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基于模糊元胞自动机的多出口人员疏散模型

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Title: A multi-exit occupant evacuation model based on fuzzy cellular automaton

作者: 赵宜宾¹; 刘艳艳¹; 张梅东¹; 曾文艺²

1. 防灾科技学院 基础部, 河北 三河 065201;
2. 北京师范大学 信息科学与技术学院, 北京 100875

Author(s): ZHAO Yibin¹; LIU Yanyan¹; ZHANG Meidong¹; ZENG Wenyi²

1. Department of Basic Courses, Institute of Disaster Prevention, Sanhe 065201, China;
2. College of Information Science and Technology, Beijing Normal University, Beijing 100875, China

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摘要: 考虑人员在疏散过程中获取的决策信息的模糊性,构建了以距出口距离、目标方向密度和出口前人员密度为输入,以方向选择可能性为输出的模糊元胞自动机多出口人员疏散模型,通过方向调节因子和决策因子对选择可能性修正,使模型对疏散过程的描述更加合理。对教室中学生疏散行为的模拟仿真表明,模型是有效和实用的。

Abstract: Considering the fuzziness of the information obtained in the occupant evacuation process, this paper establishes a multi-exit occupant evacuation model based on fuzzy cellular automaton, using the distance to exit, density of target direction and density at exit as input values, and the possibility of direction selection as the output values. Description of the evacuation process of the model is made more reasonable by the adjustment of selection possibilities through the correction of the direction factor and the decision factor. The analog simulation of the student's evacuation behavior in the classroom proves the effectiveness and

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practicality of the model.