

## Assignment 2—2-D graphics

### 1. Create a 2-D graphics application with the following functionality:

- a. Load & save tiff image files
- b. 2-D triangle rasterization (constant color)
- c. Line segment rasterization (constant color)
- d. Image processing
  - i. Brightness adjustment
  - ii. Edge detection
- e. Graphical user interface
  - i. Load and save image buttons, should ask for file name
  - ii. Edge detection button
  - iii. Brightness adjustment button & percentage value field

### 2. Demonstrate application by:

- a. Making an image that spells out your first name (first 3 letters suffice)
  - i. Letters should be thick, made of 2-D triangles; black letter contour should be made of 2-D segments
  - ii. Save image as name.tif
- b. Find edges in given image; save as edges.tif
- c. Increase brightness 20% in given image; save as bright.tif

### 3. Extra credit

- a. Contrast enhancement (2%)
- b. A cool image effect (x%)
- c. Vertex color interpolation for triangle rasterization (2%)
- d. 2-D Tetris game (5%)
- e. A cool 2-D game (x%)
- f. Visualize point rotation from A1 in (xOy), (xOz), and (yOz) plane (3%)

### 4. Turn in on Blackboard

- a. Source code
- b. Executable
- c. 3 required images edges.tif, bright.tif, name.tif, and any extra credit images in root of submission archive
- d. A readme.txt file describing the usage and extra credit features attempted