**Introduction**

The increasing proportion of people living in urban areas brings new challenges to urban planning and architecture. Crowd simulation plays an important role in addressing these challenges. With the help of crowd simulation technique, urban designers or architect could determine the evacuation time of a massive crowd, detect the behavior of crowd flow inside the building and prevent overcrowded area during events (Big goal).

Unfortunately, past crowd simulation approach is lacks of realism and flexibility because it does not involve complex behavior such as allowing agents to move in and out of different group or line based on agent’s desire.

Recent algorithms have been able to simulate “social crowds” that allow agents to interact socially as opposed to only treating other agents as obstacles. Unfortunately, past social crowd algorithms lack realism and flexibility because they do not allow agents to move in and out of different and repeated social interactions, are built around a specific obstacle avoidance algorithm, or are tuned only for a specific social setting and do not allow for artist directed changes (Small goal).

(Talk about others’ work…)

[read Dr.Ricks’ paper to find other’s approach]

Malostranské nám [1] have proposed walk along steering for navigating a couple of agents to reach a certain place together. This approach basically discards the steering Leader Following (LF) by Reynolds [2], one of pair agents would be the follower who follows the leader and stay on its side. This approach contains one disadvantages in the simulation, in this basic steer approach, leader agent does not wait for its follower agent if distance between these two agents is too large.

(评:

1.do we going to introduce this? It only covers feature of our approaches.

2.advance of this paper: agent slow down if apart too far, so it has not LF, it uses “partner”

策:

可以同[1]一样用[2]作为反面例子  
I add **feature** such as slow down leader to wait.) [***When a Couple Goes Together: Walk along Steering***].

**Proposed project objectives**

In this project, I will develop a crowd simulation application which aim at creating realistic, unique and accurate crowd.

***To be continue….***

(Briefly talk about what you observed from video we recorded…)

Features I plan to achieve:

* Determine shortest gate
* Pair walking
  + Adjust speed to walk side by side
  + Stay pair even queued already
* Queue up behavior
* Form a single/pair waiting line
* Agents reconsider and change line for shorter pass
* Agents walk through gates and line up behind another line
* Agents do two-phase security check
* Agent wait at first gate if there has no room to queue up in second phase
* Agent who finished check wait for partner to finish final check
* Anxiety update

Method

**Expected results**

Agents single or in pair walk across the scene and pass through two lines of gates. When there has large amount of people appear, agents line up and create certain number of waiting line and each agent consecutively pass through the gate one by one. By comparing length of distance between agent’s current position to the gate and length of nearby waiting line, agent in the waiting line might increase or decrease it anxiety level. Once agent’s anxiety degree reaches the upper bounce, agent will leave its own waiting line and line up at a new line.

Format of report

Project mentor

Qualifications

**References**

[1] Popelová, Markéta, et al. "When a couple goes together: walk along steering." International Conference on Motion in Games. Springer, Berlin, Heidelberg, 2011.

[2] Reynolds,C.:Steeringbehaviorsforautonomouscharacters.In:GDC,pp.763–782(1999)