Project 3 Final Project
EECS 287 Computer Animation and Simulation

Project Title: Steering Behavior

1) Project Description and Goal

For this project, I implement several steering behaviors by using multiple agents. I add seek, arrival, collision avoidance with other agents, separation, cohesion, alignment behaviors. For my goal, I was seeking to get a smooth steering motion by multi agents during two situations that makes agents collide (Figure 1).
To make scene better, add simple walking animation to the agent.

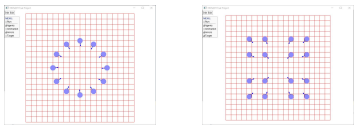

Figure 1: Two situation that makes agents collide

2) Evaluation and Result

To make motion smooth, I made the agent that only move in front and turn right and left. The most difficult problem in this project was to consider a solution to avoid situation that make agents stuck and never go to their goals. For example, Figure 2 (blue circle will be the agent's area and yellow circle will be their targets).
To avoid this situation, I add the code that move in front while they are turning and when they don't have anything in front.
In addition to this code, I put some condition during this move because if agent move in front all the time, it might just make the time longer to arrive to their target.
As the result, all of agents made it to the target with smooth motion in both situation.

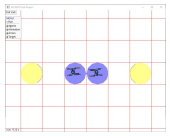

Figure 2: Stuck Situation

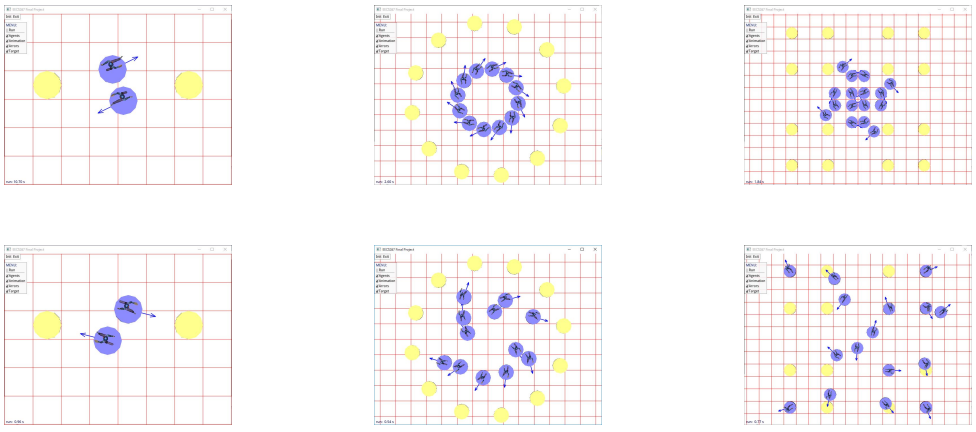

Figure 3: Result (First row is the results when agents are colliding and second row is the results when they find a way by my solution.)

3) Conclusion

Consequently, my solution to avoid the stuck situation went well with multiple agents. But still, their move is less efficient and not optimal. To improve more, I should add path planning to make more choice for each agent movement.
Moreover, it will be interesting to simulate by agents that have different attitude. Because in reality, for example people have different attitude when they are in crowd situation. In some case, some people might take a choice to stop and wait until other moved off their path. Or, just might go straight to their goal by pushing others.