

ElementSets from MeshConnectivity

NeighborVerticesInFace, Faces from PolygonNeighborhoods(M)

$M : \text{PolygonMesh}$

$x_i \in \mathbb{R}^3$

$V, E, F = \text{ElementSets}(M)$

$$\text{VertexNormal}(i) = \left(\sum_{f \in \text{Faces}(i)} \frac{(x_j - x_i) \times (x_k - x_i)}{\|x_j - x_i\|^2 \|x_k - x_i\|^2} \text{ where } j, k = \text{NeighborVerticesInFace}(f, i) \right) \text{ where } i \in V$$