

Lego

Project 7

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# Images

![A picture containing animal

Description automatically generated]()

Figure 1: Quantize Just R



Figure 2: Quantize Everything

## Key Code

void ProduceVertex( float s, float t )

{

vec3 v = V0 + s\*V01 + t\*V02;

vec3 n = N0 + s\*N01 + t\*N02;

vec3 tnorm = normalize(gl\_NormalMatrix \* n) ; // the transformed normal

gLightIntensity = abs( dot( normalize(LIGHTPOS), tnorm ) );

//Make Spherical

float r = length( v );

float theta = atan( v.z, v.x );

float phi = atan( v.y, length( v.xz ) );

//Quantize

if (uRadiusOnly){

r = Quantize(r);

}

else{

r = Quantize(r);

theta = Quantize(theta);

phi = Quantize(phi);

}

//Back to Cartesian

v.y = r \* sin( phi );

float xz = r \* cos( phi );

v.x = xz \* cos( theta );

v.z = xz \* sin( theta );

vec4 ECposition = vec4( v, 1. );

gl\_Position = gl\_ModelViewProjectionMatrix \* ECposition;

EmitVertex( );

}

## Video Link

## <https://media.oregonstate.edu/media/t/0_wf6ti5y9>

## Comments

I had some weird issues in this project but it all worked out!