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Distance and Reachability Preservers

Given a graph G and a set of node pairs P , A *distance* or *reachability* preserver is a sparse subgraph H that preserves distance or reachability between all pairs in P . Research typically focuses on the extremal tradeoffs between the sizes of G , P , and the number of edges needed in H . In this talk we will discuss the state-of-the-art for these preservers, survey some algorithmic applications, and mention several outstanding open questions in the area.