CS 480/680 Computer Graphics

Spring 1999 - Dr. George Bebis

Programming Assignment 2

Due date: 3/23/99

In this assignment, you will implement a simple interactive video game called "Pong" using OpenGL and GLUT libraries. In this game, two rackets, represented by rectangles, can move along the vertical edges of a rectangular field. The player controls the left racket with the mouse. Moving the mouse up and down moves the racket up and down. The other identical racket is controlled by the computer. The ball, represented by a disk, bounces from the upper and lower boundary and the rackets, but goes through the left and right boundary of the field.

The computer always moves the racket towards the anticipated point of contact between the ball and the right boundary or its extension, even if it is outside the field. The speed of the computer's racket is proportional to the speed of the ball.

If the player misses the ball, the computer scores a point; if the computer misses the ball, the player scores a point.

Implementation Suggestions

To draw the rackets, you can use the function *glRect*. To draw the ball, you can use the function *gluDisk* (use *innerRadius=0*, *outerRadius= diskRadius*, *slices=20*, *rings=4*).

Each time the ball or the racket moves, redraw the whole picture. Use *double buffering* to create smooth motion (initialize the display using *glutInitDisplayMode(GLUT_DOUBLE | GLUT_RGBA);* and use *glutSwapBuffers();* to swap the contents of the frame buffers). To support continuous animation, register a *glutIdleFunc* callback.

Use GLUT font rendering calls to show the score or other information.

Extra work (for graduate students only)

Add random obstacles in the field, that disappear once you hit them.