

## CSI 494 — SpTp: Computer Graphics

Homework #3, Due beginning of class Thursday, Sept 28.  
Documentation due by class on Tuesday 10/3.

In this homework you will be extending your OpenGL implementation to rasterize circles in two ways. Remember your program must compile and execute or you receive a 0.

### Project Requirements:

1. Your program should follow these steps
  - (a) Allow the user to draw as many lines and circles as they wish.
  - (b) Provide a keyboard entry method to specify the center and radius of a circle.
  - (c) Provide a method to switch between each circle drawing algorithm.
  - (d) Allow the user to click to draw circles. (Mouse entry method).
  - (e) Draw circles using  $(R\cos\theta, R\sin\theta)$ .
  - (f) Draw circles using the midpoint method.
  - (g) Time your results for drawing circles (as you did for lines). You should use command line inputs to do this appropriately.
  - (h) **Extra Credit** - Add rubberbanding for circles.
2. In your README, describe how to switch between each method. Remember to describe all command line input, keyboard inputs and mouse inputs. In addition, discuss the difficulties of implementing circle drawing. How are the times different for each circle drawing method? Which is preferable and why? Are there further optimizations available?