CGAL Library

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The Computational Geometry Algorithms Library

- Geometric algorithm
- Triangulation
- Voronoi diagram
- Convex hull

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Prerequisites

1. Boost Library
2. Qt
3. libQGLViewer

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TriangulationDataStructure_2::Vertex

Access

- point() const

  The geometric information of the vertex

- face() const

  A face of the triangulation having *this

Setting

- set_point(const Point&p)

  Setting the geometric information to p

- set_face(Face_handle f)

  Setting the incident face to f

TriangulationDataStructure_2::Vertex

Advanced

- Triangulation_vertex_base_with_info_2

  A vertex base with additional information

- Exact_predicates_inexact_constructions_kernel

  A model that uses Cartesian coordinates

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Voronoi_diagram_2::Halfedge

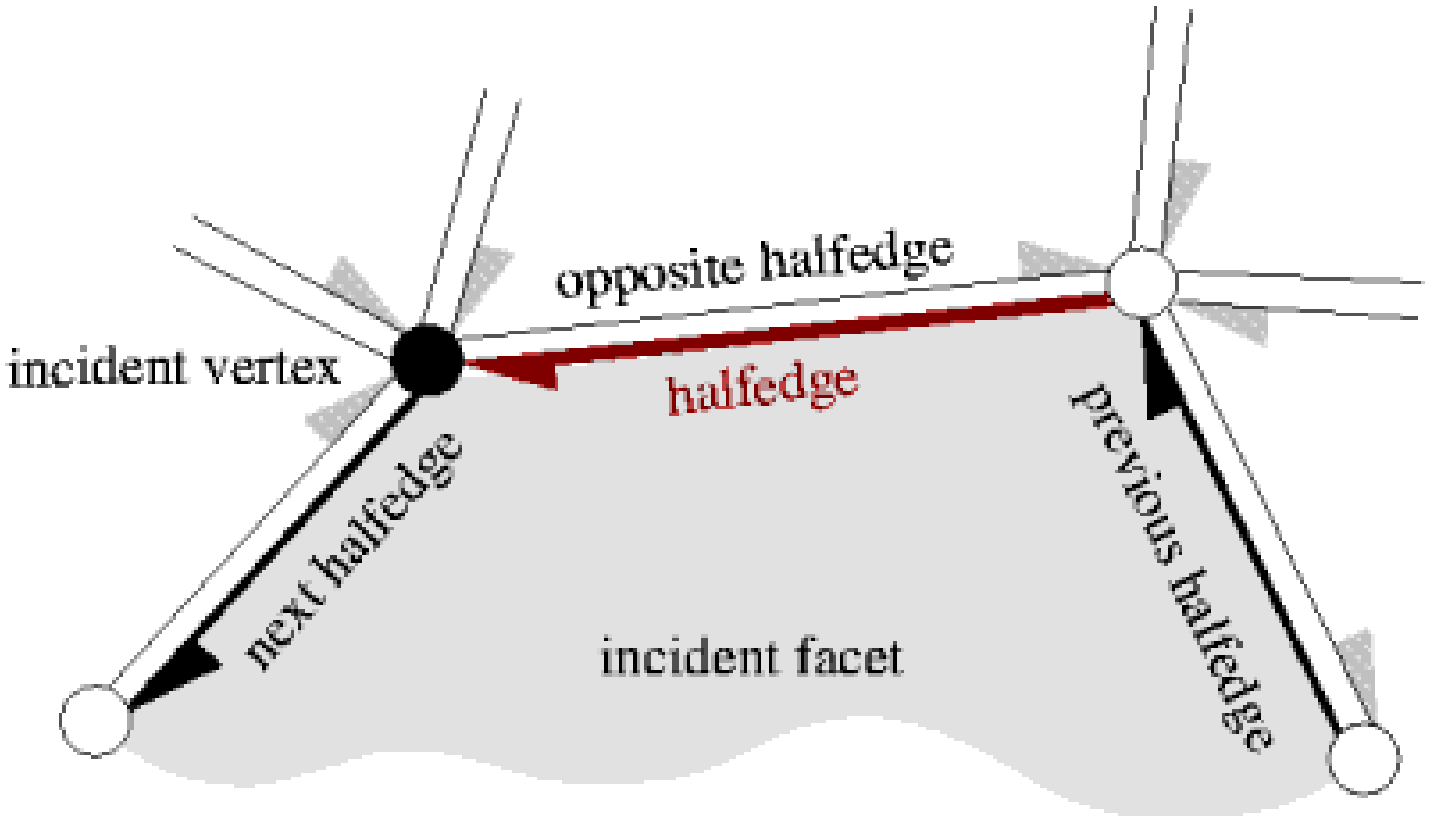

Figure: CGAL Halfedge

Voronoi_diagram_2::Halfedge

- Halfedge_handle twin()
- Halfedge_handle next()
- Halfedge_handle previous()
- Face_handle face()
- Vertex_handle source()
- Vertex_handle target()

Voronoi_diagram_2::Halfedge

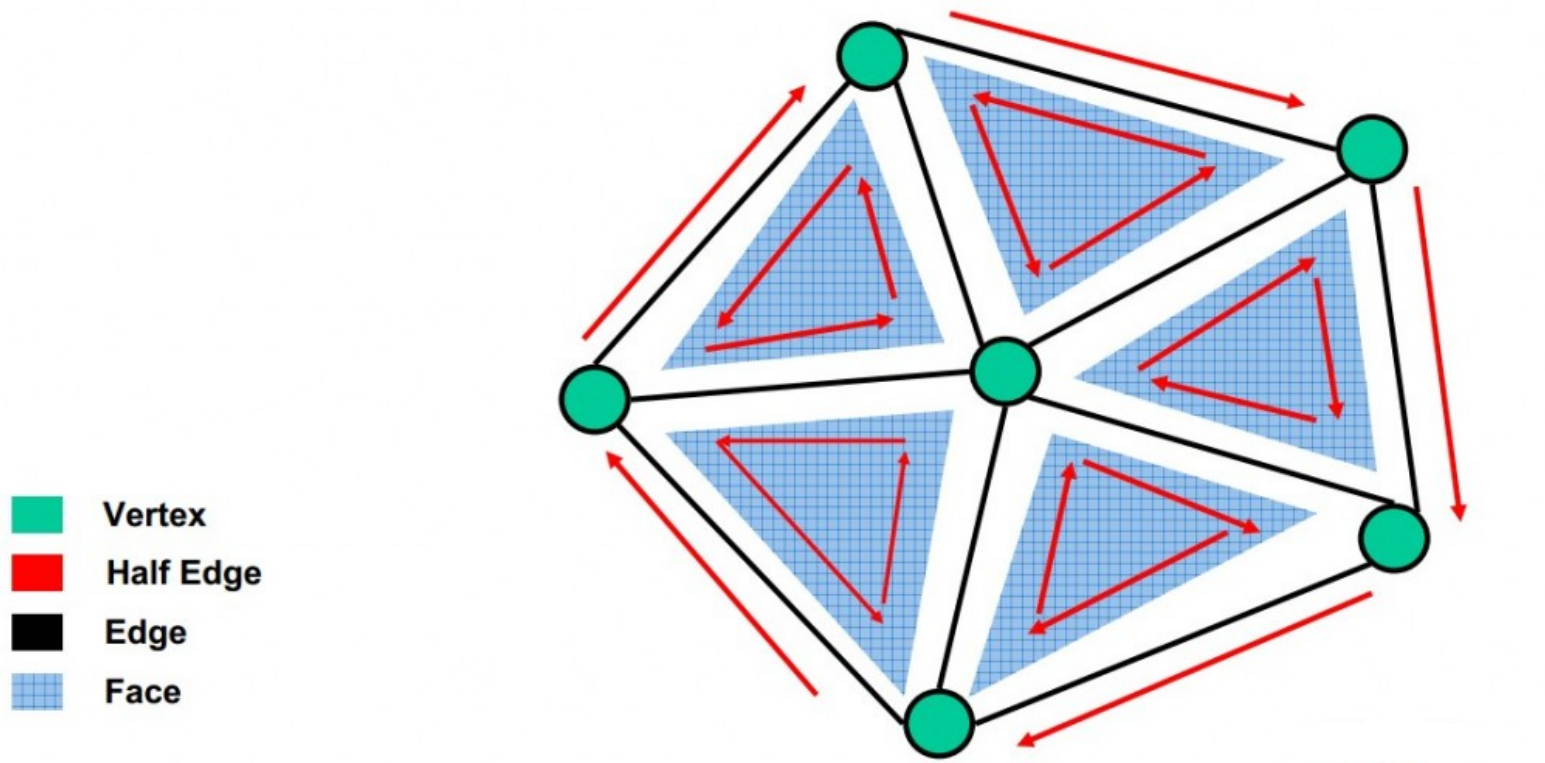

Figure: Halfedge Usage

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Triangulation_data_structure_2

Construction

- Default constructor and insert()
- TriangulationDSFaceBase_2(V,V,V)
- TriangulationDSFaceBase_2(V,V,V,F,F,F)

Access

- Finite_faces_iterator
- Finite_edges_iterator
- Finite_vertices_iterator

Triangulation_data_structure_2

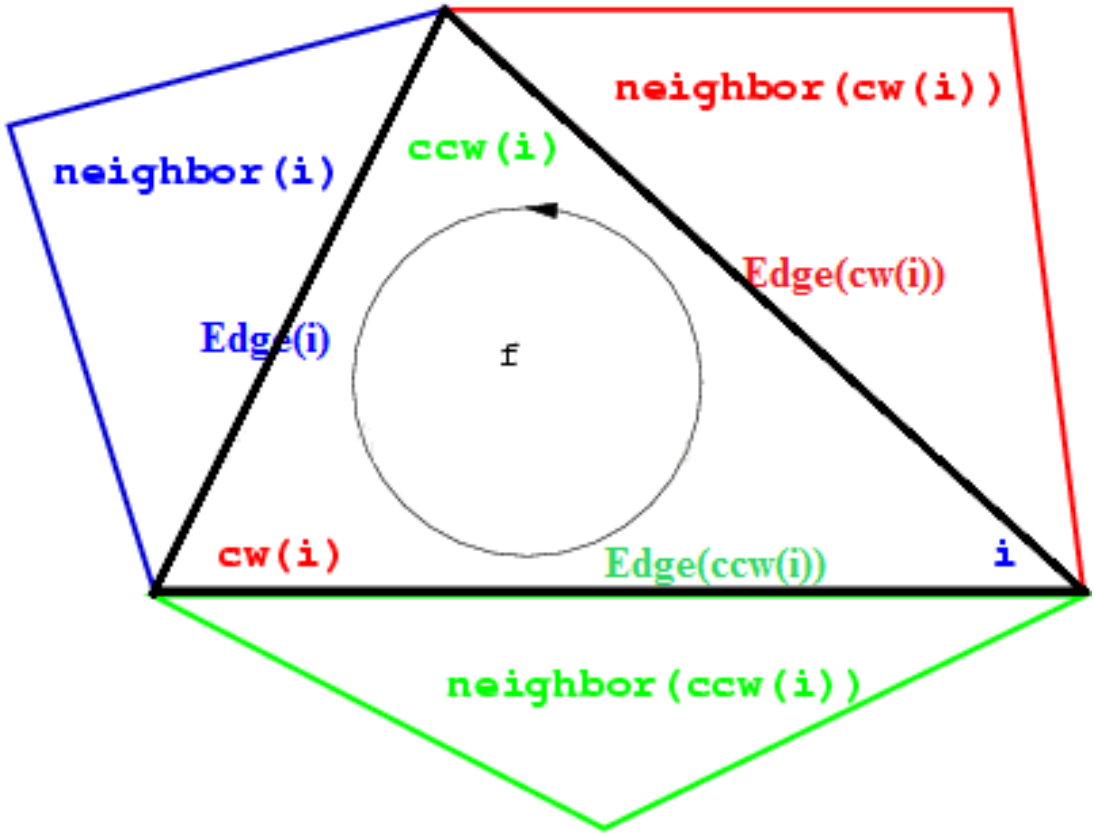

Figure: CGAL Triangle

Triangulation_data_structure_2

- iter-¿first-¿vertex(Triangulation_cw_ccw_2::ccw(iter-¿second))
- iter-¿first-¿vertex(Triangulation_cw_ccw_2::cw(iter-¿second))

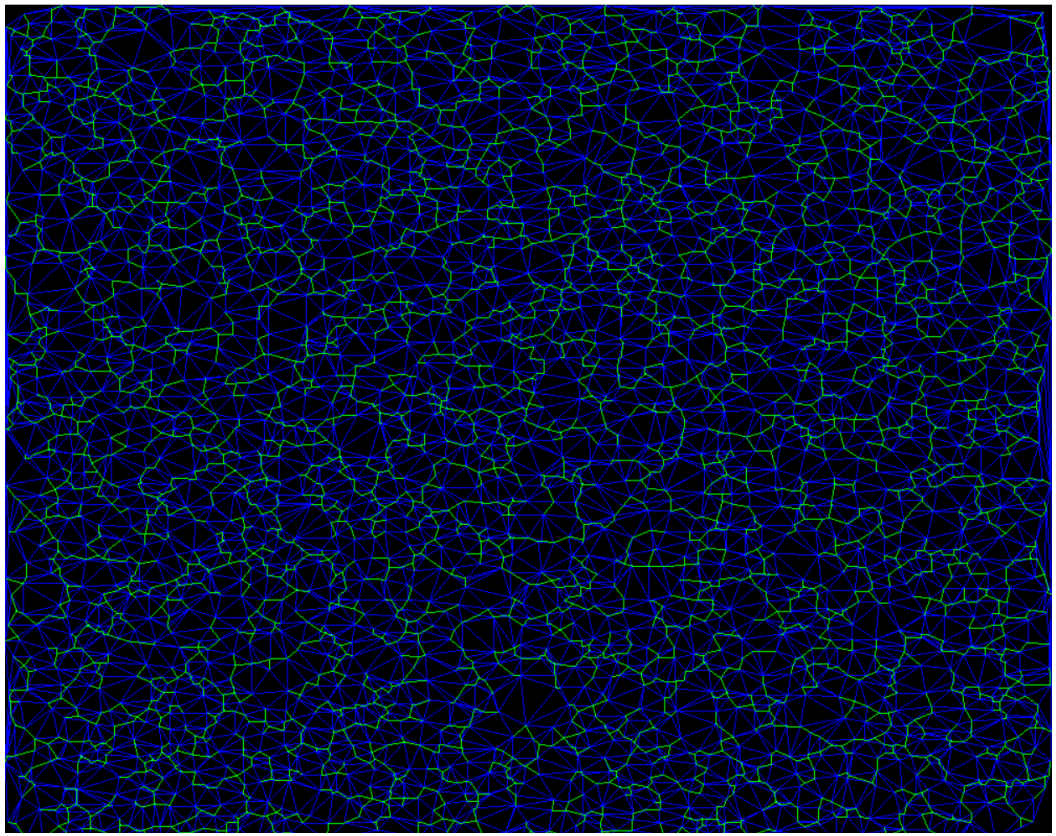

Figure: Delaunay Triangulation

Reference

 Efi Fogel, 2012, CGAL Arrangements and Their Applications.

 http://doc.cgal.org, CGAL 4.9.1 - Manual.

Orzz

Thank you!