

Practical sheet: Wandering agents and the game loop

Part A : Compile and Execute OpenGL Sample Code from the command line

1. Download the source code OpenGL examples `GL_routines.cpp` `GL_routines.h` and `main.cpp`. Place them in a new directory called `game`.

Within the MacOSX Terminal application, build these files into a single executable. You will need to link to the GLUT toolkit and to OpenGL by typing the whole of the following command (on a single line) at the Terminal prompt and in the directory `game`.

```
g++ -o game.out GL_routines.cpp main.cpp -framework GLUT -framework OpenGL
```

There is no need to include `GL_routines.h` in this line. Why not? What do the options on the line do?

2. Run the executable `game.out`. The software is built as described in the notes for lecture 3a (on the interactive game loop). Carefully work through the code, making sure you understand what all of it does. You might need to consult an OpenGL and GLUT manual or online web reference at www.opengl.org

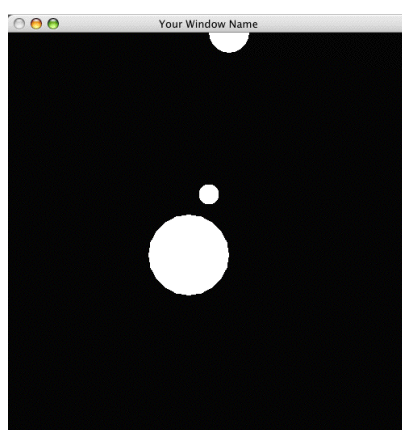


Fig 1. Result of step 2.

Part B : Making Circles with Character! :-)

1. Store circles in a new `Circle` class with its own `draw()` method. Allow the software to receive the number of circles to draw as a command line option.
2. Implement a “wandering” behaviour (fig. 2) for circles, determined by their size. Wandering behaviour involves a tendency to continue moving in the current direction, and a tendency to change direction. How might the parameters for this behaviour be adjusted based on agent (circle) size?
3. Receive *keyboard* input to select a circle. Show on the screen which circle is selected.
4. Receive *keyboard* input to change the “mood” of the selected circle from *crazy* to *calm*. Use a FSM to store circle state. What effect will this have on the circle’s wandering behaviour?

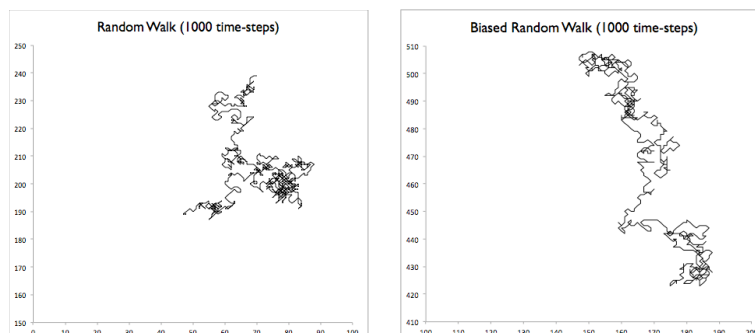


Fig 2. Wandering behaviour. Sample paths generated by a completely “random” walk and from a biased random walk (with a tendency to prefer to move straight ahead). Images from Zoe Bukovac.