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Longest (s,t)-paths in L-shaped grid graphs. (English) Zbl 1414.05164

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Summary: The longest path problem, that is, finding a simple path with the maximum number of vertices, is a well-known NP-hard problem with many applications. However, for some classes of graphs, including solid grid graphs and grid graphs with some holes, it is open. An L-shaped grid graph is a special kind of a rectangular grid graph with a rectangular hole. In this paper, we show that a longest path between two given vertices s and t of an L-shaped grid graph can be computed in linear time.

MSC:

05C38 Paths and cycles
05C12 Distance in graphs
68R10 Graph theory (including graph drawing) in computer science

Keywords:

grid graph; Hamiltonian path; L-shaped grid graph; longest path

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