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Improved dynamic programming algorithms for bandwidth minimization and the MinCut linear arrangement problem. (English) [Zbl 0556.68012](#)

J. Algorithms 5, 531-546 (1984).

The dynamic programming algorithm of *J. B. Saxe* [*SIAM J. Algebraic Discrete Methods* 1, 363-369 (1980; [Zbl 0496.68032](#))] for the bandwidth minimization problem is improved. It is shown that, for all $k > 1$, $BANDWIDTH(k)$ can be solved in $O(n^k)$ steps and simultaneous $O(n^k)$ space, where n is the number of vertices in the graph, and that each such problem is in $NSPACE(\log n)$. The same improved dynamic programming algorithm approach works to show that the MINCUT LINEAR ARRANGEMENT problem restricted to the fixed value k , denoted by $MINCUT(k)$, is solvable in $O(n^k)$ steps and simultaneous $O(n^k)$ space and is in the class $NSPACE(\log n)$.

MSC:

[68Q25](#) Analysis of algorithms and problem complexity
[90C39](#) Dynamic programming

Cited in **1** Review
Cited in **28** Documents

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