Quantity	Description	Formula	Notes
x_i	Position of node i in the point cloud.		
h_i^l	Node feature in layer l	$\sum_{j \in N(v_i)} \alpha_{ij} v_{ij}$	
α'_{ij}	Un-normalised attention coefficent	$q_i \cdot k_{ij}$	
α_{ij}	Normalised attention coefficient	$softmax_{j \in N(v_i)}(\alpha_{ij})$	We hardcode $\alpha_{ii} = 1$
q_i^l	Query features for each the ith node in layer *l*.	$L(h_i^{l-1})$	L is a linear map constrained to be equivariant w.r.t SE(3) actions.
k_{ij}^l	Key features relating nodes i and j in layer l	$r_{ij} = \left\|\|x_i - x_j\right\|\|$ $x_{ij} = (x_i - x_j)/r_{ij}$ $\widehat{x_{ij}} = F(x_{ij})$ $w_{ij} = \phi(r_{ij})$ $k_{ij}^l = h_{ij}^l \otimes_{w_{ij}} \widehat{x_{ij}}$	F is the spherical Fourier transform. ϕ is an MLP. $\otimes_w$ represents a (Clebsch-Gordan) tensor product where the weights are given by w.
v_{ij}	Values of the messages passed from node i to node j	As for k_{ij}	Separate MLPs are trained for obtaining the tensor product weights in k_{ij} and v_{ij}