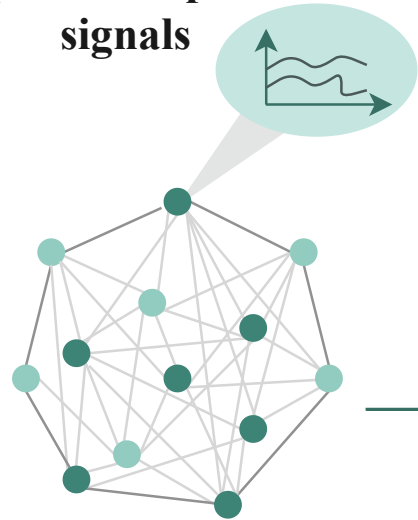


**Spatio-Temporal
signals**



**Graph
Representation**

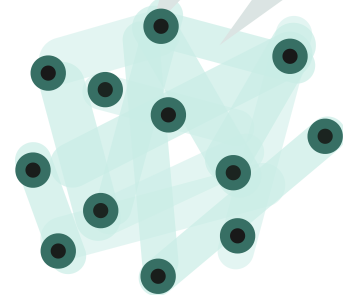
Sheaf Building

$$\mathcal{F}_{v \prec e} : \mathcal{F}(v) \rightarrow \mathcal{F}(e)$$

**Learn restriction
maps**

**Vertex
Stalks**

**Edge
Stalks**



**Sheaf
Representation**

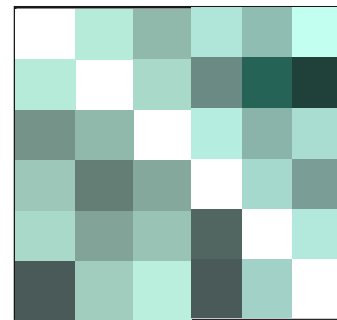
Spectral Filtering

$$L_{\mathcal{F}} = U \Lambda U^{\top}$$

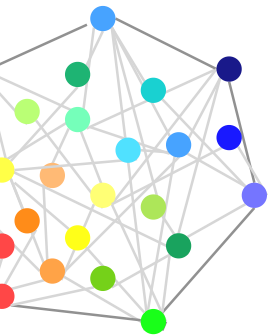
$$g_{\text{heat}}(\lambda) = e^{-\alpha \lambda}$$

$$H^{(l+1)} = \sigma \left(U \hat{g}_{\text{heat}} U^{\top} H^{(l)} W^{(l)} \right)$$

**Graph Fourier
transform + Heat kernel**



Sheaf Laplacian



SSF Graph