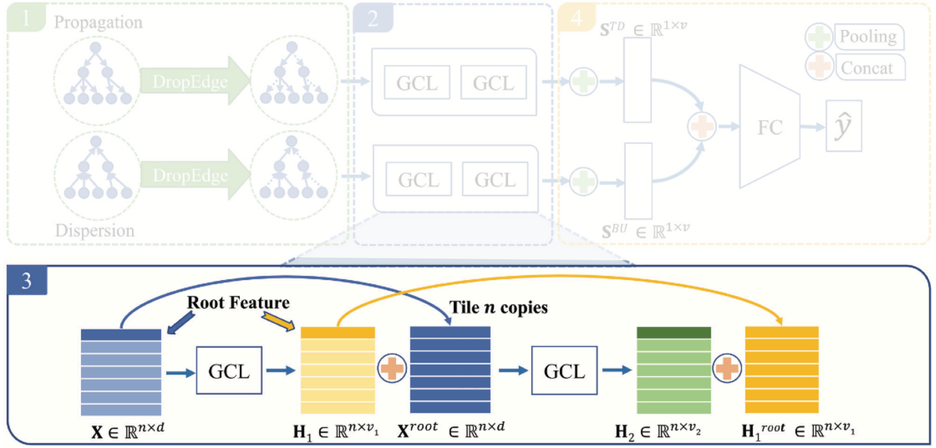
Methodology

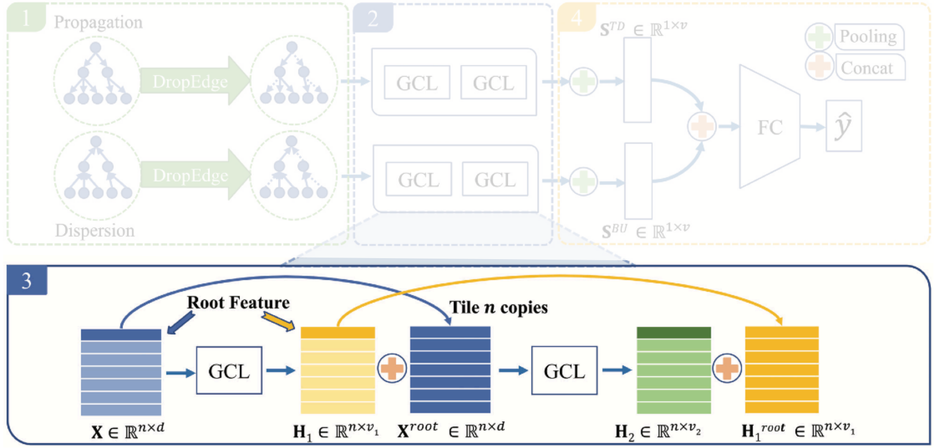
Root Feature Enhancement



- Source post of a rumor event always has abundant information to make a wide impact.
- Proposed an operation of root feature enhancement to improve the performance of rumor detection.
- For k-th GCL, concatenate the hidden feature vectors of every nodes with the hidden feature vector of the root node from $(k-1)$-th GCL to construct new feature matrix
- $\tilde{\mathbf{H}}_k^{TD} = \text{concat}\left(\mathbf{H}_k^{TD}, \left(\mathbf{H}_{k-1}^{TD}\right)^{root}\right), \mathbf{H}_0^{TD} = \mathbf{X}$

Methodology

Root Feature Enhancement



- $\mathbf{H}_1^{TD} = \sigma\left(\hat{\mathbf{A}}^{TD}\mathbf{X}\boldsymbol{W}_0^{TD}\right)$
- $\tilde{\mathbf{H}}_1^{TD} = \text{concat}\left(\mathbf{H}_1^{TD}, \mathbf{X}^{root}\right)$
- $\mathbf{H}_2^{TD} = \sigma\left(\hat{\mathbf{A}}^{TD}\tilde{\mathbf{H}}_1^{TD}\boldsymbol{W}_1^{TD}\right)$
- $\tilde{\mathbf{H}}_2^{TD} = \text{concat}\left(\mathbf{H}_2^{TD}, \left(\mathbf{H}_1^{TD}\right)^{root}\right)$
- $\tilde{\mathbf{H}}_1^{BU}, \tilde{\mathbf{H}}_2^{BU}$ are obtained in the same manner as above.