

ADD VISION TO YOUR PI

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August 15, 2015



EmbeddedLance

OF DATA TYPES



- ofPixels
- ofTexture
- IplImage
- ofImage
- ofxCvImage



`ofPixels` is used for working with blocks of pixels, those pixels can be copied from an image that you've loaded, something that you've drawn using `ofGraphics`, or a video source.



- ofTexture is used to create textures that live on your graphics card from bitmap data
- ofTexture is a wrapper for OpenGL textures
 - allows use of non-power of 2 textures in opengl, and to upload and draw graphical data



IplImage is taken from Intel Image Processing Library

- [IplImage OpenCV Documentation](#)
- It is wrapped in `ofxCvImage` class which is further wrapped in other classes studied earlier
- Important parameters include `nSize`, `nChannels`, `depth`, `origin`, `width`, `height`, `imageData` and `roi`



`ofImage` is used for loading, drawing and saving images.

Important Functions

- `setFromPixels()` allows you to use `ofPixels` or `IpLlImage` types to create a new image
- `getPixels()` returns a character array for manipulation
- `getPixelsRef()` returns an `ofPixels` object for manipulation

Contains all functions you will find in an average image editing software



`ofxCVImage` is the base class for

- `ofxCvShortImage`
- `ofxCvColorImage`
- `ofxCvFloatImage`
- `ofxCvGrayscaleImage`

It's made to provide interoperability between the core OF imaging types, `ofImage` and `ofTexture`, and `OpenCv`.



Derived Class	ipldepth	iplchannels	gldepth	glchannels
ofxCvGrayScaleImage	8U	1	byte	GL_LUMINANCE
ofxCVShortImage	16U	1	short	GL_LUMINANCE
ofxCVFloatImage	32F	1	float	GL_LUMINANCE
ofxCVColorImage	8U	3	byte	GL_RGB

YOU NOW HAVE THE BASIC UNDERSTANDING FOR IMAGE DATA TYPES
IN OPENFRAMEWORKS :)

OFVIDEOPLAYER



`ofVideoPlayer` is used for displaying video from files.

- Similar to `soundPlayer` so it is as easy as working with sound
- Implementation depends on the OS. QuickTime for Windows, OSX and GStreamer for Linux
- Loading and Displaying `loadMovie()`, `update()`
- Seeking `getPosition()`, `setFrame()`, `nextFrame()`
- For grabbing frames `isFrameNew()`, `getPixelsRef()`
- Other Utils `setSpeed()`, `setVolume()`

YOU NOW HAVE THE BASIC UNDERSTANDING OF THE VIDEO PLAYER
CLASS IN OPENFRAMEWORKS :)

OFVIDEOGRABBER



`ofVideoGrabber` is used for capturing video from the camera.

- Implementation depends on the OS.
 - QuickTime for OSX
 - Select-able between QuickTime and DirectShow for Windows
 - Select-able between unicap and V4L for Linux
- For detecting cameras `listDevices()`
- For grabbing frames `isFrameNew()`, `getPixelsRef()`, `setDesiredFrameRate()`
- Display Settings `videoSettings()`

YOU NOW HAVE THE BASIC UNDERSTANDING OF THE VIDEO
GRABBER CLASS IN OPENFRAMEWORKS :)