overleaf.com/7214751796nczcdxyztxgs