Geometric Morphing with the Vertex Shader

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Computer Graphics

Original texture map

Mapped onto a Sphere

Morphed into a Circle

A possible vis application??

```glsl
out vec2 vST;
out float vLightIntensity;
out vec4 vColor;

const float TWOPI = 2.*3.14159265;

// original model coords (sphere):
vec4 vertex0 = aVertex;
vec3 norm0   = aNormal;

// circle coords:
vST= aTexCoord0.st;
float radius = 1. - vST.t;
float theta = TWOPI * vST.s;
vec4  circle = vec4( radius*cos(theta), radius*sin(theta), 0., 1. );
vec3 circlenorm = vec3( 0., 0., 1. );

vST += vec2( OffsetS, OffsetT );

// blend:
vec4 theVertex = mix( vertex0, circle, Blend );
vec3 theNormal = normalize(  mix( norm0, circlenorm, Blend )  );

// do the lighting:
vec3 tnorm = normalize( vec3( uNormalMatrix * theNormal ) );
vec3 LightPos = vec3( 5., 10., 10. );
vec3 ECposition = vec3( uModelViewMatrix * theVertex );
vLightIntensity = abs( dot( normalize(LightPos - ECposition), tnorm)  ) ;
if( vLightIntensity < 0.2 )
vLightIntensity = 0.2;
vColor = aColor;

gl_Position = uModelViewProjectionMatrix * theVertex;
```
Morphing a Cow into a Sphere

Note: the "face" in the cube cow is there because the normals were not morphed into cube normals – they were left as cow normals.