a list of built-in objects in ofelia.

declare -lib ofelia

------------------------- WINDOW -------------------------

- ofelia - initialize the ofelia external library
- ofWindow - handle the output window
- ofGetWidth - get the width of the current window
- ofGetHeight - get the height of the current window
- ofGetDimen - get the dimensions of the current window
- ofGetScale - get the scale of the current window
- ofGetFrameNum - get the number of frames rendered
- ofGetFrameRate - get the actual frame rate of the current window
- ofGetTargetFrameRate - get the target frame rate of the current window
- ofGetElapsedTime - get the elapsed time in milliseconds
- ofGetLastFrameTime - get the last frame time in milliseconds
- ofGetOrienLock - get the orientation lock state of the current window
- ofGetOrien - get the orientation of the current window
- ofGetFullscreen - get the fullscreen state of the current window
- ofGetFocus - get the focus state of the current window
- ofGetPosX - get the x position of the current window
- ofGetPosY - get the y position of the current window
- ofGetPos - get the position of the current window
- ofGetScreenWidth - get the width of the current device's screen
- ofGetScreenHeight - get the height of the current device's screen
- ofGetScreenDimen - get the dimensions of the current device's screen
- ofGetRetina - get the retina scale of the current device's screen
- ofGetBgColorR - get the r value of the background color
- ofGetBgColorG - get the g value of the background color
- ofGetBgColorB - get the b value of the background color
- ofGetBgColor - get the background color of the current window
- ofGetWindow - check if a window exists
- ofGetFirstRenderOrder - get the first rendering order
- ofGetLastRenderOrder - get the last rendering order
- ofTouchListener - listen to the touch events
- ofMouseListener - listen to the mouse events
- ofScrollListener - listen to the mouse scroll events
- ofKeyListener - listen to the key events
- ofAccelListener - listen to the accelerometer events
- ofScaleListener - listen to the updated scale of the current window
- ofOrienListener - listen to the updated orientation of the current window
- ofFullscreenListener - listen to the fullscreen mode of the current window
- ofFocusListener - listen to the focus state of the current window
- ofPosListener - listen to the updated position of the current window
- ofWindowListener - listen to the creation/destruction of the current window
- ofWindowLoadBang - listen to the creation of the current window
- ofWindowCloseBang - listen to the destruction of the current window
- ofBackListener - listen to the back button press on android devices

------------------------- GRAPHICS -------------------------

- ofHead - the start of a rendering chain
- ofTranslate - move along the coordinate system
- ofRotateX - rotate around the x-axis of the coordinate system
- ofRotateY - rotate around the y-axis of the coordinate system
- ofRotateZ - rotate around the z-axis of the coordinate system
- ofRotateXYZ - rotate around the xyz-axis of the coordinate system
- ofRotate - produce a rotation of angle around the vector
- ofScale - scale along the coordinate system
- ofPushMatrix - push the current matrix
- ofPopMatrix - pop the current matrix
- ofSetColor - set the draw color
- ofSetBgColor - set the background color
- ofSetRectMode - set the align mode for drawing rectangular objects
- ofSetTextMode - set the align mode for drawing texts
- ofSetFillMode - set the fill mode for drawing shaped objects
- ofSetPolyMode - set the poly winding mode for drawing
- ofSetBlendMode - set the blend mode for drawing
- ofSetLineWidth - set the width of the lined objects
- ofSetLineSmoothing - enable/disable the smoothing for lines
- ofSetCircleRes - set the resolution for circular objects
- ofSetCurveRes - set the resolution for curved objects
- ofPushStyle - push the current style
- ofPopStyle - pop the current style
- ofSepMatrix - separate render chains in matrix
- ofSepStyle - separate render chains in style
- ofSeparator - separate render chains in matrix and style
- ofViewport - setup the drawing viewport
- ofSetDepthTest - enable/disable the depth test
- ofSetArbTex - enable/disable the use of ARB textures
- ofSetAntiAliasing - enable/disable the anti-aliasing for lines
- ofSetBgAuto - enable/disable the auto background clearing function
- ofClear - clear the color and depth bits of current renderer
- ofClearColor - clear the color bits of current renderer
- ofClearDepth - clear the depth bits of current renderer
- ofClearAlpha - clear the alpha channel of current renderer
- ofBeginShape - start drawing a new shape
- ofEndShape - finishing the shape and draw it to the screen
- ofNextContour - draw multiple contours within one shape
- ofVertex2d - specify a single 2d point of a shape
- ofVertex3d - specify a single 3d point of a shape
- ofCurveVertex2d - specify a single 2d point of a shape
- ofCurveVertex3d - specify a single 3d point of a shape
- ofBezierVertex2d - describe a bezier curve through three points of a shape
- ofBezierVertex3d - describe a bezier curve through three points of a shape
- ofCircle - draw a circle
- ofEllipse - draw an ellipse
- ofArc - draw an arc
- ofSector - draw a sector
- ofLine2d - draw a 2d line
- ofLine3d - draw a 3d line
- ofCurve2d - draw a 2d curve
- ofCurve3d - draw a 3d curve
- ofBezier2d - draw a 2d bezier curve
- ofBezier3d - draw a 3d bezier curve
- ofQuadBezier2d - draw a 2d quadratic bezier curve
- ofQuadBezier3d - draw a 3d quadratic bezier curve
- ofTriangle2d - draw a 2d triangle
- ofTriangle3d - draw a 3d triangle
- ofEqTriangle - draw an equilateral triangle
- ofIsoTriangle - draw an isosceles triangle
- ofQuad2d - draw a 2d quadrilateral
- ofQuad3d - draw a 3d quadrilateral
- ofSquare - draw a square
- ofRectangle - draw a rectangle
- ofRectRounded - draw a rounded rectangle with a given corner radius
- ofRectRounded4 - draw a rounded rectangle with a given 4 corner radiuses
- ofCross - draw a cross
- ofHeart - draw a heart
- ofMoon - draw a moon
- ofRegPolygon - draw a regular polygon
- ofStar - draw a star
- ofAxis - draw axes
- ofBox - draw a box
- ofCone - draw a cone
- ofCylinder - draw a cylinder
- ofIcosphere - draw an icosphere
- ofPlane - draw a plane
- ofSphere - draw a sphere
- ofArrow - draw an arrow
- ofGrid - draw grid planes
- ofGridPlane - draw a yz grid plane
- ofRotationAxes - draw a set of 3-axis aligned circular bands
- ofLoadPolyline2d - store an array of polyline2d commands
- ofLoadPolyline3d - store an array of polyline3d commands
- ofDrawPolyline2d - draw the stored polyline2d
- ofDrawPolyline3d - draw the stored polyline3d
- ofDoesPolyline2dNameExist - check the existence of a polyline2d variable name
- ofDoesPolyline3dNameExist - check the existence of a polyline3d variable name
- ofEditPolyline2dPoint - edit the stored polyline2d point
- ofEditPolyline3dPoint - edit the stored polyline3d point
- ofGetPolyline2dPoint - get a polyline2d point at the given index
- ofGetPolyline3dPoint - get a polyline3d point at the given index
- ofGetPolyline2dPoints - get all polyline2d points as a list
- ofGetPolyline3dPoints - get all polyline3d points as a list
- ofIsPointInsidePolyline2d - check if a 2d point is within a closed polyline2d
- ofIsPointInsidePolyline3d - check if a 2d point is within a closed polyline3d
- ofGetPolyline2dCommand - get a polyline2d command at the given index
- ofGetPolyline3dCommand - get a polyline3d command at the given index
- ofGetPolyline2dCommands - get all polyline2d commands as a list
- ofGetPolyline3dCommands - get all polyline3d commands as a list
- ofGetPolyline2dBoundingBox - get the dimensions of the polyline2d bounding box
- ofGetPolyline3dBoundingBox - get the dimensions of the polyline3d bounding box
- ofGetPolyline2dCentroid - get the center position of the polyline2d area
- ofGetPolyline3dCentroid - get the center position of the polyline3d area
- ofGetPolyline2dArea - get the precise area of the polyline2d
- ofGetPolyline3dArea - get the precise area of the polyline3d
- ofGetPolyline2dPerimeter - get the size of the perimeter of the polyline2d
- ofGetPolyline3dPerimeter - get the size of the perimeter of the polyline3d
- ofLoadPath2d - store an array of path2d commands
- ofLoadPath3d - store an array of path3d commands
- ofDrawPath2d - draw the stored path2d
- ofDrawPath3d - draw the stored path3d
- ofDoesPath2dNameExist - check the existence of a path2d variable name
- ofDoesPath3dNameExist - check the existence of a path3d variable name
- ofGetPath2dPoint - get a path2d point at the given index
- ofGetPath3dPoint - get a path3d point at the given index
- ofGetPath2dPoints - get all path2d points as a list
- ofGetPath3dPoints - get all path3d points as a list
- ofIsPointInsidePath2d - check if a 2d point is within a closed path2d
- ofIsPointInsidePath3d - check if a 2d point is within a closed path3d
- ofGetPath2dCommand - get a path2d command at the given index
- ofGetPath3dCommand - get a path3d command at the given index
- ofGetPath2dCommands - get all path2d commands as a list
- ofGetPath3dCommands - get all path3d commands as a list
- ofGetPath2dTessellation - get the tessellation data to convert path2d to mesh2d
- ofGetPath3dTessellation - get the tessellation data to convert path3d to mesh3d
- ofGetPath2dBoundingBox - get the dimensions of the path2d bounding box
- ofGetPath3dBoundingBox - get the dimensions of the path3d bounding box
- ofGetPath2dCentroid - get the center position of the path2d area
- ofGetPath3dCentroid - get the center position of the path3d area
- ofGetPath2dArea - get the precise area of the path2d
- ofGetPath3dArea - get the precise area of the path3d
- ofGetPath2dPerimeter - get the size of the perimeter of the path2d
- ofGetPath3dPerimeter - get the size of the perimeter of the path3d
- ofCreateFbo - create framebuffer object
- ofBindFboTex - bind the stored fbo's texture
- ofDrawFbo - draw the stored fbo
- ofDoesFboNameExist - check the existence of a fbo variable name
- ofIsFboAllocated - check if the fbo is allocated or not
- ofGetFboDimen - get the dimensions of the fbo
- ofGetFboType - get the type of the fbo
- ofCreateImage - create an image
- ofLoadImage - store an array of images
- ofEditImage - edit the stored image
- ofSaveImage - save image to disk
- ofBindImageTex - bind the stored image's texture
- ofDrawImage - draw the stored image
- ofDrawSubImage - draw a subsection of the image
- ofDoesImageNameExist - check the existence of an image variable name
- ofGetImagePath - get the absolute path of the image
- ofIsImageAllocated - check if the image is allocated or not
- ofGetImageDimen - get the dimensions of the image
- ofGetImageType - get the type of the image
- ofGetImageColorAt - get the color of a pixel at the specified x, y index
- ofGetImageTexCoord - get the texture coordinate of the image from 2d vertex
- ofGetImageTexCoords - get the texture coordinates of the image from 2d vertices
- ofLoadFont - store an array of fonts
- ofEditFont - edit the stored font
- ofBindFontTex - bind the stored font's texture
- ofDrawText - draw a text using the stored font
- ofDrawTextAsShapes - draw a text as shapes using the stored font
- ofDoesFontNameExist - check the existence of a font variable name
- ofGetFontPath - get the absolute path of the font
- ofGetFontSize - get the size of the font
- ofIsFontLoaded - check if the font is loaded or not
- ofGetTextBoundingBox - get the dimensions of the text bounding box
- ofGetFontLetterSpacing - get the letter spacing of the font
- ofGetFontLineHeight - get the line height of the font
- ofGetFontSpaceSize - get the space size of the font
- ofGetTextMesh2dCommands - get the mesh2d data based on the font and text
- ofGetTextMesh3dCommands - get the mesh3d data based on the font and text
- ofLoadMesh2d - store a set of arrays for a 2d mesh
- ofLoadMesh3d - store a set of arrays for a 3d mesh
- ofDrawMesh2d - draw the stored mesh2d
- ofDrawMesh3d - draw the stored mesh3d
- ofDoesMesh2dNameExist - check the existence of a mesh2d variable name
- ofDoesMesh3dNameExist - check the existence of a mesh3d variable name
- ofEditMesh2dVertex - edit the stored mesh2d vertex
- ofEditMesh3dVertex - edit the stored mesh3d vertex
- ofEditMesh2dIndex - edit the stored mesh2d index
- ofEditMesh3dIndex - edit the stored mesh3d index
- ofEditMesh2dNormal - edit the stored mesh2d normal
- ofEditMesh3dNormal - edit the stored mesh3d normal
- ofEditMesh2dTexCoord - edit the stored mesh2d texture coordinate
- ofEditMesh3dTexCoord - edit the stored mesh3d texture coordinate
- ofEditMesh2dColor - edit the stored mesh2d color
- ofEditMesh3dColor - edit the stored mesh3d color
- ofGetMesh2dVertex - get the mesh2d vertex at the given index
- ofGetMesh3dVertex - get the mesh3d vertex at the given index
- ofGetMesh2dIndex - get the mesh2d index at the given index
- ofGetMesh3dIndex - get the mesh3d index at the given index
- ofGetMesh2dNormal - get the mesh2d normal at the given index
- ofGetMesh3dNormal - get the mesh3d normal at the given index
- ofGetMesh2dTexCoord - get the mesh2d texture coordinate at the given index
- ofGetMesh3dTexCoord - get the mesh3d texture coordinate at the given index
- ofGetMesh2dColor - get the mesh2d color at the given index
- ofGetMesh3dColor - get the mesh3d color at the given index
- ofGetMesh2dVertices - get all mesh2d vertices as a list
- ofGetMesh3dVertices - get all mesh3d vertices as a list
- ofGetMesh2dIndices - get all mesh2d indices as a list
- ofGetMesh3dIndices - get all mesh3d indices as a list
- ofGetMesh2dNormals - get all mesh2d normals as a list
- ofGetMesh3dNormals - get all mesh3d normals as a list
- ofGetMesh2dTexCoords - get all mesh2d texture coordinates as a list
- ofGetMesh3dTexCoords - get all mesh3d texture coordinates as a list
- ofGetMesh2dColors - get all mesh2d colors as a list
- ofGetMesh3dColors - get all mesh3d colors as a list
- ofGetMesh2dCommands - get all mesh2d commands as a list
- ofGetMesh3dCommands - get all mesh3d commands as a list
- ofGetMesh2dBoundingBox - get the dimensions of the mesh2d bounding box
- ofGetMesh3dBoundingBox - get the dimensions of the mesh3d bounding box
- ofGetMesh2dCentroid - get the centroid of all the vetices in the mesh2d
- ofGetMesh3dCentroid - get the centroid of all the vetices in the mesh3d
- ofEasyCam - a simple camera for interacting with objects in 3d space
- ofCamera - a basic camera for interacting with objects in 3d space
- ofPointLight - a light that spreads outward evenly in all directions
- ofSpotlight - a light that spreads outward in a cone
- ofDirectionalLight - a light that comes evenly from a given direction
- ofMaterial - set the material of the object

------------------------- TYPES -------------------------

- ofLoadFloat - store an array of floats
- ofEditFloat - edit the stored float
- ofDoesFloatNameExist - check the existence of a float variable name
- ofGetFloat - get a float element at the given index
- ofGetFloats - get all float elements as a list
- ofGetFloatAverage - get the average value of float elements
- ofLoadVec2f - store an array of two dimensional vectors
- ofEditVec2f - edit the stored vec2f
- ofDoesVec2fNameExist - check the existence of a vec2f variable name
- ofGetVec2f - get a vec2f element at the given index
- ofGetVec2fs - get all vec2f elements as a list
- ofGetVec2fAverage - get the average value of vec2f elements
- ofGetVec2fAngle - get the angle in degrees between two vec2fs
- ofGetVec2fAngleRad - get the angle in radians between two vec2fs
- ofGetVec2fDist - get the distance between two vec2fs
- ofGetVec2fDistSquared - get the squared distance between two vec2fs
- ofGetVec2fDot - get the dot product of two vec2fs
- ofGetVec2fLength - get the length of the vec2f element
- ofGetVec2fLengthSquared - get the squared length of the vec2f element
- ofLoadVec3f - store an array of three dimensional vectors
- ofEditVec3f - edit the stored vec3f
- ofDoesVec3fNameExist - check the existence of a vec3f variable name
- ofGetVec3f - get a vec3f element at the given index
- ofGetVec3fs - get all vec3f elements as a list
- ofGetVec3fAverage - get the average value of vec3f elements
- ofGetVec3fAngle - get the angle in degrees between two vec3fs
- ofGetVec3fAngleRad - get the angle in radians between two vec3fs
- ofGetVec3fDist - get the distance between two vec3fs
- ofGetVec3fDistSquared - get the squared distance between two vec3fs
- ofGetVec3fDot - get the dot product of two vec3fs
- ofGetVec3fLength - get the length of the vec3f element
- ofGetVec3fLengthSquared - get the squared length of the vec3f element
- ofLoadVec4f - store an array of four dimensional vectors
- ofEditVec4f - edit the stored vec4f
- ofDoesVec4fNameExist - check the existence of a vec4f variable name
- ofGetVec4f - get a vec4f element at the given index
- ofGetVec4fs - get all vec4f elements as a list
- ofGetVec4fAverage - get the average value of vec4f elements
- ofGetVec4fDist - get the distance between two vec4fs
- ofGetVec4fDistSquared - get the squared distance between two vec4fs
- ofGetVec4fDot - get the dot product of two vec4fs
- ofGetVec4fLength - get the length of the vec4f element
- ofGetVec4fLengthSquared - get the squared length of the vec4f element
- ofLoadColor - store an array of colors
- ofEditColor - edit the stored color
- ofDoesColorNameExist - check the existence of a color variable name
- ofGetColor - get a color element at the given index
- ofGetColors - get all color elements as a list
- ofLoadSymbol - store an array of symbols
- ofEditSymbol - edit the stored symbol
- ofDoesSymbolNameExist - check the existence of a symbol variable name
- ofGetSymbol - get a symbol element at the given index
- ofGetSymbols - get all symbol elements as a list

------------------------- MATH -------------------------

- ofAngleDifferenceDegrees - calculate the difference between two angles in degrees
- ofAngleDifferenceRadians - calculate the difference between two angles in radians
- ofDegToRad - convert degrees to radians
- ofRadToDeg - convert radians to degrees
- ofDist2d - calculate the 2d distance between two points
- ofDist3d - calculate the 3d distance between two points
- ofDistSquared2d - calculate the squared 2d distance between two points
- ofDistSquared3d - calculate the squared 3d distance between two points
- ofInRange - determine if a number is inside of a given range
- ofClamp - clamp a value between min and max
- ofNormalize - map the input value to be within 0 and 1
- ofLerp - linearly interpolate a value within a range
- ofLerpDegrees - linearly interpolate a value between two angles in degrees
- ofLerpRadians - linearly interpolate a value between two angles in radians
- ofRandom - get a random number within a given range
- ofRandomf - get a random floating point number between -1 and 1
- ofRandomuf - get a random floating point number between 0 and 1
- ofSeedRandom - seed the random number generator with a unique value
- ofWrap - wrap a value if it overflows a given range
- ofWrapDegrees - wrap a value within the angle in degrees
- ofWrapRadians - wrap a value within the angle in radians
- ofMap - map the value to a new value
- ofNextPow2 - calculate the next larger power of 2
- ofNoise - calculate a simplex noise value between 0 and 1
- ofSignedNoise - calculate a simplex noise value between -1 and 1
- ofSign - get the sign of a value

------------------------- UTILS -------------------------

- ofAppend - append a symbol to an incoming message
- ofPrepend - prepend a symbol to an incoming message
- ofPack - combine several atoms into one message
- ofListFind - get indices of sublists found in a list
- ofFindList - get indices of sublists found in a list
- ofListInsert - insert a list into a list
- ofInsertList - insert a list into a list
- ofListFill - fill a list with element
- ofFillList - fill a list with element
- ofListReplace - replace sublists in a list
- ofReplaceList - replace sublists in a list
- ofListRemove - remove sublists in a list
- ofRemoveList - remove sublists in a list
- ofListErase - remove a range of elements from a list
- ofEraseList - remove a range of elements from a list
- ofListSort - sort a list in ascending or descending order
- ofListUnique - remove duplicates from a list
- ofListReverse - reverse the order of a list
- ofListShuffle - randomly change the order of a list
- ofListToSymbol - convert a list into a symbol
- ofSymbolToList - convert a symbol into a list
- ofHexToHsb - convert hex color values to hsb color values
- ofHexToRgb - convert hex color values to rgb color values
- ofHsbToHex - convert hsb color values to hex color values
- ofHsbToRgb - convert hsb color values to rgb color values
- ofRgbToHex - convert rgb color values to hex color values
- ofRgbToHsb - convert rgb color values to hsb color values
- ofValue - nonlocal shared value
- ofSend - send messages without patch cords
- ofReceive - receive messages without patch cords
- ofExpr - expression evaluation object
- ofDefine - expression evaluation object
- ofPatch - open/close pd patches
- ofGetCanvasName - get the unique name of the canvas
- ofGetDollarZero - get the $0 value of the patch
- ofGetDollarArgs - get the arguments of the patch
- ofError - print an error to the pd console
- ofFile - create/remove/rename/copy/move files
- ofSaveURL - save a file from a url
- ofDoesFileExist - check the existence of a file
- ofGetDirectoryFileNames - get the list of file names in a directory
- ofGetDirectoryFilePaths - get the list of file paths in a directory
- ofDirectory - create/remove/rename/copy/move directories
- ofGetPatchDirectory - get the directory of the patch
- ofGetHomeDirectory - get the user home directory on desktop platforms
- ofGetDocumentsDirectory - get the documents directory on ios devices
- ofGetLibraryDirectory - get the library directory on ios devices
- ofGetTemporaryDirectory - get the temporary directory on ios devices
- ofDoesDirectoryExist - check the existence of a directory
- ofGetAudioDevices - get a list of all available input/output audio devices
- ofSetAudioDevices - set input/output audio device, sample rate and block size
- ofGetMidiDevices - get a list of all available input/output midi devices
- ofSetMidiDevices - set input/output midi device
- ofCount - count over a range
- ofCountUntil - count over a range at once
- ofStep - increase or decrease a value in steps
- ofAnimate - smoothly change a value over time
- ofSwitch - pass messages from a specific inlet
- ofGate - route a message to an outlet
- ofGetMinFloat - get the lowest possible float
- ofGetMaxFloat - get the highest possible float
- ofGetPlatform - get the OS platform being used
- ofGetDate - get the day/month/year
- ofGetTime - get the time in seconds/minutes/hours

------------------------- AUDIO -------------------------

- ofSine~ - sine wave oscillator
- ofTriangle~ - triangle wave oscillator
- ofSaw~ - sawtooth wave oscillator
- ofSquare~ - square wave oscillator
- ofPulse~ - pulse wave oscillator
- ofBlTriangle~ - bandlimited triangle wave oscillator
- ofBlSaw~ - bandlimited sawtooth wave oscillator
- ofBlSquare~ - bandlimited square wave oscillator
- ofBlPulse~ - bandlimited pulse wave oscillator
- ofLowPass~ - low-pass filter with resonance control
- ofHighPass~ - high-pass filter with resonance control
- ofBandPass~ - band-pass filter with Q control
- ofNotch~ - notch filter with bandwidth control
- ofPeaking~ - peaking filter with Q and gain control
- ofLowShelf~ - low shelf filter with shelf slope and gain control
- ofHighShelf~ - high shelf filter with shelf slope and gain control
- ofAllPass~ - all-pass filter with bandwidth control