

1 Creating a Vase

To begin I created a line from the control points on the right side of the screen. With that information I then apply smoothing through implementing the Lane-Riesenfeld subdivision model. After applying the subdivisions I have a new set of points that create a smoother line. I then rotated the set of points 72 times by 5 degrees each time to create a vase shape. I then connected the points together with triangles and applied shading.

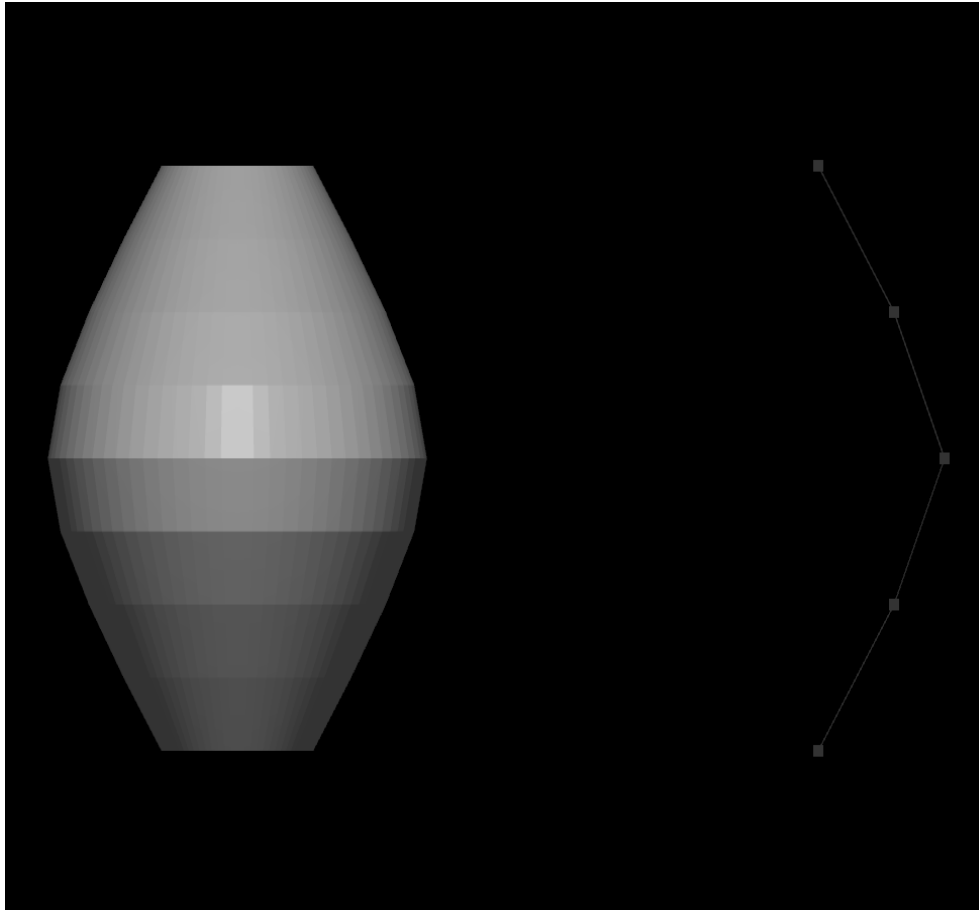


Figure 1: Vase with accompanying control points on the right.

2 Controls

You can move, add and delete control points to customize the vase in real-time. The controls are as follows.

Zoom Model: Up and Down Arrow Keys

Rotate Model: Left and Right Arrows

Add Control Point: P

Move Control Point: Left Click and Drag

Remove Control Point: Right Click

Increase Subdivision: . (period) Decrease Subdivision: , (comma)

Translate Up: W

Translate Down: S

Translate Left: A

Translate Right: D

3 Curve Smoothing Using Lane-Risenfield

The following three vases show the effects of Lane-Risenfield smoothing.

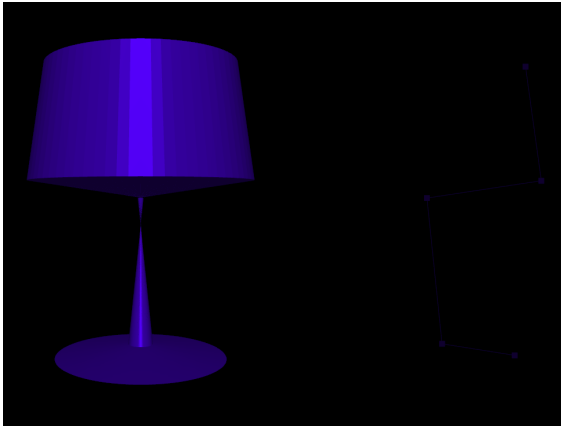


Figure 2: No Subdivisions.

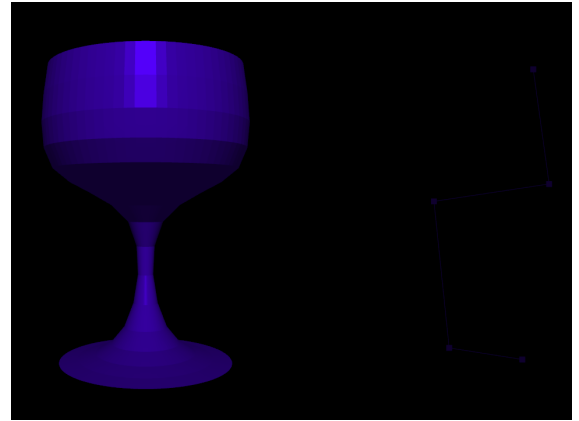


Figure 3: Two Subdivisions.

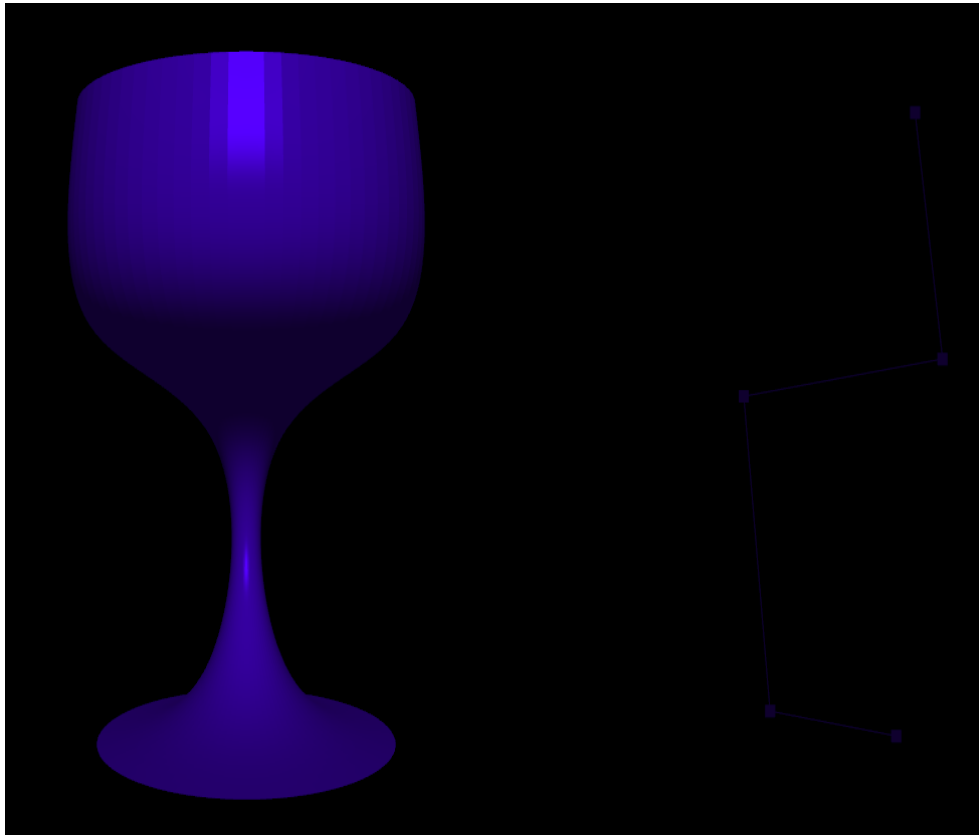


Figure 4: Six Subdivisions