

# CS 425 Game Programming 1

## Assignment 5, Fall 2016

### Boids

Due Friday October 28<sup>nd</sup>, 2016 at midnight

#### Submission:

- This is an individual programming assignment. This assignment should be written using OGRE and the framework you have been developing throughout the semester or the Unreal game engine. It does not, however, require a working A\* implementation.
- When you have completed the assignment, delete the Debug directory and the .sdf file. Then zip together the rest of the directory. Be sure to include your .vcxproj and .sln files along with all of your source code files. If the project cannot be loaded and run properly, you will get no points for the assignment. Name the zipped file in the following way: **LastName\_FirstName\_HW\_05.zip** and submit it through Blackboard by the due date.

From the boids model presented in class, implement flocking using the separation, alignment, and cohesion components.

1. Set up a scene where there are at least 10 agents headed to at least a dozen goal locations as a flock. Make sure the goal locations are adequately far apart.
2. You can continue to use the Sinbad characters and have them walk on the floor plane or switch to another character, such as the fish, and have them swim through space. In either case, the characters should be animated and always be facing their direction of movement.

#### Suggestions, tips, things to consider...

- You might consider changing the walk speed to view collisions (or lack thereof) better.
- Most, if not all, of the necessary code calls might be in your updateLocomote method. The updateLocomote method already contains an mDirection calculation and the code for actually moving the agents. What changes need to be made to implement flocking? You might write it out on paper before starting your code.
- You will need to traverse the list of agents. Hence, you will need access to the agent list. One option is to store a pointer to the GameApplication instance in each agent by passing it in as a parameter of the agent constructor.
- As you are iterating through the agent list, be sure NOT to check this agent against itself.
- The flocking equations include some parameters or constants. Experiment with their values to determine what works best.
- A possible formulation for flocking is available with this assignment, but doesn't strictly have to be followed.
- Keep the big picture in mind.
- There is a lot of *sample* code for boids online. While you are permitted to use it as inspiration, you are NOT permitted to copy it and submit it as your own. Be sure to cite any references you use.