FREEZING TIME

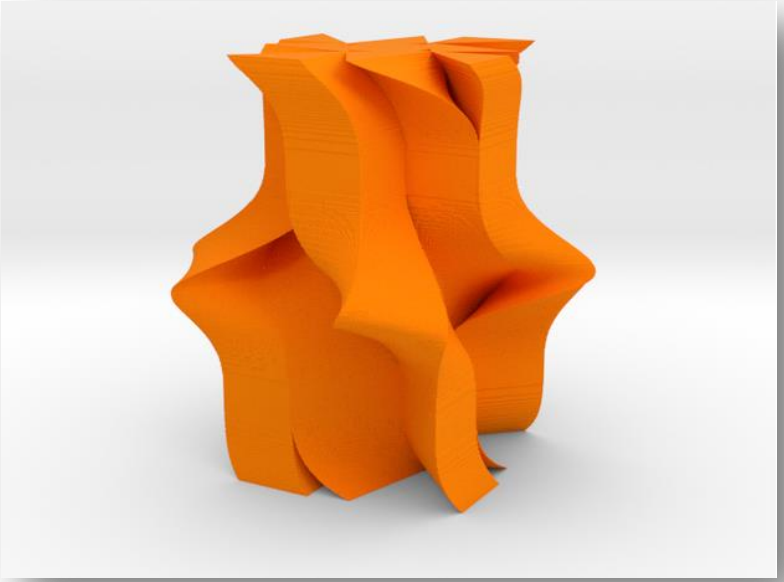
Andrew Glassner / The Imaginary Institute

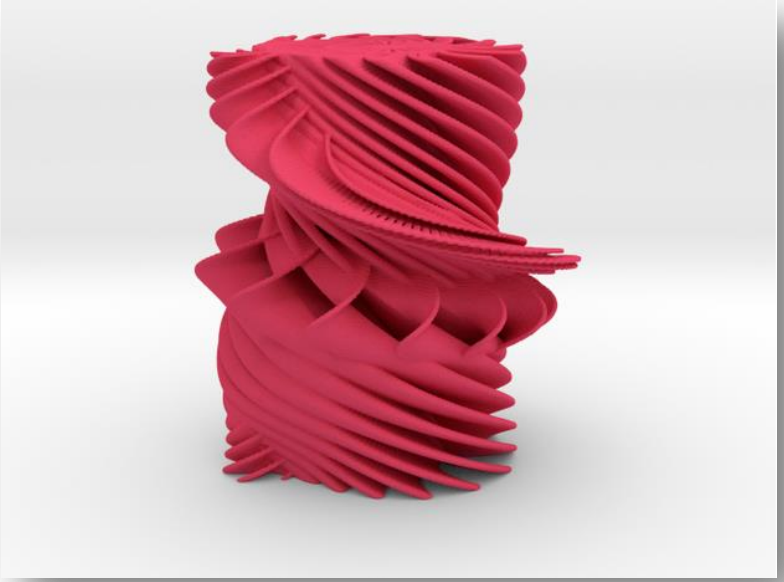
Eric Haines / Autodesk, Inc.

Hello!

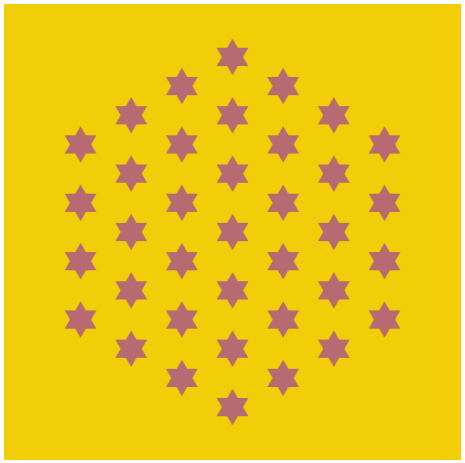
- Andrew
- Eric
- What we’re going to do!

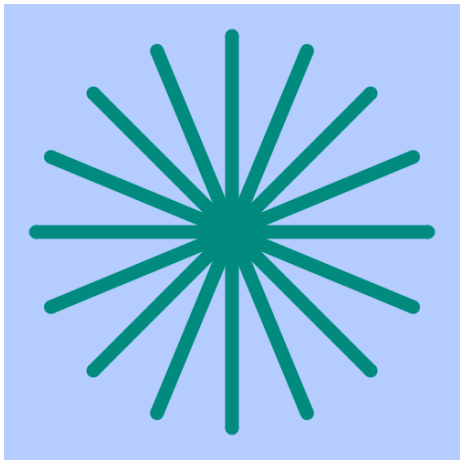
Movies and Models

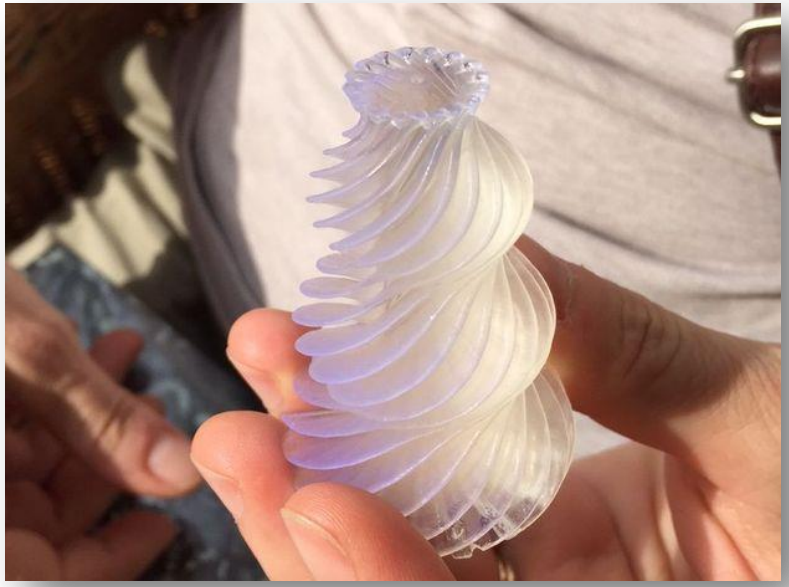




Movies and Models







The Plan

- Hello & overview
- The tools & programs

Play!

- The Camera
- Making Models
- Making Sculptures

Play!

- Sculpture guidelines
- Programming your own

Play!

- Wrapup

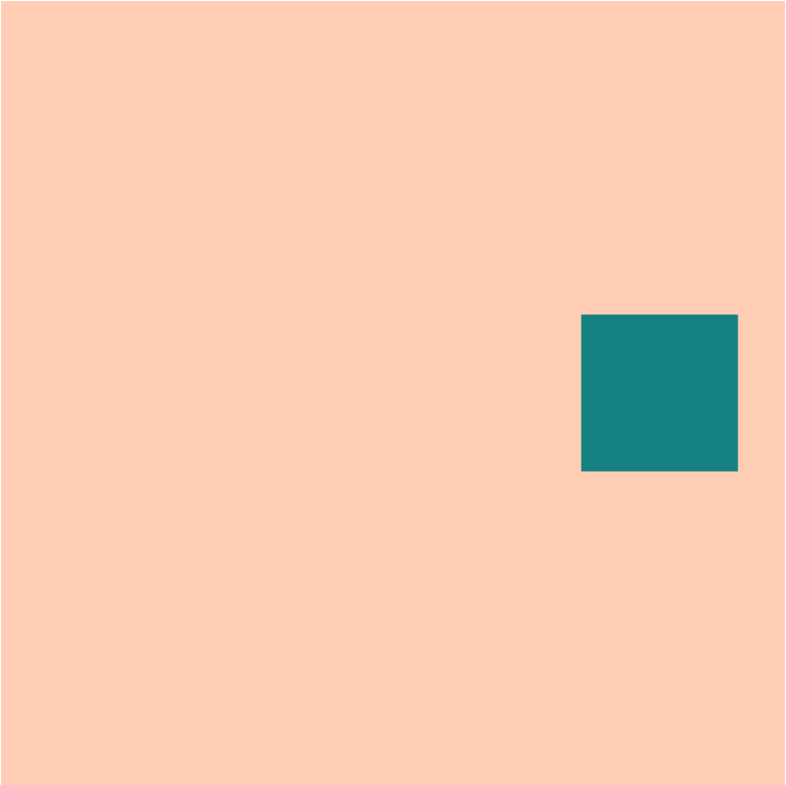
Step 1!

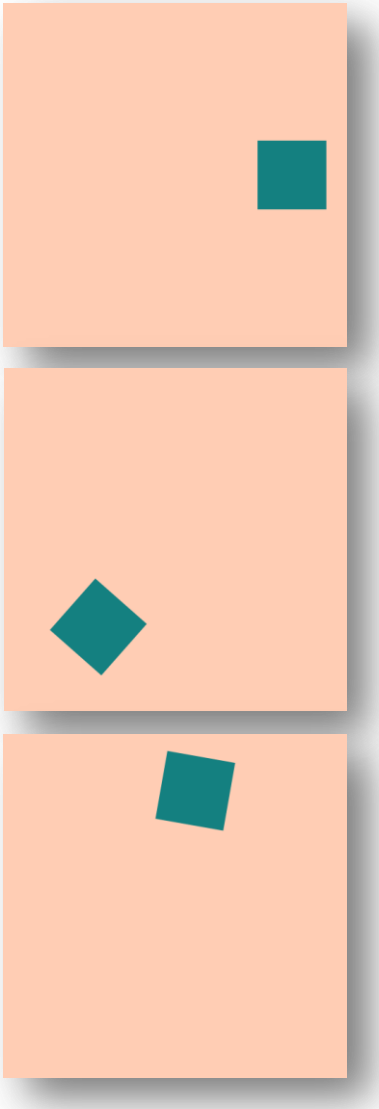
Cool animation loop
Processing

Step 2!

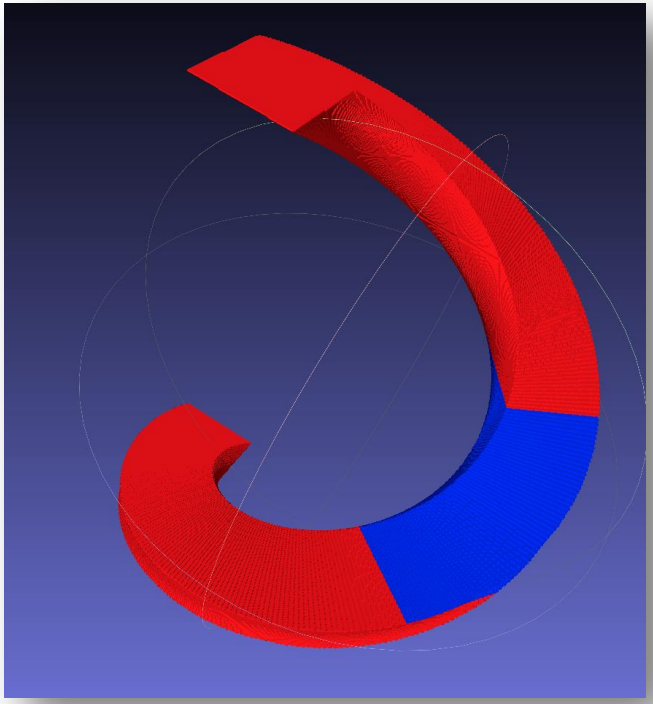
Stack up into 3D
T2Z (also Processing)

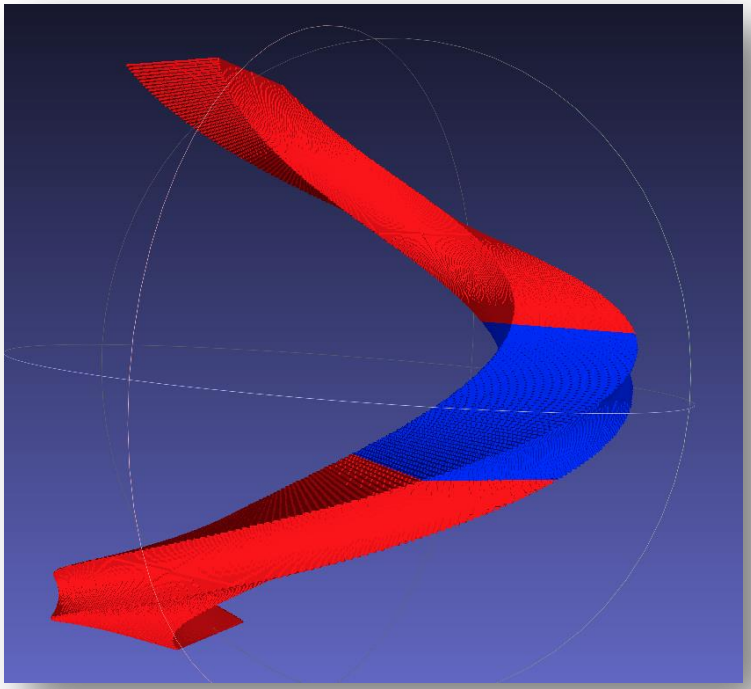
1. Animation Loop



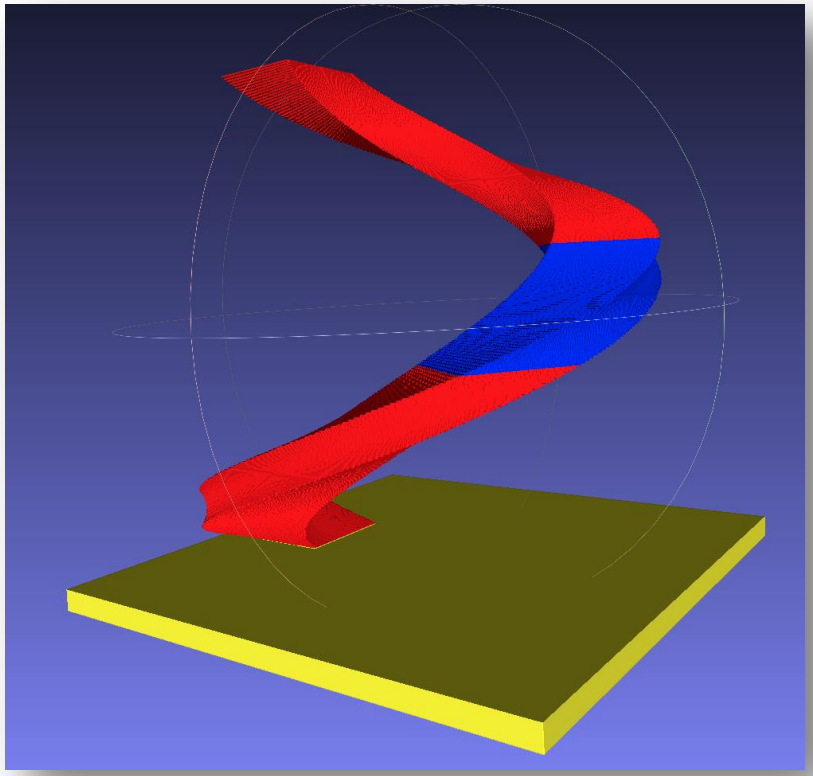


2. Stack up in 3D

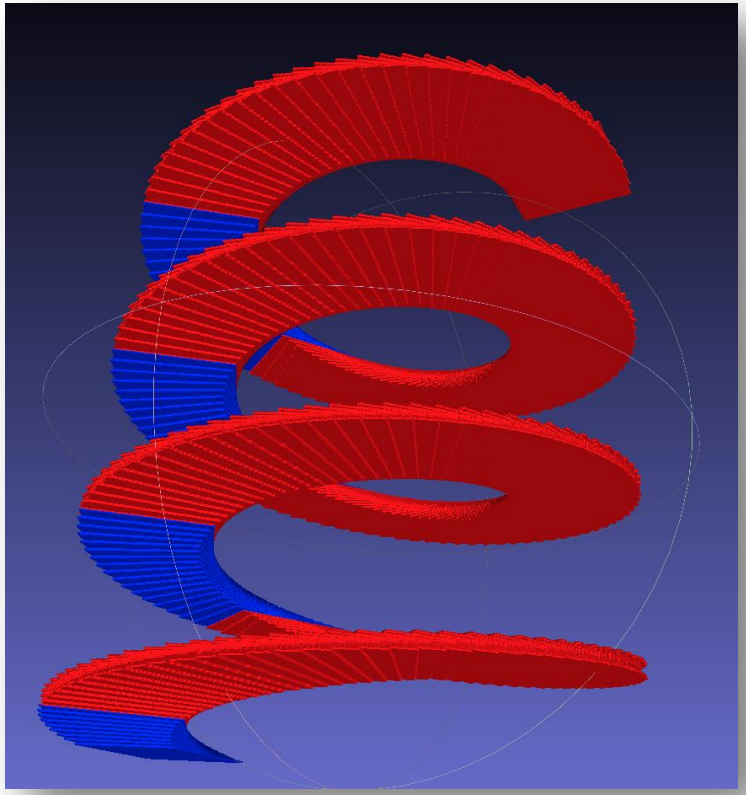




Include base



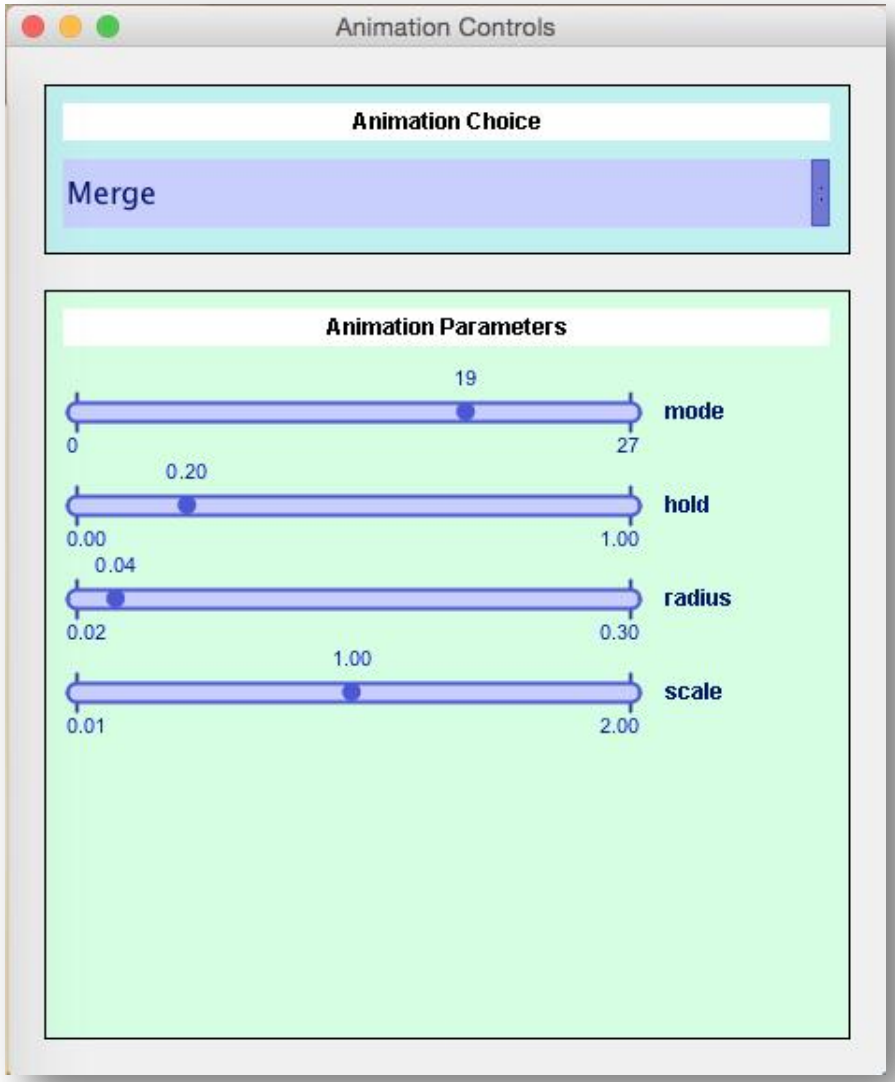
Repeat



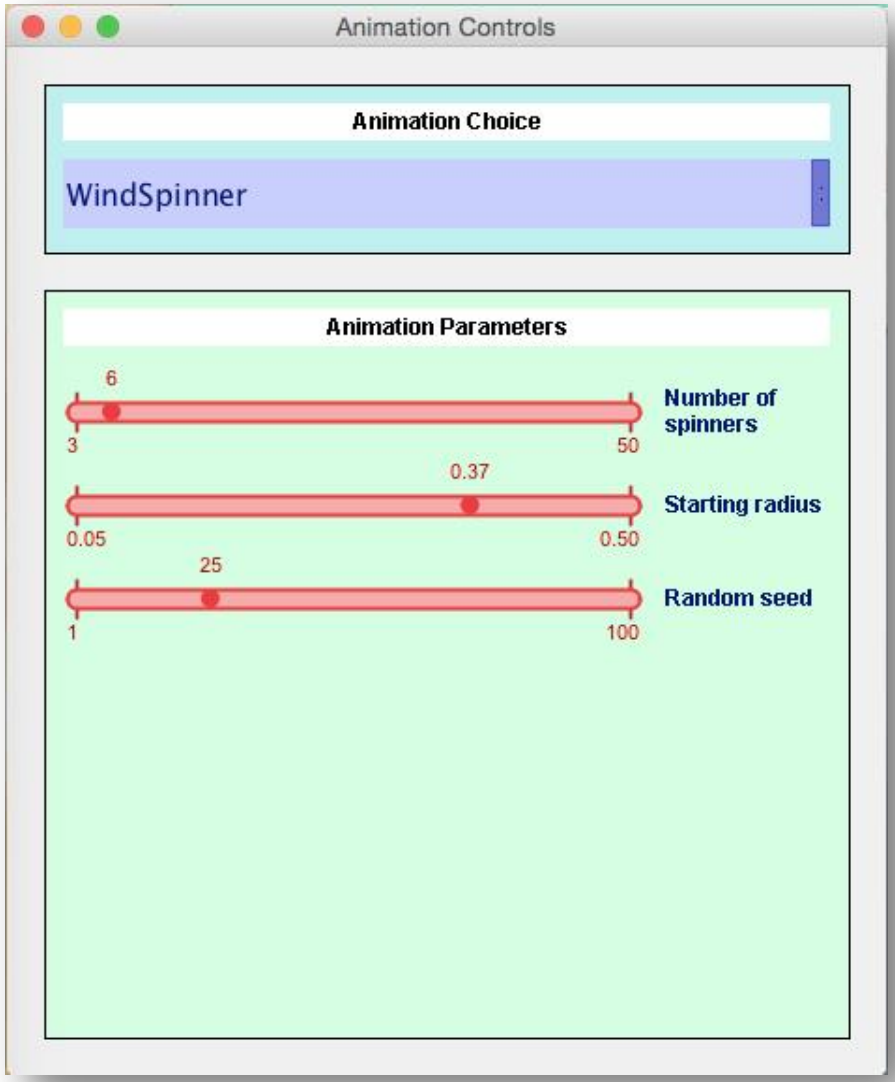
The tools

- Make animation & sculpture: T2Z (Processing)
- View animation: any browser
- View sculpture: MeshLab
- Print sculpture: Any 3D printer (.stl file)

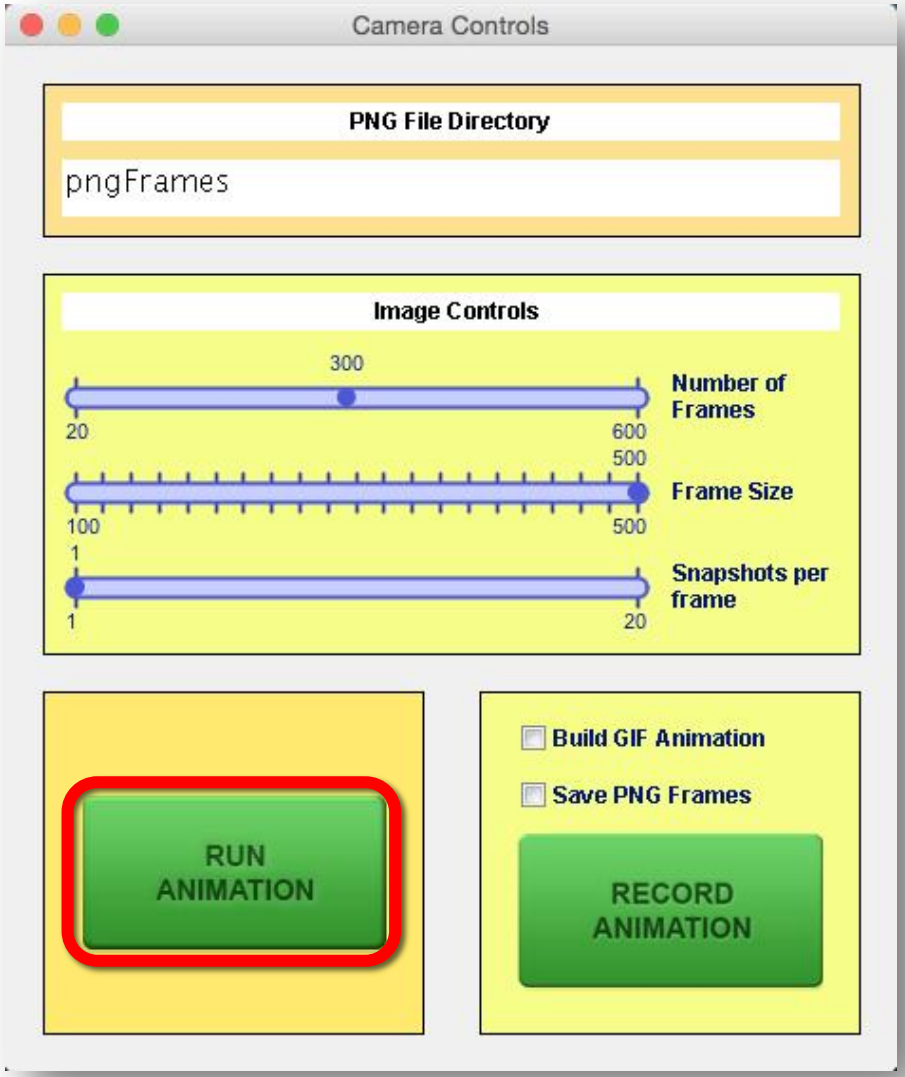
Animation Controls



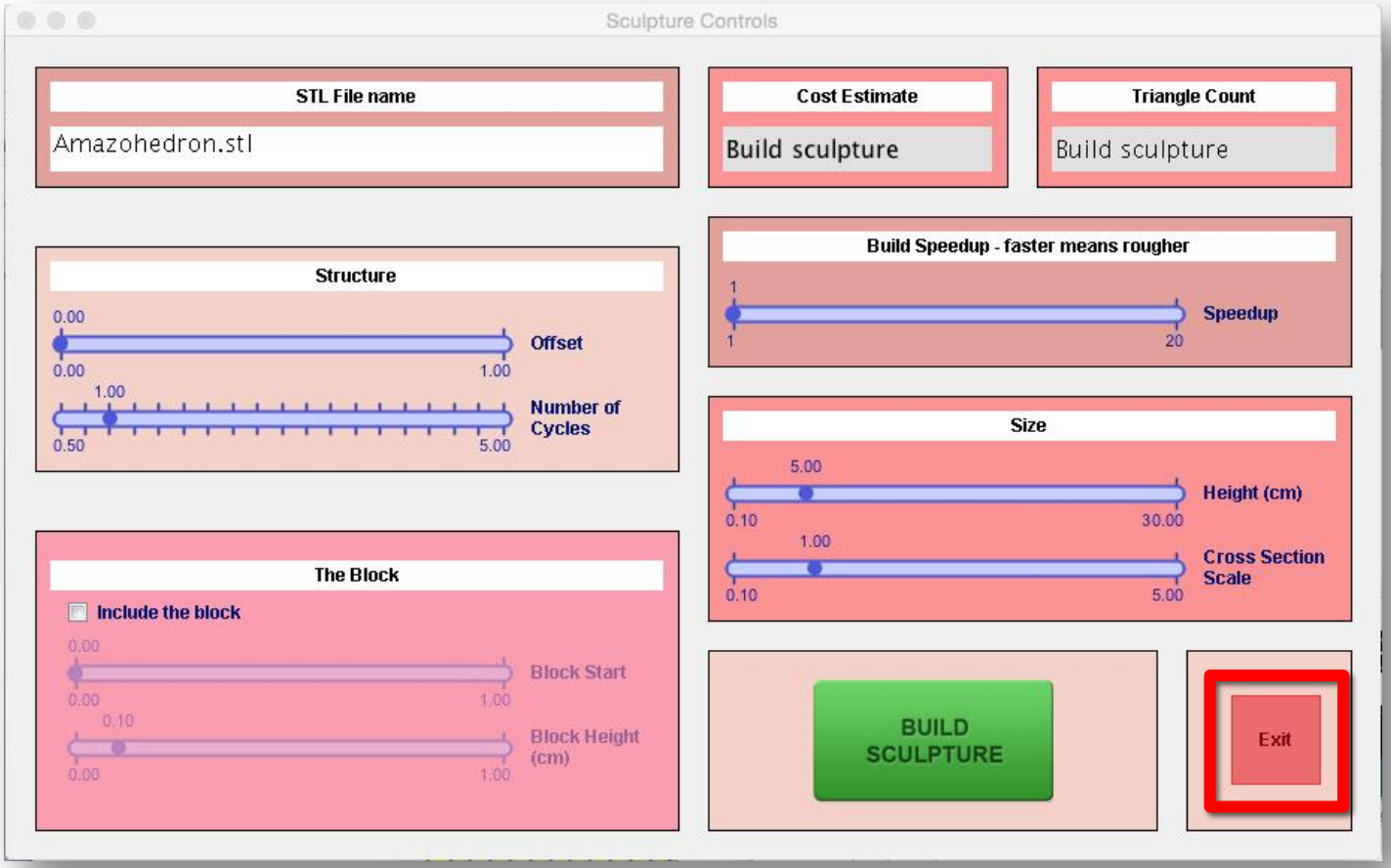
Animation Controls



Camera Controls

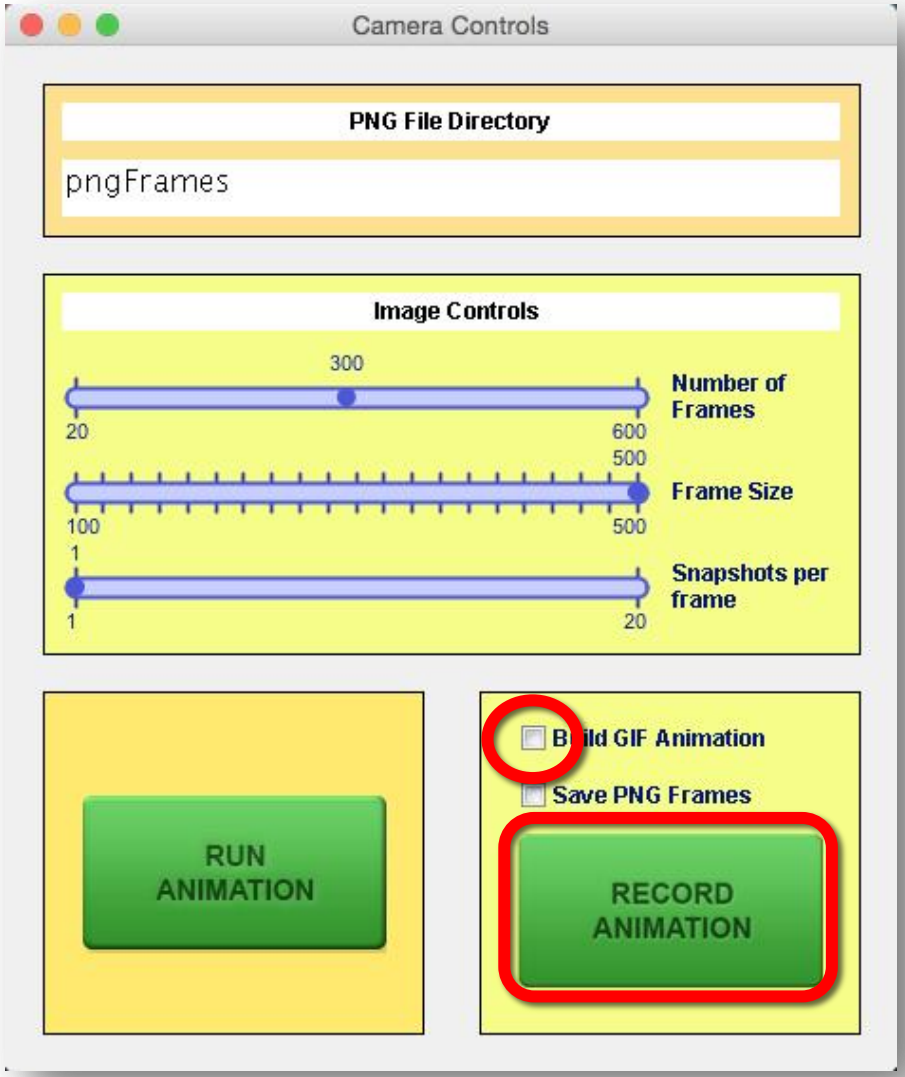


Exit

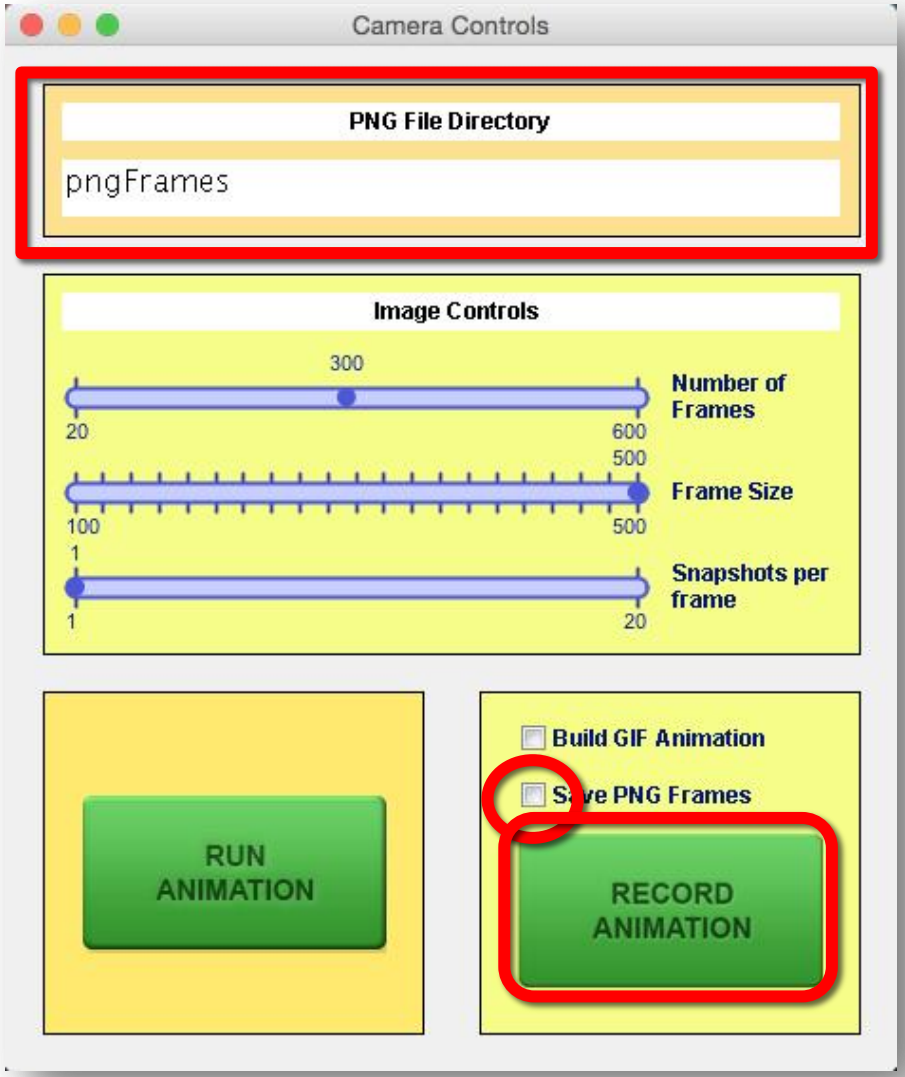

Sculpture Controls
STL File name
Amazohedron.stl
Cost Estimate
Build sculpture
Triangle Count
Build sculpture
Structure
0.00
Offset
0.00
1.00
1.00
Number of Cycles
0.50
5.00
Build Speedup - faster means rougher
1
Speedup
1
20
Size
5.00
Height (cm)
0.10
30.00
1.00
Cross Section Scale
0.10
5.00
The Block
Include the block
0.00
Block Start
0.00
1.00
0.10
Block Height (cm)
0.00
1.00
BUILD SCULPTURE
Exit

T2Z Demo!

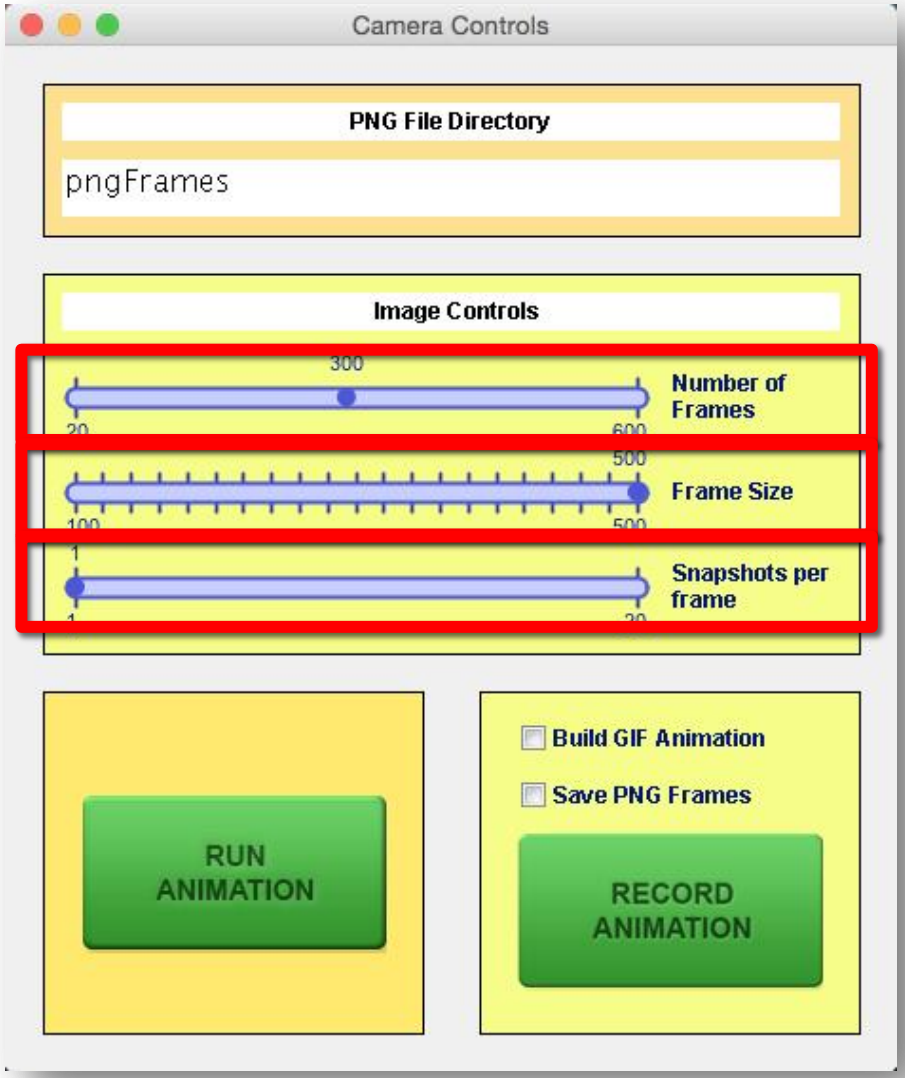
Camera Controls



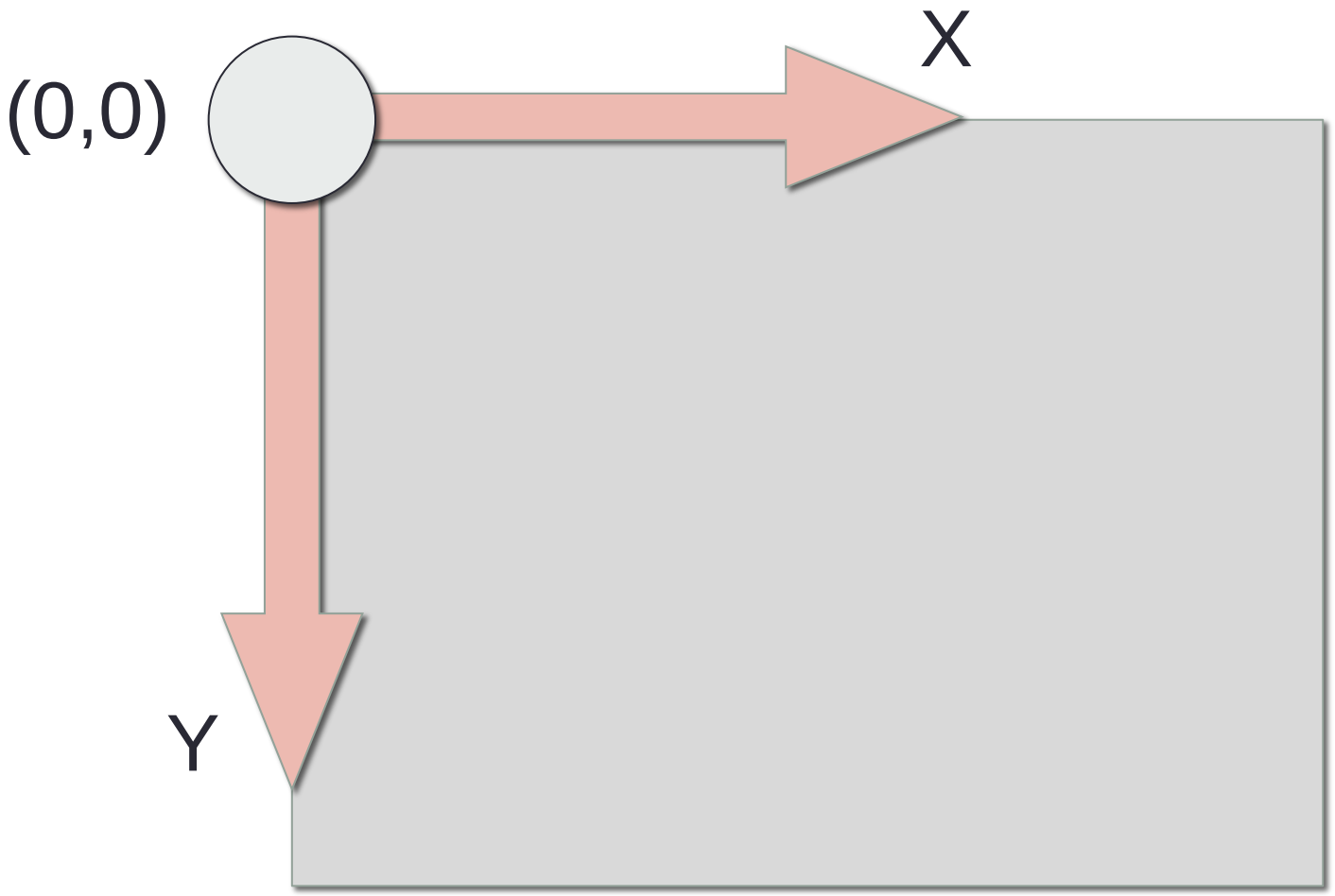
Camera Controls



Camera Controls



Processing 101



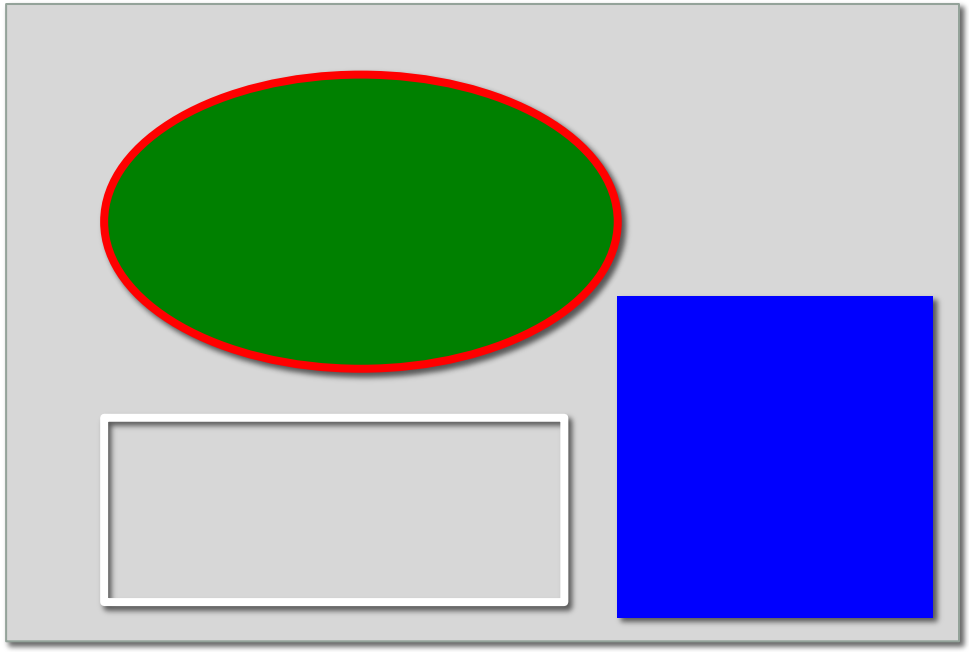
Processing 101

```
background(200, 200, 200);

stroke(255, 0, 0);
strokeWeight(3);
fill(0, 255, 0);
ellipse(150,100,280,180);

fill(0, 0, 255);
noStroke();
rect(200, 200, 180, 180);

stroke(255, 255, 255);
noFill();
rect(20, 230, 180, 60);
```



Processing 101

```
pushMatrix();
popMatrix();
```

```
translate(Awidth/2.0, Aheight/2.0);
rotate(PI*.5);
scale(1.5);
```

```
if (leafRadius > 10) {
  numLeaves = 5;
} else {
  numLeaves = 25;
}
```

Learning Processing

- processing.org
  - Reference, tutorials
- Imaginary-institute.com
  - Andrew’s online video class
- Books!
  - Glassner
  - Reas & Fry
  - Shiffman
  - Greenberg, Xu, and Kumar

T2Z Animations.pde

```
class OneRotatingSquare extends Animator {

  // declare variables

  OneRotatingSquare() { set up sliders }

  void rebuild() { lengthy restart stuff }

  void restart() { normal restart stuff }

  void render(float time) { draw a picture }

}
```

T2Z Animations.pde

Guidelines for Processing programmers

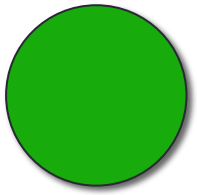
Instead of	Use
frameCount	time
width	Awidth
height	Aheight

T2Z Animations.pde

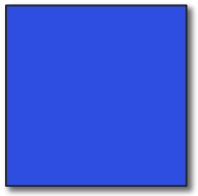
- Simple loop examples
- Rich loop examples
- Special cases
  - Use existing animated gif
  - Use existing folder of images
  - Use one gif as a height field

T2Z Animations.pde

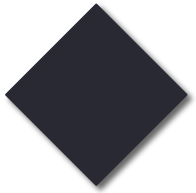
OneRotatingSquare()



BallBurst()



Wobbly()



Futurism

Joseph Stella, 1919, BrooklynBridge

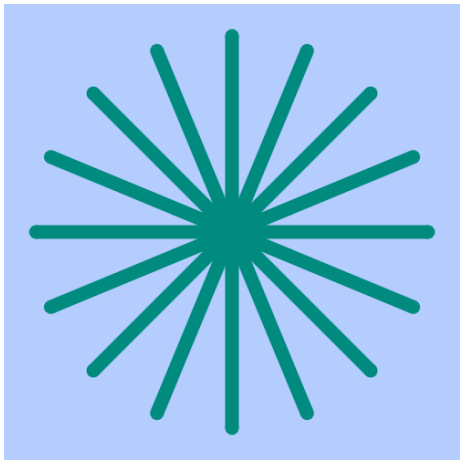
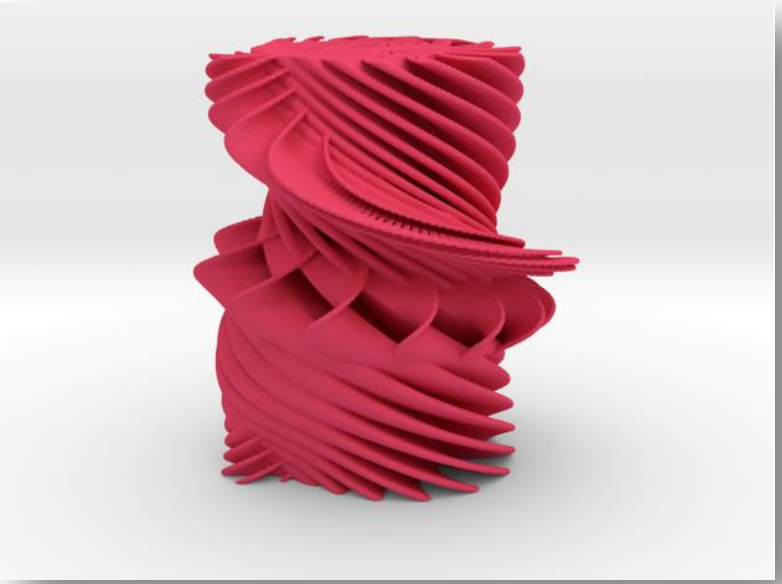
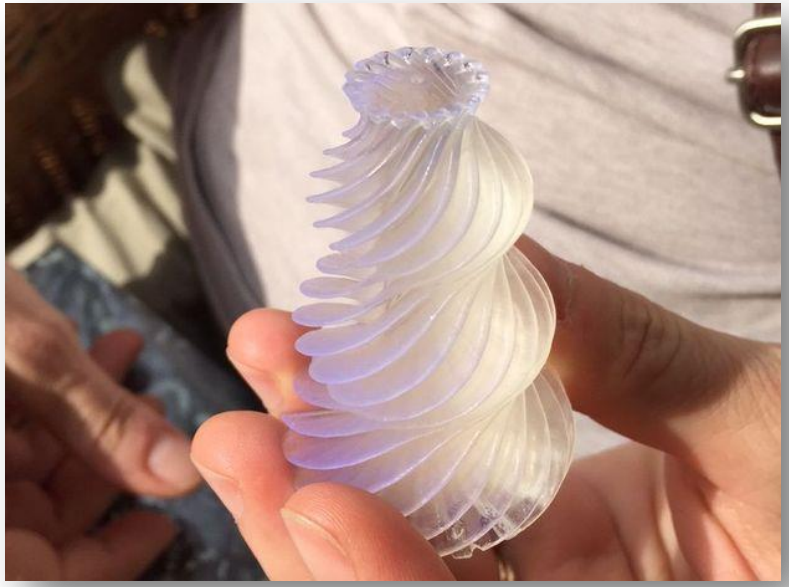
Giacomo Balla, 1912, Dinamismo di un Cane a Guinzaglio (All images via Wikipedia)

Natalia Goncharova, 1913, The Cyclist

Cubism

Albert Gleizes, 1920, Femme au gant noir
(All images via Wikipedia)

Gino Severini, 1919, Bohémien Jouant de L'Accordéon

Juan Gris, 1916, Portrait of Josette

Have Fun!