Create realistic pedestrian crowd behaviors by simulating social groups

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What we did

Pedestrian crowd is widely simulated in scientific research and computer games. However, most existing approaches do not take the effect of social groups, such as families in a shopping mall and grouped high-school students reading the posters, into consideration when simulating pedestrian crowds. This causes the problem of less realistic simulations because social groups are widely existing in pedestrian crowds.

We create realistic pedestrian crowd behaviors by simulating various social groups. The key issue of simulating groups is to use a good approach such that different groups can be easily simulated. To solve this key issue, a general approach is created, followed by several examples of simulating groups.

The general approach for simulating groups

A group is simulated from two aspects, intra-group relationship and inter-group relationship.

Intra-group relationship: Relationships between pedestrians inside a group.

Inter-group relationship: Relationships between different groups in the pedestrian crowds.

Simulate intra-group relationships

Simulate the effect of groups on crowd behaviors

Simulate inter-group relationships

What we will do in the future

Create fast pedestrian crowd simulations by reducing unnecessary “movements” of the pedestrian crowds.

And more……

Related information

• Learn more at http://www.cs.gsu.edu/xhu
• BehaviorSim, http://www.cs.gsu.edu/~fasheng/behaviorsim
• Simulating Groups, http://www.cs.gsu.edu/~fasheng/groupsim