

Graphs of Bounded Rank-Width

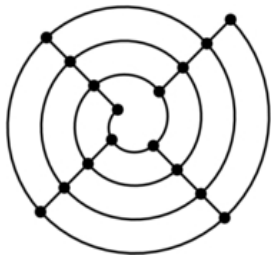
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Career Path: Postdoctoral Fellow, Georgia Institute of Technology

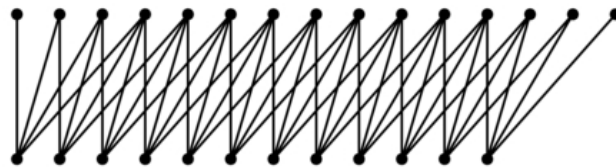
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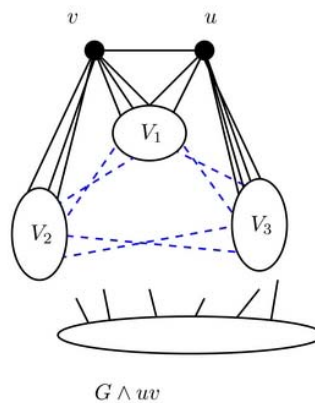
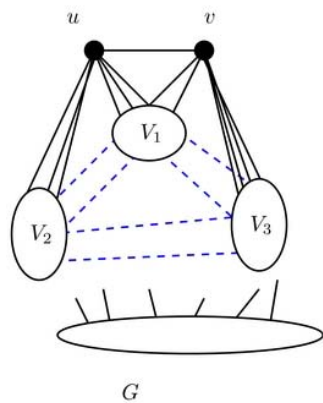
My thesis is in the area of structural graph theory; the forensic analysis of graphs. I define rank-width of graphs in order to investigate clique-width. Rank-width is a complexity measure for decomposing a graph in a kind of tree-structure, called a rank-decomposition. I discuss the construction algorithm (constructing a decomposition tree of rank-width or clique-width for input graphs of small rank-width) and the well-quasi-ordering theorem as well as several properties of vertex-minors and their logic formulations. All of them are combined into an algorithm that recognizes graphs of rank-width at most k for a fixed k . I also prove a weaker version of Seese's conjecture on clique-width.



Obstruction for a graph to have large tree-width



Obstruction for a bipartite graph to have large rank-width



Pivoting operation on graphs