

svd from linearalgebra

ElementSets from MeshConnectivity

VertexOneRing from PointCloudNeighborhoods(M)

M : EdgeMesh

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

$$V, E = ElementSets(M)$$

$$Normal(v) = vv_{*,3}$$

where

$$v \in V$$

$$N = VertexOneRing(v)$$

$$\bar{p} = \frac{\sum_{n \in N} x_n}{|N|}$$

$$d = \{x_v - \bar{p} \mid v \in N\}$$

$$m_{i,*} = d_i$$

$$u, \sum, vv = \text{svd}(m)$$