



Comparison of different Variable Neighborhood Search strategies for solving the Bipartite unconstrained 0-1 Quadratic programming Problem

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Abstract: *This work presents new heuristic algorithms based on the Variable Neighborhood Search methodology for solving the Bipartite unconstrained 0-1 Quadratic programming Problem (BQP). Given a bipartite graph $G = (I, J)$, the problem consists of selecting a subgraph $G' = (I', J')$ which maximizes the cost of the nodes in the sets I' and J' plus the costs of the edges between them. BQP has applications in approximating matrices by a rank-one binary matrix and calculating cut-norm of matrices. It can also be used to solve other well-known optimization problems like Maximum Weight Biclique, Bipartite Maximum Weight Cut, Maximum Weight Induced Subgraph, etc. We propose an experimental comparison illustrating that our proposal is competitive with the state-of-the-art algorithms.*

Keywords: *Variable Neighborhood Search, Bipartite unconstrained 0-1 Quadratic programming Problem, metaheuristics*

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