How to uniquely determine your location in a graph?
A metric dimension problem

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Abstract

The metric dimension problem was first introduced in 1975 by Slater [4], and independently by Harary and Melter [3] in 1976; however the problem for hypercube was studied (and solved asymptotically) much earlier in 1963 by Erdős and Rényi [2]. A set of vertices $S$ resolves a graph $G$ if every vertex is uniquely determined by its vector of distances to the vertices in $S$. The metric dimension of $G$ is the minimum cardinality of a resolving set of $G$. An analog problem for directed graphs was then considered by Chartrand, Raines and Zhang [1] in 2000.

In this talk I will present a short historical account, known techniques, recent results, and open problems in the area of metric dimension for undirected and directed graphs.

References


