Simple Unaugmented Graph Encoding

Laplacian Filters

Structure Encoder → View E^1

Structure Encoder → View E^2

$A \in R^{N \times N}$

kmeans ← $(Z^1 + Z^2)/2$
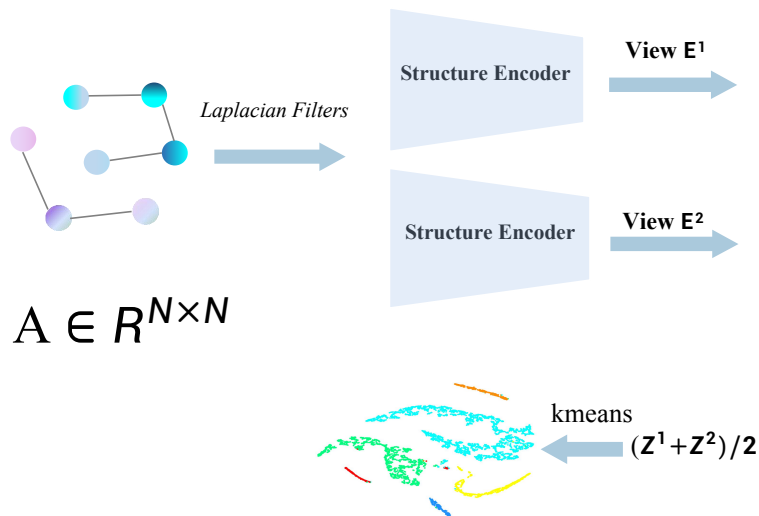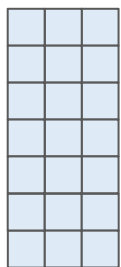
$X \in R^{N \times D}$

Laplacian Filters

Atribute Encoder → View Z^1

Atribute Encoder → View Z^2

Cluster-Level Decoupled Contrastive Learning

Cluster 1 in View Z^1

Cluster k in View Z^1

Cluster i in View Z^1

Strong Decoupled Attractive Force

Strong Decoupled Repel Force

Cluster i in View Z^2

Cluster k in View Z^2

Cluster 1 in View Z^2
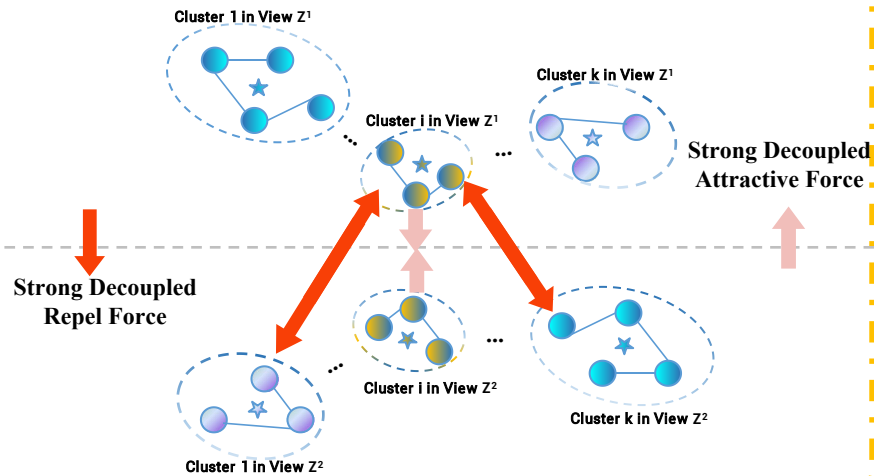
Instance-Level Decoupled Contrastive Learning

Positive pairs

$min - log$

Positive pairs

Negative pairs

Decoupled

e.g.
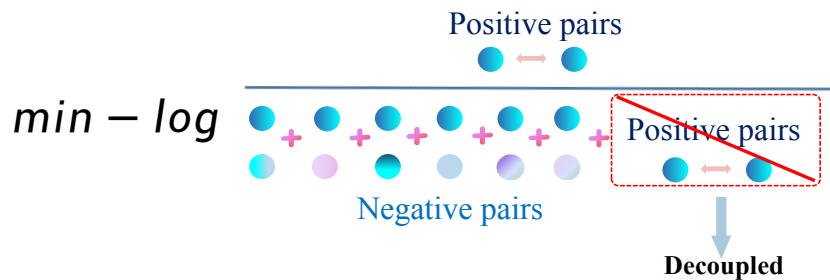
$similarty\ function$ $a \cdot Z_i^1 \cdot Z_i^2 + (1-a) \cdot E_i^1 \cdot E_i^2$

$similarty\ function$ $a \cdot Z_i^1 \cdot Z_j^l + (1-a) \cdot E_i^1 \cdot E_j^l$

$l \in [\![1,2]\!], j \neq i$

$\mathbf{X} \in R^{N \times D}$ attribute matrix

$\mathbf{E}$ normalized structral embedding

$\mathbf{A} \in R^{N \times N}$ adjacency matrix

$\mathbf{Z}$ normalized attribute embedding

★ cluster center   attractive force   repel force