

An Improved Branching Algorithm for the Proper Interval Edge Deletion Problem

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Problems & Ideas

- Problem of Proper Interval Edge Deletion
 - Proper interval graphs are exactly the graphs without claws, tents, nets, and holes as induced subgraphs.
 - Given a graph, the problem determines if we can delete at most k edges so that the resulting graph is a proper interval graph.
- Ideas: Bounded Search Tree
 - Proper Interval Edge Deletion is polynomial-time solvable when restricted to graphs without claws, tents, nets, and holes of length 4.
 - Branching on the above listed forbidden structures and then solve the problem in polynomial time.

Main Contributions

- A refined branching on holes of length four with branching root 3.792
- An improved algorithm for the proper interval edge deletion problem

