linestripkreis

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1 Linestripkreis

Script for parametric function description of a circle

- Gerald Schuller, Oct. 2014

- **Import OpenGL and numpy modules.**

```
In [ ]: from OpenGL.GL import *
        from OpenGL.GLUT import *
        from OpenGL.GLU import *
        import numpy as np
```

```
In [ ]: def displayFun():
            glMatrixMode(GL_PROJECTION)
            glLoadIdentity()

            #Orthogonale Projektionsmatrix,
            #Orthogonal projection matrix,
            #glOrtho(left, right, bottom, top, znear, zfar);
            glOrtho(-3.0,3.0,-1.5, 1.5, 0.1, 100)

            glMatrixMode(GL_MODELVIEW)
            glLoadIdentity()

            #Position der virtuellen Kamera:
            #Position of the virtual camera:
            #gluLookAt( eyeX , eyeY , eyeZ , centerX , centerY , centerZ , upX , upY , upZ )
            gluLookAt(2.0, 2.0, 2.0, 0.0, 0.0, 0.0, 0.0, 1.0, 0.0)

            glClear(GL_COLOR_BUFFER_BIT)

            glColor3f(0.0,0.0,0.0)
            #Kreis aus Liniensteucken, Vertices berechnet innerhalb von glBegin und glEnd:
            #Circle of lines, vertices calculated within glBegin and glEnd:
            #Circle of lines, Vertices calculated within glBegin and glEnd:
            glBegin(GL_LINE_STRIP)
```

```
            #Alternativ: Kreis aus Punkten:
            #Alternative: Circle of points:
            #glPointSize(5)
            #glBegin(GL_POINTS)

            for f in np.linspace(0, 2 * np.pi, 40):
                glVertex3f(np.cos(f), np.sin(f), 0);
            glEnd();

            glFlush()
```

- **Test the function 'displayfun()':**

```
In [ ]: if __name__ == '__main__':
            glutInit()
            glutInitWindowSize(640,480)
            glutCreateWindow("3D")
            glutInitDisplayMode(GLUT_SINGLE | GLUT_RGB)
            glClearColor(1.0,1.0,1.0,0.0)
            glutDisplayFunc(displayFun)
            glutMainLoop()
```