An edge-turbulence algorithm for the 2-MRS problem on trees with unreliable edges.

Summary: The sum-max 2-most reliable sources (Sum-Max 2-MRS) problem in a given unreliable network is referred to as finding a pair of nodes in the network from which the expected number of reachable nodes is maximized. This problem is \#P-hard on general graphs and admits a cubic time algorithm on trees with unreliable edges. In this paper, we revisit the problem on trees and design an edge-turbulence algorithm with a quadratic time and quadratic spaces. Finally, we further develop an edge-turbulence based parallel algorithm with a lower time complexity.

Keywords: sum-max 2-MRS; edge-turbulence algorithm; quadratic time

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