

Survey on pedestrian-dynamics models for evacuation process based on game theory

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Abstract

In this paper, we explore the application of game theory to model human decisions making and pedestrian dynamics for evacuation process. In game-theory approach, a pedestrian is represented as a player or an agent where the agent makes its decision by inspecting its neighbors' decision. The game theory is used to study behavioral relations and applied in the science of human behavior decisions. In pedestrian dynamics, the theory deals with individual interaction toward the destination considering psychology and physics. The matrix associated with game theory changes depending on distance to the evacuation exits and obstacles faced on the path, density of evacuees and so on. In this paper, we review the recent articles which studied the game theory to study the pedestrian dynamics and the evacuation process.

Keywords: game theory; pedestrian dynamics; evacuation model; mathematical models; behavior models