

CS 7180 – Lecture on graph neural networks.

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Standard Graph Convolution operation:

$$h_v^{l+1} = \sigma \left(\sum_{n \in \bar{N}(v)} W h_n^l \right). \quad (1)$$

$\bar{N}(v)$ can contain v

We can have a separate weight matrix (W_0) for self-edges:

$$h_v^{l+1} = \sigma \left[\left(\sum_{n \in \bar{N}(v) \setminus \{v\}} W_1 h_n^l \right) + W_0 h_v^l \right]. \quad (2)$$