Set of project in the field of Geometric Algorithms for Geographic Information Systems

Each project is composed from GUI written in C++ using Qt Creator development environment. Each GUI is powered by geometrical algorithms and supportive computational functions.

U1 - **GUI for finding the geometric position of a point in polygon**

Development Environment: Qt Creator
Language: C++
Geometrical Algorithms: Winding Algorithm, Ray Crossing Algorithm

U2 - **GUI for creating convex hull around points**

Development Environment: Qt Creator
Language: C++
Geometrical Algorithms: Jarvis Scan, Quick Hull, Sweep Line

U3 - **GUI for creating and analyzing Digital Terrain Model from 3D points**

Development Environment: Qt Creator
Language: C++
Geometrical Algorithms: Delaunay Triangulation
Functionality: Terrain Contour Lines, Terrain Slope, Topographic Terrain Exposure

U4 - **GUI for Boolean operations on polygons**

Development Environment: Qt Creator
Language: C++
Geometrical Algorithms: The intersection of two polygons, Insert an intersection into polygons, Evaluation of polygon vertices against each other, Select edges by position, Build edges for a given operation