Annotated Bibliography

For each article, your annotation includes 3 paragraphs:

1. A brief summary
2. Evaluation of the article (which includes significance and limitations)
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Suppose I am interested in developing a similar simulation but one with *kin* behavior.

[1] A. Varas *et al.*, "Cellular automaton model for evacuation process with obstacles," *Physica A: Statistical Mechanics and its Applications*, vol. 382, no. 2, pp. 631–642, Aug. 2007, doi: 10.1016/j.physa.2007.04.006.

In this article, the researchers use a cellular automata model to simulate evacuation of people from a room, either with or without obstacles. During the simulation, individuals always move towards the nearest exit but may "panic" and not move with a fixed probability. The authors conduct an experiment to find the optimal location of a door, or a double door, and find that a common location of a door (the front corner of the room), leads to one of the longest evacuation times.

The authors find that a common location for a classroom door is one of the worst locations, with respect to evacuation time. The model described by the authors could also provide a starting point for more complex models. The model is relatively simple, and does not include several features, which are acknowledged by the authors. For example, the model does not include kin or competitive behavior. In addition, individuals are randomly distributed, which may not be realistic, and each individual behaves the same way (moving towards the nearest exit). However, the experiment is well-designed the authors correctly identify the optimal location of a door based on the modeling assumptions that they make.

The model described in this paper uses a floor field for movement, where the floor field is the number of steps from the exit, and individuals in the model move towards the lower floor field value. I will also use this approach in the model I will be working on.