Project Proposal COL-865

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**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](https://arxiv.org/abs/2101.08543), 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 (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](https://arxiv.org/abs/2101.08543)

[FROCC: Fast Random projection-based One-Class Classification](https://arxiv.org/pdf/2011.14317.pdf)

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

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