

```
//Courtney Morris
//Coding Forms Midterm Project
import igeo.p.*;
import igeo.io.*;
import igeo.geo.*;
import igeo.util.*;
import igeo.core.*;
import igeo.gui.*;
```

```
import javax.swing.*;
import java.awt.*;
import java.awt.event.*;
```



```
size (500,500,IG.GL);
IG.open ("10092011.3dm");

ISurface[] surfaces = IG.surfaces();
IImageMap map1 = new IImageMap("map7.jpg");
IImageMap map2 = new IImageMap("map.jpg");

ISurface surfA = surfaces[0];
ISurface surfB = surfaces[1];

ILayer layerCyl = IG.layer("cylinder");
ILayer layerPEX = IG.layer("panelExterior");
ILayer layerPLN = IG.layer("panelInterior");

int unum = 20, vnum = 20;
double uinc = 1.0/unum, vinc = 1.0/vnum;

for (int i=0; i < unum; i++) {
    for (int j=0; j < vnum; j++) {
        double val = map1.get( i*uinc, j*vinc );
        double vall = map2.get( i*uinc, j*vinc );

        IVec ptA11 = surfA.pt( i*uinc, j*vinc );
        IVec ptA21 = surfA.pt( (i + vall)*uinc, j*vinc );
        IVec ptA12 = surfA.pt( i*uinc, (j + (0.75))*vinc );
        IVec ptA22 = surfA.pt( (i + vall)*uinc, (j + 1)*vinc );
        IVec center = surfA.pt( (i+0.5)*uinc, (j+vall)*vinc );

        // pipe between two surfaces
        double radius = 0.1;
        new ICylinder(ptA11, ptB11, radius, clr(176,196,222).layer(layerCyl));
        new ICylinder(ptA11, ptB22, radius, clr(176,196,222).layer(layerCyl));
        new ICylinder(ptA12, ptB12, radius, clr(176,196,222).layer(layerCyl));
        new ICylinder(ptA12, ptB21, radius, clr(176,196,222).layer(layerCyl));
        new ICylinder(ptA21, ptB11, radius, clr(176,196,222).layer(layerCyl));

        IVec ptB11 = surfB.pt( i*uinc, j*vinc );
        IVec ptB21 = surfB.pt( (i + 0.75)*uinc, j*vinc );
        IVec ptB12 = surfB.pt( i*uinc, (j + 0.75)*vinc, val*1.5);
        IVec ptB22 = surfB.pt( (i + 1)*uinc, (j + 0.75)*vinc, val*-3);

        // triangular panels
        new ISurface(ptA11,ptA21,ptA22).clr(220,220,220).layer(layerPLN);
        new ISurface(ptA22,ptA12,ptA11).clr(220,220,220).layer(layerPLN);
        new ISurface(ptB11,ptB21,ptB12).clr(map1.clr( i*uinc, j*vinc)).layer(layerPEX);
        new ISurface(ptB21,ptB22,ptB12).clr(map1.clr( i*uinc, j*vinc)).layer(layerPEX);
    }
}
surfA.del();
surfB.del();

IG.save("10092011out.3dm");
```

input geometry

toggles multiple surfaces

divides into layers for exporting

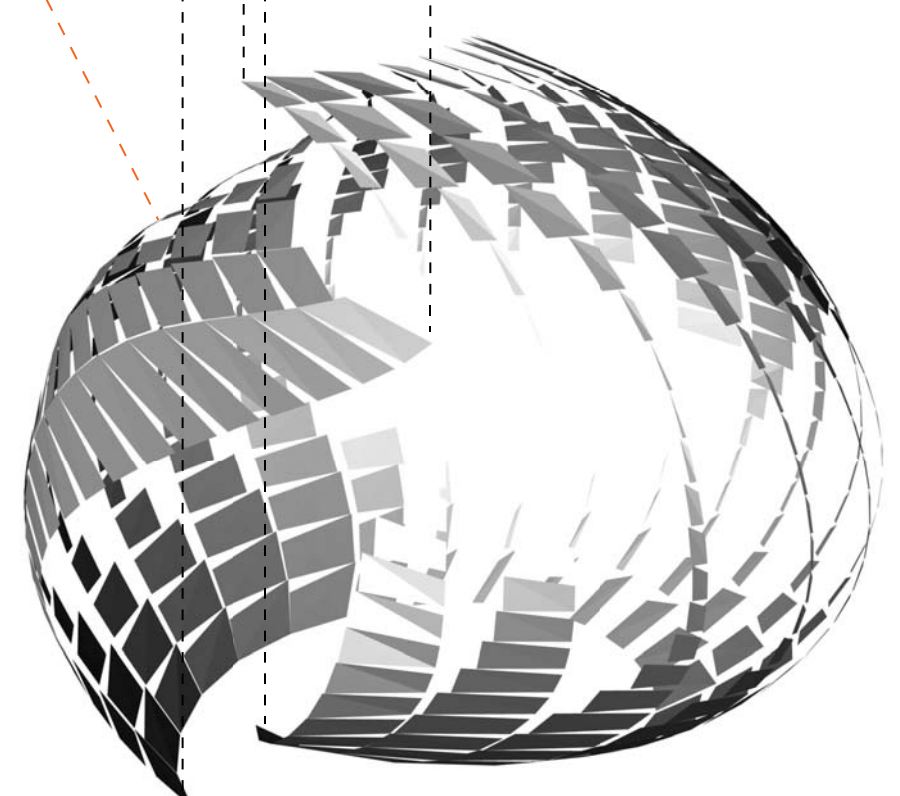
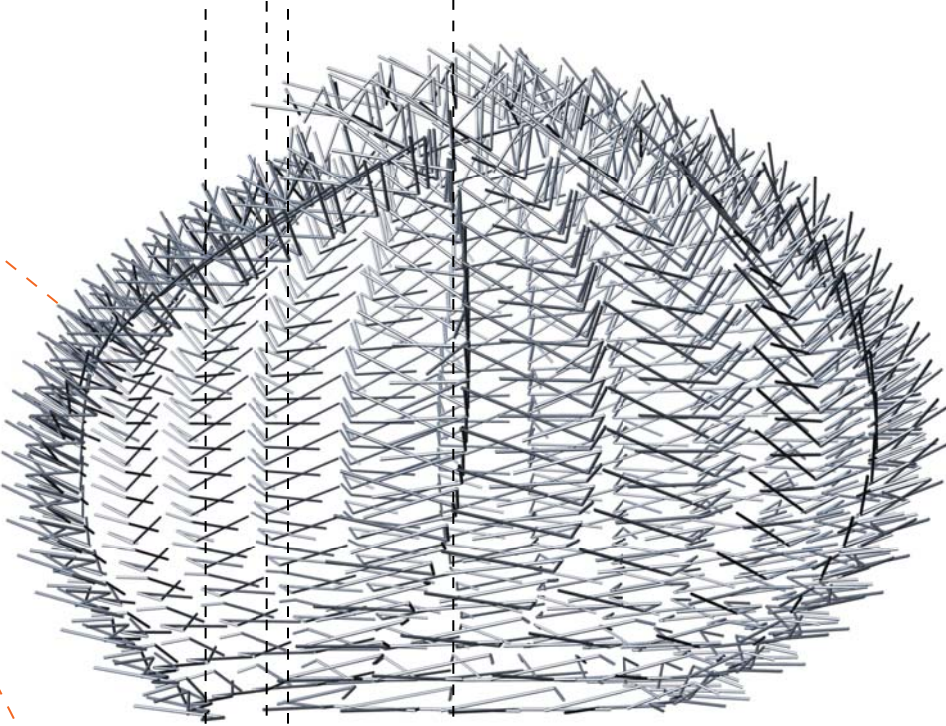
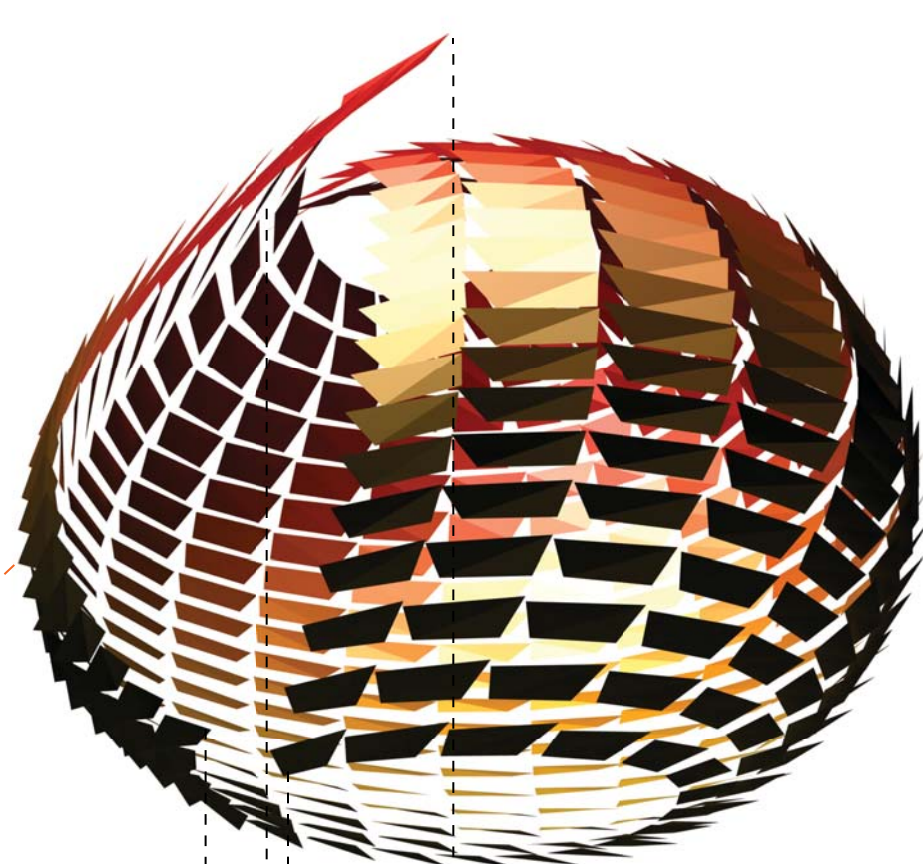
determines array # of panels grid  
prepares steps for for loop

u direction

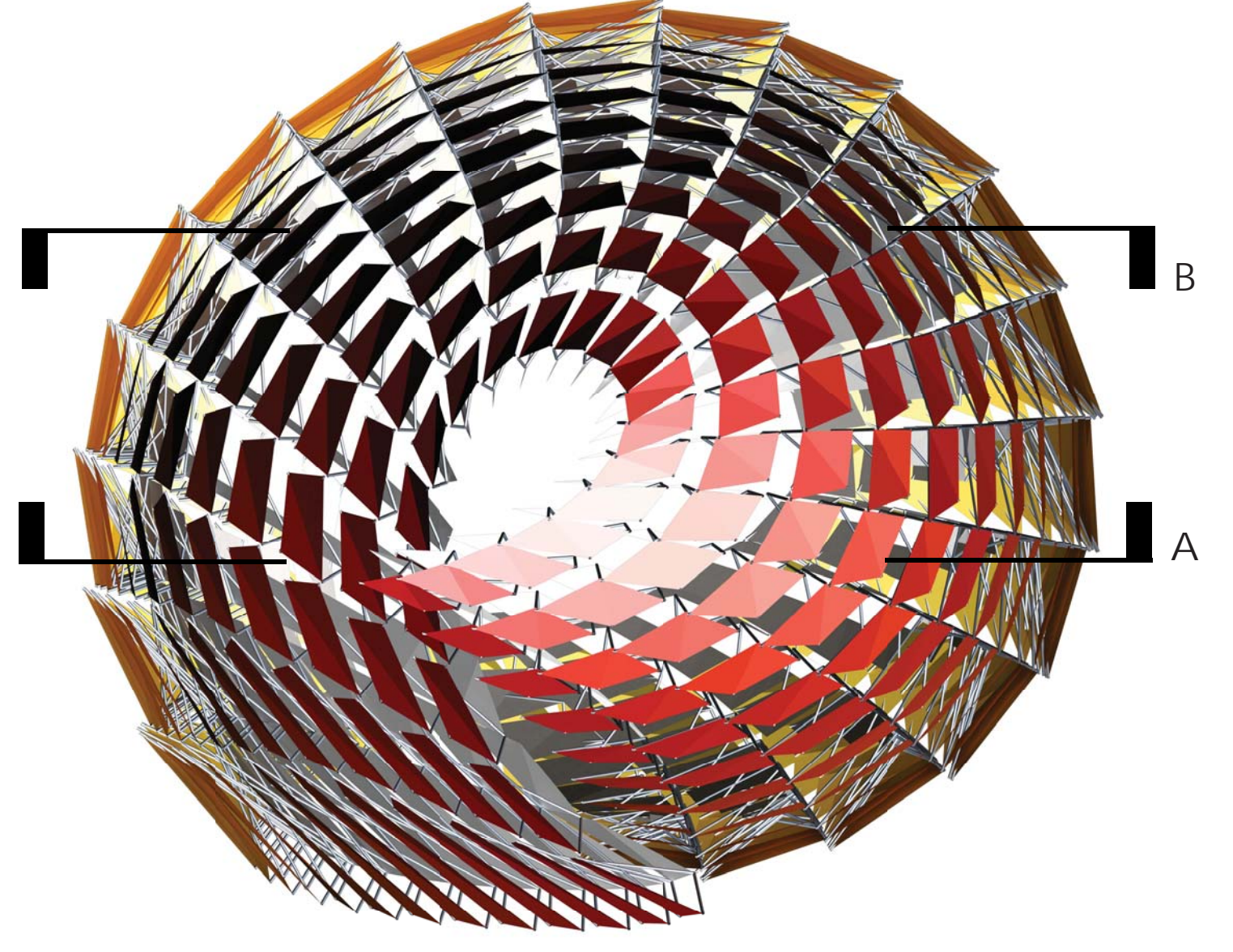
v direction

picks 4 points

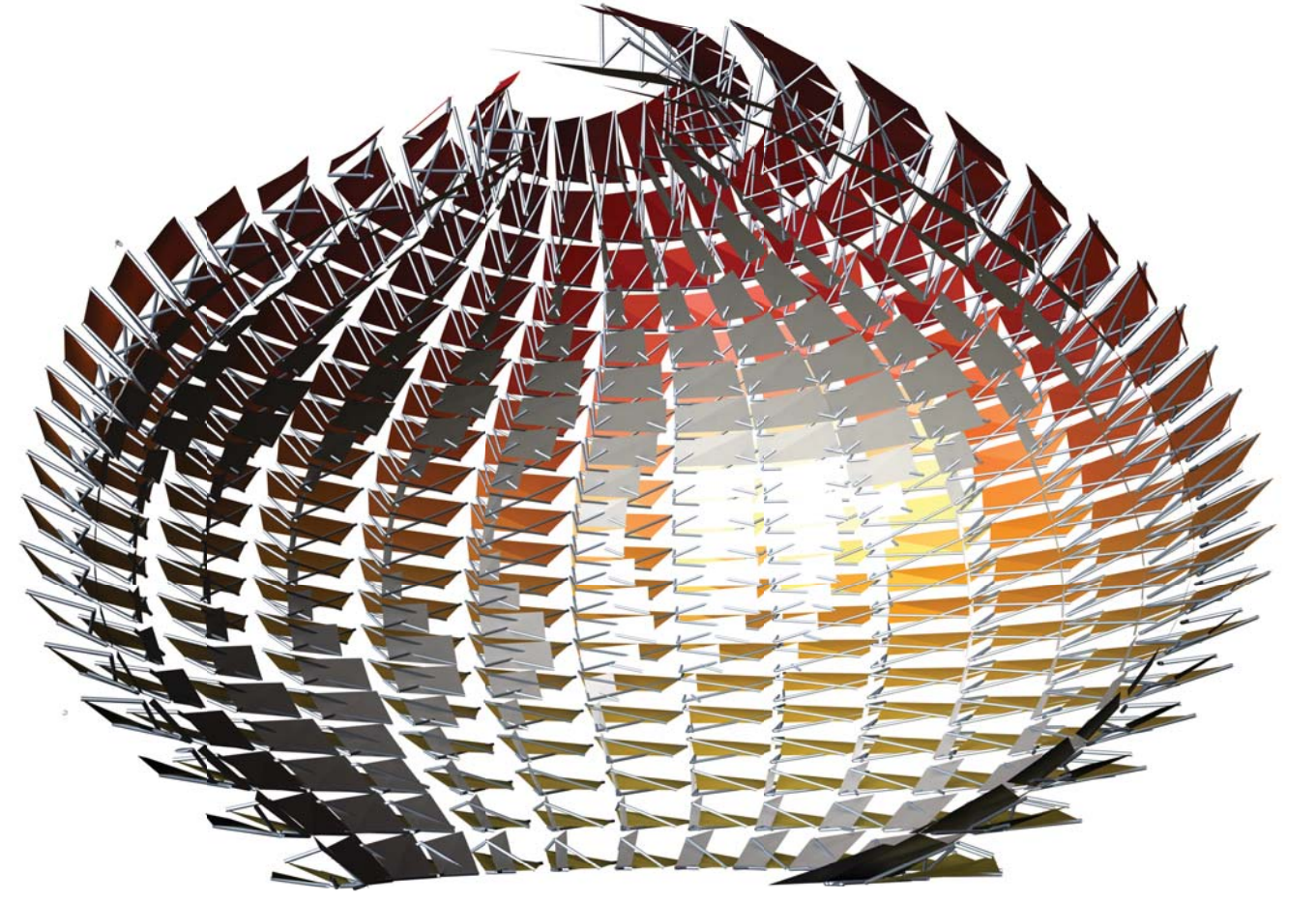
picks 4 points



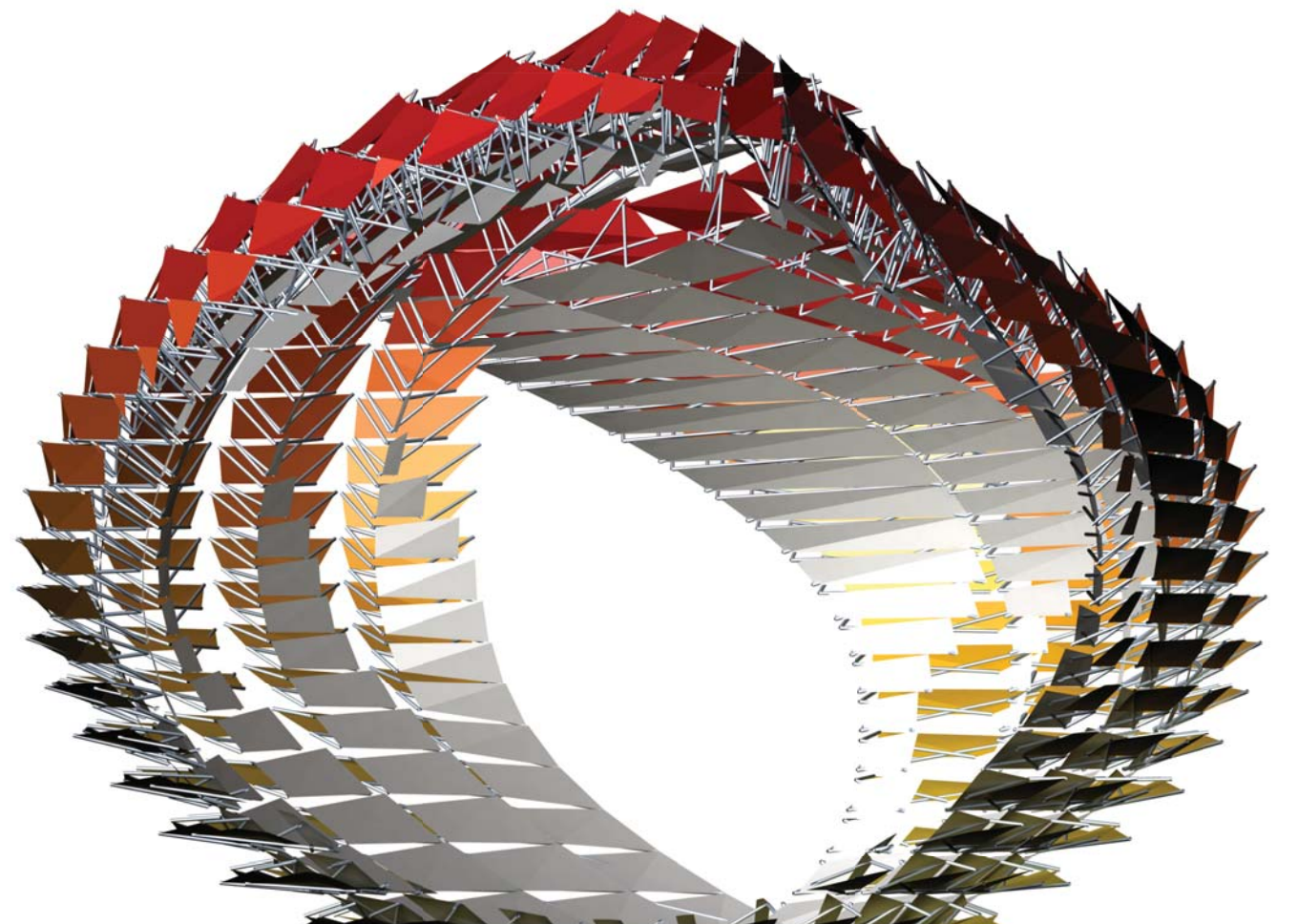
EXPLODED AXON



ROOF PLAN



SECTION A



SECTION B