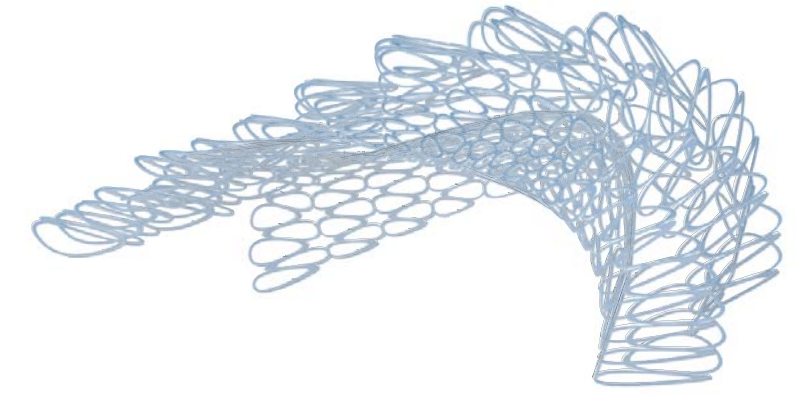
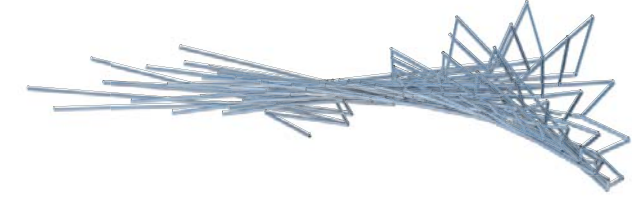


panel



frame



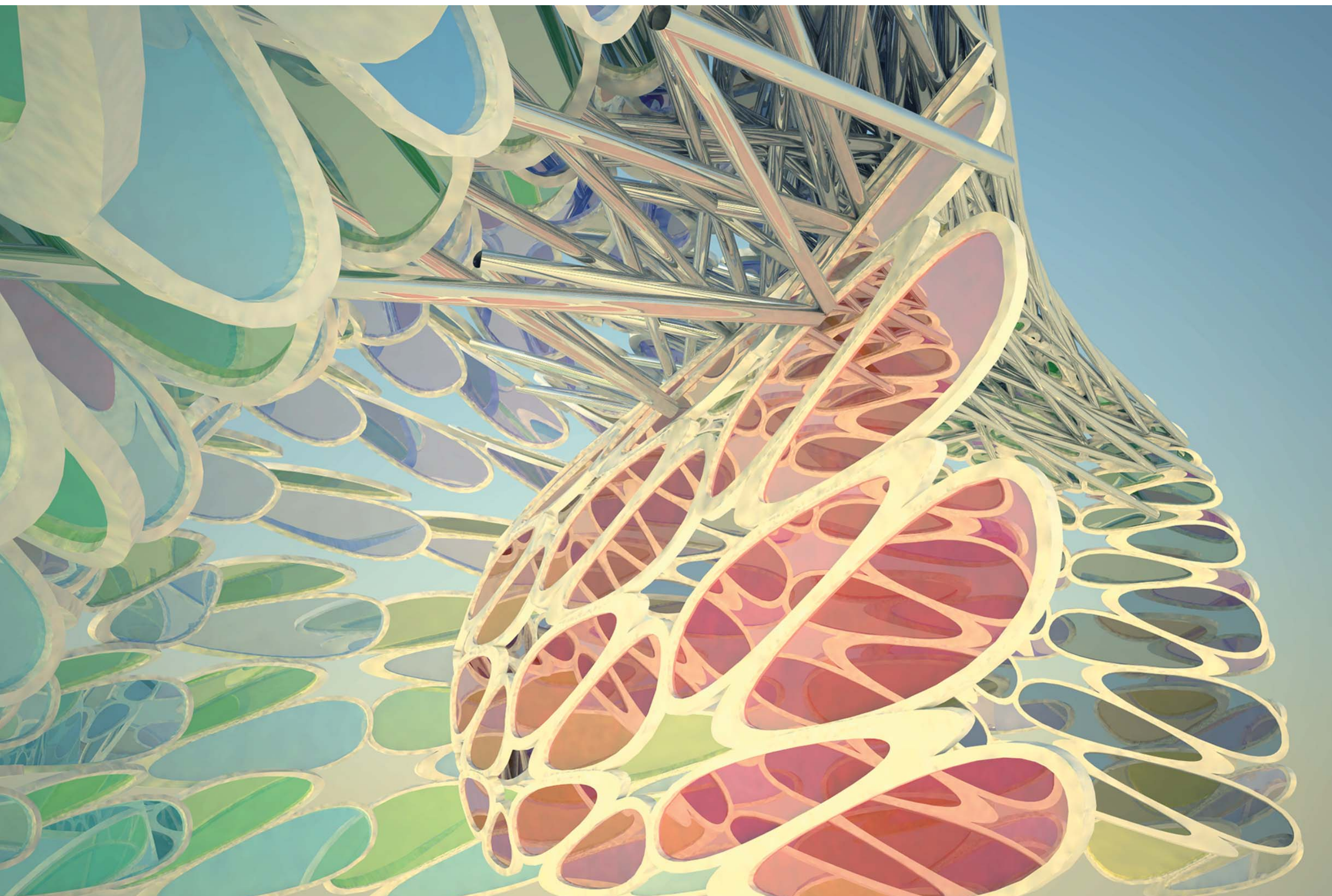
structure



map1



structure4



```
import processing.opengl.*;
import igeco.geo.*;
import igeco.core.*;
import igeco.util.*;

size(480, 360, IGL);

IG.open("midterm_surface_complete.3dm");
ISurface[] surfaces = IG.surfaces();

IImageMap map = new IImageMap("map1.jpg");

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

int unum = 10, vnum = 10;
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 = map.get(i*uinc, j*vinc);

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

    IVec ptB11 = surfB.pt(i*uinc, j*vinc);
    IVec ptB21 = surfB.pt(i+1*uinc, j*vinc);
    IVec ptB12 = surfB.pt(i*uinc, j+1*vinc, val*5);
    IVec ptB22 = surfB.pt(i+1*uinc, j+1*vinc);

    // frame of panels
    ICurve curve1 = new ICurve(new IVec[]{ptA11, ptA21, ptA22}, 2, true);
    ICurve curve2 = new ICurve(new IVec[]{ptA22, ptA12, ptA11}, 2, true);
    ICurve curve3 = new ICurve(new IVec[]{ptB11, ptB21, ptB12}, 2, true);
    ICurve curve4 = new ICurve(new IVec[]{ptB21, ptB22, ptB12}, 2, true);

    new ISurface(curve1).clr(i*uinc, j*vinc, 0, 0.5);
    new ISurface(curve2).clr(i*uinc, j*vinc, 0, 0.5);
    new ISurface(curve3).clr(i*uinc, j*vinc, 0, 0.5);
    new ISurface(curve4).clr(i*uinc, j*vinc, 5, 0.5);

    // frame of panels (square-piping with degree 1, closed)
    double size = 0.2;
    // these pipe shapes are identical with those pipes created
    // only with points below, because curves are created with same point arrays.
    IGSquarePipe(pipe1, size);
    IGSquarePipe(pipe2, size);
    IGSquarePipe(pipe3, size);
    IGSquarePipe(pipe4, size);
  }
}

surfA.del();
surfB.del();
}
```

```
import processing.opengl.*;
import igeco.geo.*;
import igeco.core.*;
import igeco.util.*;

size(480, 360, IGL);

IG.open("midterm_surface_complete.3dm");
ISurface[] surfaces = IG.surfaces();

IImageMap map2 = new IImageMap("structure4.jpg");

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

int unum = 10, vnum = 10;
double uinc = 1.0/unum, vinc = 1.0/vnum;

for(int i=0; i < unum; i++){
  for(int j=0; j < vnum; j++){
    double val2 = map2.get(i*uinc, j*vinc);

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

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

    IVec ptC11 = surfB.pt(i*uinc, j*vinc);
    IVec ptC21 = surfB.pt(i+7*uinc, j*vinc);
    IVec ptC12 = surfB.pt(i*uinc, j+1*vinc);
    IVec ptC22 = surfB.pt(i+7*uinc, j+1*vinc);

    if (val2 < 0.5){
      double radius = 0.15;
      new ICylinder(ptA11, ptC11, radius);
      new ICylinder(ptA12, ptC12, radius);
      new ICylinder(ptA21, ptC21, radius);
      new ICylinder(ptA22, ptC22, radius);
    }
  }
}

surfA.del();
surfB.del();
}
```

IG.save("panel and frame.3dm");

