Triangle Listing

Given a graph, how can we find all triangles in it? Answering this question can have profound impact to a various of applications and have been studied intensively over the last decades. In this project, we will study how to optimize several popular triangle listing algorithms.

References: [1] https://i11www.iti.kit.edu/extra/publications/sw-fclt-05_t.pdf

Algorithm and Workpackages

Input:

- A graph
- A list of all triangles in the graph

Work Packages

WP1. Implement Algorithm 1 in [1] (“forward”), first with a simple C++ implementation, and then optimize its performance using what you have learned in this course.

WP2. Implement “edge-iterator” algorithm in [1], first with a simple C++ implementation, and then optimize its performance using what you have learned in this course.

WP3. Implement the “forward-hashed” algorithms in [1], which combines the algorithms in WP1 and WP2 and extend them with hashing.