

Crowd dynamics simulation- a multi-agent system based on CA

Preparations

Please use your own work from LAB 5

Further improvements

- Improve calculation method for static floor field.
- Add repulsion force between pedestrians and walls (add it by modification of static floor field close to the walls).
- Random order of pedestrian's movement.
- Define more than one exit (source) of the static field, and implement the pedestrian decision process of choosing the exit.
- Add new layer to the simulation with the smoke. Define the source of the smoke (e.g., fire), implement the diffusion and decay of the smoke. Add some interaction between the pedestrian and the smoke (e.g., if smoke is dense enough, the pedestrian moves slower or changes the direction of the movement)
- Add obstacles to the map, and implement the direction-finding algorithm (is the static potential field will be enough?)
- Add the group behavior. Define the group with some arbitrary number of pedestrians. Define the group leader and implement the new movement algorithm (others group members will follow the leader). The leader may change the exit.
- ... **your idea**.

Assessment

- Please choose up to 3-4 improvements from list above (excluding ... **your idea**) to earn 5 pkt.
- If you choose to implement your own idea, then to earn 5 pkt please choose only one improvement from list above.
- Please also prepare the short description (in PDF).

Due to date

Please send you work before 20th of April in e-mail. (rlubas@agh.edu.pl)