

New Algorithm for Drawing Planar Straight-Line Graphs

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Abstract: Given a plane graph G , we wish to find a drawing of G in the plane such that the vertices of G are represented as grid points, and the edges are represented as straight-line segments between their endpoints without any edge-intersection. Such drawings are called planar straight-line drawings of G . An additional objective is to minimize the area of the rectangular grid in which G is drawn. In this paper we introduce a new linear-time algorithm that finds an embedding of G . This new algorithm gives planar straight-line drawing in a rectangular grid with area $(n-\alpha-2) \times (n-\alpha-2)$, where $0 \leq \alpha \leq \lfloor (n-4)/3 \rfloor$.