Unsigned distance function

# Mesh

Define a Mesh that has vertex Points and Triangular faces as

# Pointwise distance

Q is query point. is maximum truncated distance.

# Facewise distance

Q is query point. is maximum truncated distance.

Ref: [Distance Between Point and Triangle in 3D (geometrictools.com)](https://www.geometrictools.com/Documentation/DistancePoint3Triangle3.pdf)

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Let Face Triangle be defined as

Face Triangle to Point distance can be found using the formula

# Brute force approach

Go over all the points and faces to find the minimum possible distance between target point and mesh points.

# Spatial indexing approach

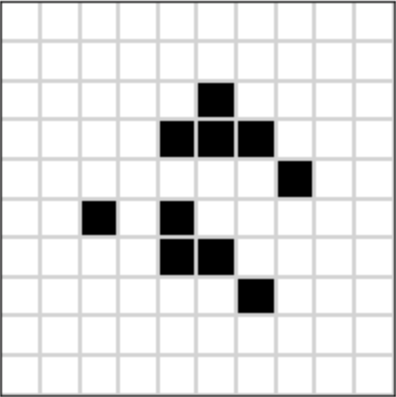


Figure 1 Space map showing spatial indexing of points

Recommended approach of indexing is using octree, but in our case were going to implement a simple space map to spatially Index the mesh points. After indexing, find all the points and faces in a sphere to minimize list of candidate Points to search.