Near-Optimal Approximate Decremental All Pairs Shortest Paths

Abstract:

Computing shortest paths is one of the fundamental problems of graph algorithms. The goal of *dynamic* all pairs shortest paths (APSP) is to maintain shortest path trees from all vertices as the edges of the graph change over time. The algorithm is said to be decremental if it handles only deletions, incremental if it handles only insertions and fully dynamic if it handles both deletions and insertions.

In this talk I will present a near optimal decremental algorithm that maintains approximate all pairs shortest paths.