

Online Competitive Routing on Delaunay Triangulations and their Variants

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Abstract

A fundamental problem in computer science is that of finding a path in a graph. When the whole graph is available, standard path-finding algorithms can be applied such as Depth-First Search or Dijkstra's Algorithm. However, the problem of finding a path is more challenging in an online setting when at every step of the computation, only local information is available to the routing algorithm (such as the neighbourhood of the current vertex in the path). The difficulty is in deciding which edge to follow next in a path with only this local information. It is even more challenging to find a path with constant spanning ratio.

We will highlight different techniques for finding a short path in various types of Delaunay graphs in the online setting. We will highlight some of the difficulties involved with routing, review some of the currently best-known routing algorithms and mention a few open problems.