



Efficient Algorithms for Finding Disjoint Paths

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摘要： The classical disjoint shortest path problem has recently recalled interests from researchers in the networks planning and optimization community. However, the requirement of the shortest paths being completely vertex or edge disjoint might be too restrictive and demands much more resources in a network. Partial disjoint shortest paths, in which a bounded number of shared vertices or edges are allowed, balance between degree of disjointness and occupied network resources. For a pair of distinct vertices in a network graph, we consider to optimally find k edge-disjoint shortest paths between them with at most δ vertices shared by at least two paths. We present techniques for exactly solving the with runtime $O(\delta m + n \log n)$, which significantly improves the $O(mn^2 + n^3/\log n)$ runtime bound of the state-of-art.

简介： 郭龙坤，博导，福州大学旗山学者，数学优化学会青年理事，福建省计算机协会理事。主要研究领域为并行分布式计算与高性能计算机网络相关的组合优化应用及算法设计与分析。长期以来从事路径、网络数据传输与资源调度领域的研究工作。在 IEEE transactions on mobile computing(TMC), IEEE transactions on computers(TC), Algorithmica, IEEE transactions on parallel and distributed systems (TPDS), Algorithmica 等国际期刊及 ACM Symposium on Parallelism in Algorithms and Architectures (SPAA), IJCAI 等国际会议发表论文四十余篇。当前主持一项国家自然科学基金面上基金，已完成一项国家自然科学基金青年项目与多项省部基金。