Img Code Organization

namespace: img

Data Representation

ImgProc

Files: include/imgproc.h, base/imgproc.C

Class for holding an image, doing some manipulation, and getting info about the image.

Viewing/Running Animation

img_paint

File: base/img_paint.C

main for reading an image, initializing and running GLUT, and using keyboard inputs to choose methods of image computing.

```
The command
    > make
compiles these and other code into the library
    lib/libimg.a
To build img_paint:
    > make paint
```

Makefile Build Options

> make clean	Delete: .o files lib/libimg.a img_paint
> make	Compile .o files listed in Makefile, including everything in base/ Assembles library lib/libimg.a
>make paint	Compile base/img_paint and link lib/libimg.a Generate executable img_paint

Img Directories

- **include**: Header fi les for provided code
- **base**: C++ implemented of provided code
- **lib**: location of libpba.a

GLUT

Initialization

`glutInit()`
starts glut

`glutInitDisplayMode()`
lets glut initialize the OpenGL context and buffering

`glutInitWindowSize()`
size of the window onscreen that glut will create

`glutCreateWindow()`
creates a window, inside which an OpenGL context will display

Callbacks to function pointers (triggered during loop)

`glutDisplayFunc()`
tells glut which function to call to do OpenGL calls to redraw content in the window

`glutIdleFunc()`
tells glut which function to call when there is idle time available with nothing else to do

`glutKeyboardFunc()`
tells glut which function to call when a key has been pressed

`glutMouseFunc()`
tells glut which function to call when a mouse button has been pressed or released

`glutMotionFunc()`
tells glut which function to call when a mouse has been moved with a button pressed

Loop

`glutMainLoop()`
glut initiates an infinite loop internally, during which it monitors for events and runs corresponding callbacks

`glutPostRedisplay()`
tells glut that it is worthwhile to call the display callback when there is a chance in the loop cycle

`glutSwapBuffers()`
when using double buffers, tells glut that it is safe to swap the buffers, so that drawing happens in the buffer that is not being displayed.

OpenGL

`glClearColor()`
when the buffer is cleared by glClear(), this is the color of the cleared data in the buffer

`glClear()`
tells OpenGL to clear the buffer than is being drawn into

`glDrawPixels()`
takes an array of colors and draws them into the buffer