

Locating a Robber on a Graph

Consider the following game of a cop locating a robber on a connected graph. At each turn, the cop chooses a vertex of the graph to probe, and receives the distance from the probe to the robber. If she can uniquely locate the robber after this probe, she wins. Otherwise the robber may move to any vertex adjacent to his location other than the probe vertex. The cop's goal is to minimize the number of probes required to locate the robber, while the robber's goal is to avoid detection. This is a synthesis of the cop and robber game with the metric dimension problem. We consider some aspects of this game.