Event as input set

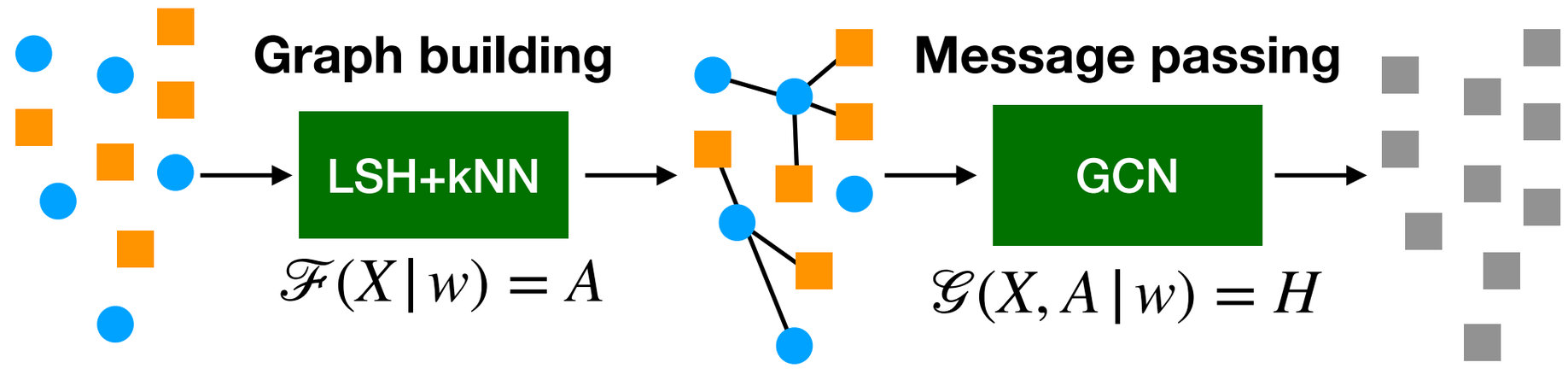
$X = \{x_i\}$

Event as graph

$X = \{x_i\}, A = A_{ij}$

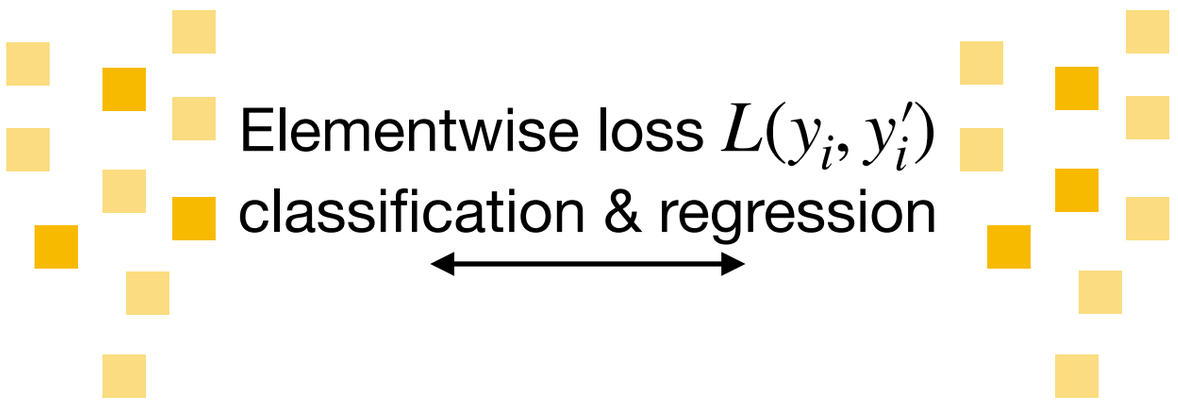
Transformed inputs

$H = \{h_i\}$



Target set $Y = \{y_i\}$

Output set $Y' = \{y'_i\}$



Decoding

elementwise FFN

$\mathcal{D}(x_i, h_i \mid w) = y'_i$

$x_i = [\text{type}, p_\text{T}, E_\text{ECAL}, E_\text{HCAL}, \eta, \phi, \eta_\text{outer}, \phi_\text{outer}, q, \ldots], \quad \text{type} \in \{\text{track}, \text{cluster}\}$

$y_i = [\text{PID}, p_\text{T}, E, \eta, \phi, q, \ldots], \quad \text{PID} \in \{\text{none}, \text{charged hadron}, \text{neutral hadron}, \gamma, e^\pm, \mu^\pm\}$

$h_i \in \mathbb{R}^N, N = 256$

Trainable neural networks: $\mathcal{F}, \mathcal{G}, \mathcal{D}$