

# Opengl 3D Samples

## OpenGL 3D samples

These samples use the [Tao Framework](#) for OpenGL on .NET and Mono.  
Tao is constantly changing (and moving), so these samples may be out of date.

### Redbook.Cube example in boo

```

//cube.boo
//when compiling with booc, add references to
//Tao.OpenGl.dll and Tao.FreeGlut.dll
//You may need to find a build of the freeglut.dll. I don't
//know where such a build is now.

import Tao.FreeGlut
import Tao.OpenGl

def Init():
    Gl.glClearColor(0.0, 0.0, 0.0, 0.0) //floats
    Gl.glShadeModel(Gl.GL_FLAT)

def Display():
    Gl.glClear(Gl.GL_COLOR_BUFFER_BIT)
    Gl glColor3f(1.0, 1.0, 1.0) //floats

    // Clear the matrix
    Gl.glLoadIdentity()

    // Viewing transformation
    Glu.gluLookAt(0.0, 0.0, 5.0, 0.0, 0.0, 0.0, 0.0, 1.0, 0.0)

    // Modeling transformation
    Gl.glScalef(1.0, 2.0, 1.0) //floats

    Glut.glutWireCube(1.0)
    Gl.glFlush()

def Keyboard(key as byte, x as int, y as int):
    if key == 27: //escape key
        System.Environment.Exit(0)

def Reshape(w as int, h as int):
    Gl.glViewport(0, 0, w, h)
    Gl.glMatrixMode(Gl.GL_PROJECTION)
    Gl.glLoadIdentity()
    Gl.glFrustum(-1.0, 1.0, -1.0, 1.0, 1.5, 20.0)
    Gl.glMatrixMode(Gl.GL_MODELVIEW)

    Glut.glutInit()
    Glut.glutInitDisplayMode(Glut.GLUT_SINGLE | Glut.GLUT_RGB)
    Glut.glutInitWindowSize(500, 500)
    Glut.glutInitWindowPosition(100, 100)
    Glut.glutCreateWindow("Cube")
    Init()
    Glut.glutDisplayFunc(Display)
    Glut.glutKeyboardFunc(Keyboard)
    Glut.glutReshapeFunc(Reshape)
    Glut.glutMainLoop()

```

## NeHe Example

This is a port of the base code sample from the NeHe OpenGL tutorials [site](#). It uses the Tao Framework's SimpleOpenGlControl.

```

/*
nehe.boo

Requires boo: http://boo.codehaus.org/
and the Tao OpenGL Framework: http://www.mono-project.com/Tao

Compile using the booc compile line tool:
booc.exe -r:Tao.OpenGl.dll -r:Tao.OpenGl.Glu.dll -r:Tao.Platform.Windows.dll
-out:nehe.exe NeHe.boo
*/



namespace NeHeTest


import System
import System.Windows.Forms
import System.Drawing
import System.ComponentModel
import Tao.OpenGl
import Tao.Platform.Windows


private class MainForm(Form):
    private components as Container = null
    private glControl = SimpleOpenGLControl()

    def constructor():
        InitializeComponent()

    def InitializeComponent():
        SuspendLayout()
        glControl.Location = Point(0, 0)
        glControl.Dock = DockStyle.Fill
        glControl.Visible = true
        glControl.KeyDown += HandleKeyDown

        Controls.Add(glControl)

        //the "self" is always optional:
        self.AutoScaleBaseSize = System.Drawing.Size(5, 13)
        self.ClientSize = System.Drawing.Size(292, 273)
        self.Name = 'MainForm'
        self.Text = 'NeHe Boo Example'
        ResumeLayout(false)

    protected override def OnLoad(e as EventArgs):
        super(e)
        InitGL()

    protected override def OnResize(e as EventArgs):
        super(e)
        ResizeGL(glControl.Width, glControl.Height)

    def Run(): //main loop
        while Created:
            Invalidate(true)
            DrawGL()
            Application.DoEvents()

```

```

protected override def Dispose(disposing as bool):
    if disposing:
        if components != null:
            components.Dispose()
    super(disposing)

private def HandleKeyDown(sender, e as KeyEventArgs):
    if e.KeyCode == Keys.Escape: //char type will be in boo soon
        Close()

private def InitGL():
    glControl.InitializeContexts()
    OnResize(null)

private def ResizeGL(w as int, h as int):
    Gl.glViewport( 0, 0, w, h)
    Gl.glMatrixMode ( Gl.GL_PROJECTION )
    Gl.glLoadIdentity()
    Glu.gluPerspective( 60.0, cast(double,w) / h, 1.0,1000.0)
    Gl.glMatrixMode ( Gl.GL_MODELVIEW )
    Gl.glLoadIdentity()

////////////////// Drawing code ///////////////////
private _lastMs = 0
private _angle = 0.0

private def DrawGL():
    if _lastMs == 0:
        _lastMs = DateTime.Now.Ticks

    currentMs = DateTime.Now.Ticks
    //int division will change from / to \ in future:
    milliseconds as long = (currentMs - _lastMs) / 10000
    _lastMs = currentMs
    Gl.glClear(Gl.GL_COLOR_BUFFER_BIT | Gl.GL_DEPTH_BUFFER_BIT)
    Gl.glLoadIdentity()
    Gl.glTranslatef(0, 0, -6)
    Gl.glRotatef(_angle, 0, 1, 0)
    rot1 = 0
    while rot1 < 2.0:
        Gl.glRotatef(90, 0, 1, 0)
        Gl.glRotatef(180, 1, 0, 0)
        rot2 = 0
        while rot2 < 2:
            Gl.glRotatef(180, 0, 1, 0)
            Gl.glBegin(Gl.GL_TRIANGLES)
            Gl glColor3f(1, 0, 0)
            Gl glVertex3f(0, 1, 0)
            Gl glColor3f(0, 1, 0)
            Gl glVertex3f(-1, -1, 1)
            Gl glColor3f(0, 0, 1)
            Gl glVertex3f(1, -1, 1)
            Gl glEnd()
            rot2 += 1
        rot1 += 1

    Gl.glFlush()
    _angle += milliseconds / 5.0

```

```
/////////// main part of script ///////////
res = MessageBox.Show(null, 'Would You Like To Run In Fullscreen Mode?',
                     'Start Fullscreen?',
                     MessageBoxButtons.YesNo,
                     MessageBoxIcon.Information )
form = MainForm()
if res == DialogResult.Yes:
    form.FormBorderStyle = FormBorderStyle.None
    form.Location = Point(0, 0)
    form.Size = Screen.PrimaryScreen.Bounds.Size
```

```
form.Show()
form.Run()
```