

**Noguchi, Takafumi; Ohno, Yoshio****A deformation algorithm of railway maps.** (English) Zbl 0990.68554

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Summary: Railway maps are often printed or posted in a deformed style for better understanding the topological connections of intersecting lines. In this paper we propose an algorithm for the automatic generation of deformed railway maps. The railway map is represented as an undirected graph; a vertex corresponds to a station and an edge corresponds to a railway between two stations. The data necessary for this algorithm are the position of each station, and a list of stations of each line. The algorithm proceeds as follows: 1. An angle value is assigned to each vertex based on the direction of edges attached to the vertex. 2. Adjacent vertices which are on a same railway line and which share similar angle values are gathered to make a group. 3. Assign a priority to each vertex based on the sizes of groups to which the vertex belongs. 4. Place each edge in the order of priority of its two end vertices. This algorithm is applied to some railway maps including the very complex one of Tokyo Metropolitan Area, and excellent results are obtained. The obtained deformed maps will be evaluated based on their accuracy and the understandability.

**MSC:**[68U99](#) Computing methodologies and applications[68U05](#) Computer graphics; computational geometry (digital and algorithmic aspects)**Keywords:**[railway maps](#); [graph drawing](#)**Full Text:** [EMIS](#)