***Data augmentation***

**Step 1: Construction of the sample graph structure.**

Sample graph structure was built based on the similarity between samples. Then neighbors of a given sample were defined as the top 10 most similar samples based on the mild assumption that local similarities are more reliable than remote ones.

**Step 2: Construction of the mask matrix.**

We built binary mask  for each sample  based on Dropout strategy, where  was the drop rate. We generated a perturbed feature matrix  by randomly dropping out elements in original matrix .

**Step 3: Random propagation**

Then we adopt the GCN to propagate the neighbors’ information to each sample along the sample graph structure. We leveraged  to perform feature propagation for generating the augmented features.