

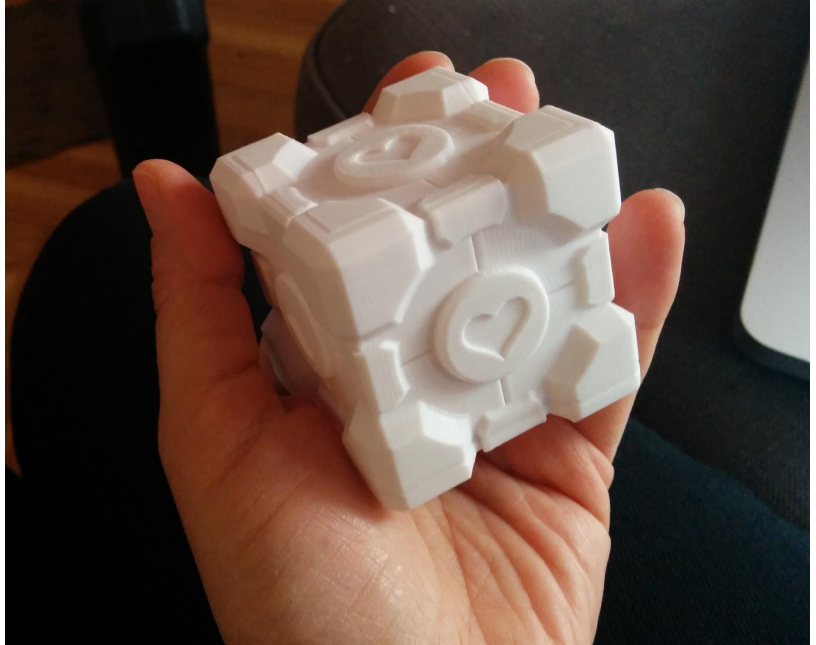
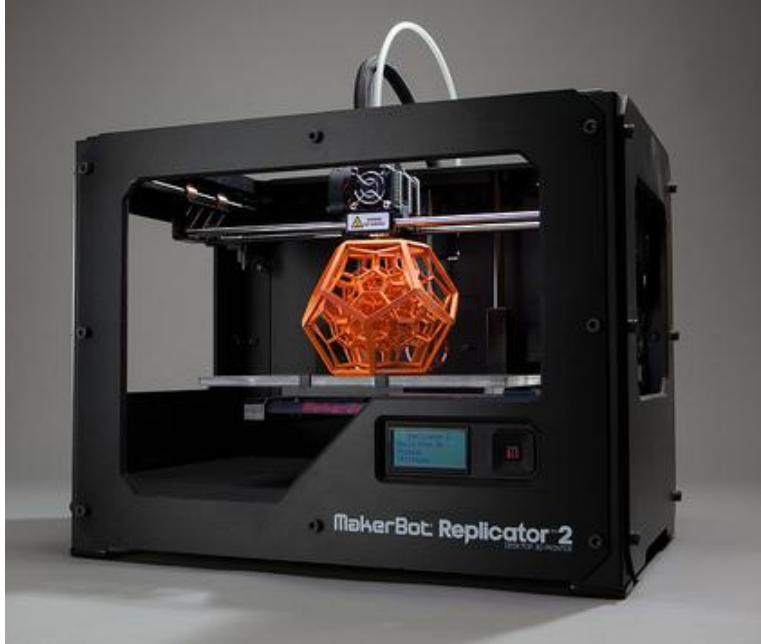
**Bringing software  
to the physical world**

# Who am I ?

**Leslie Wittig Quintanilla**



# physical world 3D Printing



# Creating a model

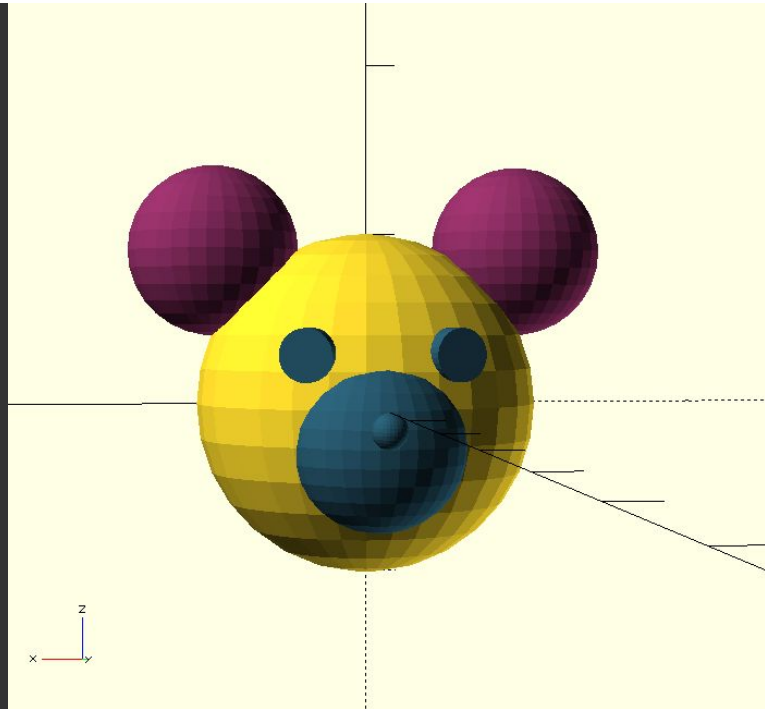


# Clojure + OpenScad scad-clj

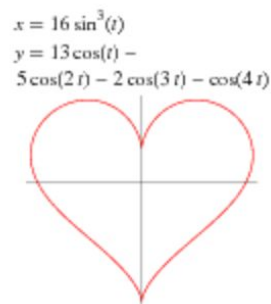
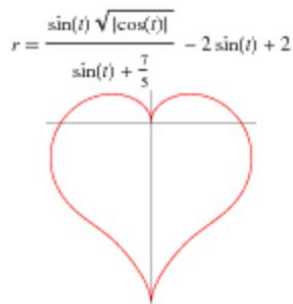
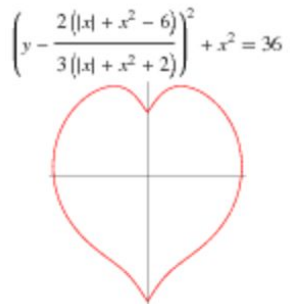
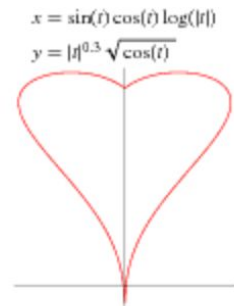
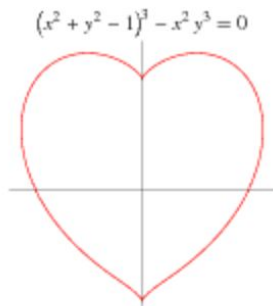
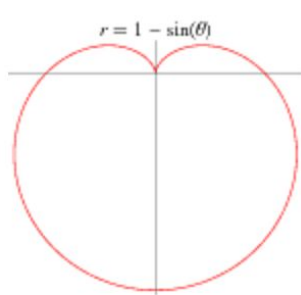
<https://github.com/farrellm/scad-clj>

# Trying with simple forms

```
21  
22 (def draw-mickey  
23   (union  
24     (sphere 100)  
25     (->> (sphere 50)  
26            (color [0.533 0.176 0.376 1])  
27            (translate [90 0 90])))  
28     (->> (sphere 50)  
29            (color [0.533 0.176 0.376 1])  
30            (translate [-90 0 90])))  
31     (->> (sphere 50)  
32            (color [0.153 0.337 0.42 1])  
33            (translate [0 70 -20])))  
34     (->> (sphere 10)  
35            (color [0.153 0.337 0.42 1])  
36            (translate [0 120 -10])))  
37     (->> (cylinder 15 20)  
38            (color [0.153 0.337 0.42 1])  
39            (rotate (/ Math/PI 2) [3 1 0])  
40            (translate [-40 85 30])))  
41     (->> (cylinder 15 20)  
42            (color [0.153 0.337 0.42 1])  
43            (rotate (/ Math/PI 2) [-3 1 0])  
44            (translate [40 85 30]))))  
45
```



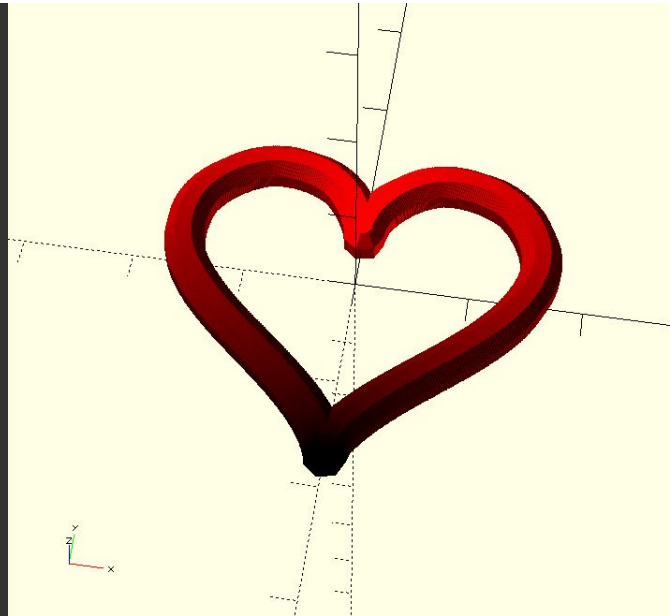
# What about math to draw it?



Trigonometry is beautiful! But I don't remember anything from school...

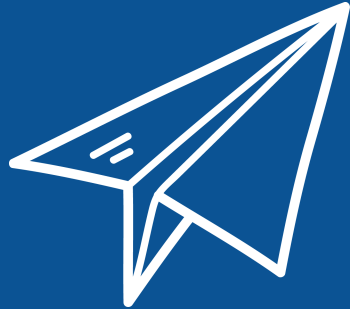
# The code and the result

```
46 (defn heart-coords []  
47   (for [t (range -3 3.1 0.01)]  
48     (let [x (* 16 (Math/pow (Math/sin t) 3))  
49           y (- (* 13 (Math/cos t))  
50                (* 5 (Math/cos (* 2 t)))  
51                (* 2 (Math/cos (* 3 t)))  
52                (Math/cos (* 4 t)))]  
53       z 0  
54       tp (/ (+ t 3) 6.1)  
55       r (Math/sin (* tp Math/PI))  
56       g 0  
57       b 0]  
58     (union  
59       (->> (sphere 2)  
60              (color [r g b 1])  
61              (translate [x y z])))))  
62
```





# Printing





# Printing Spheres

**FINDER**

30 & 40 mm  
100% 100% 100%  
100% 100% 100%

100%

100%

100%

**End  
result**





**Do I have to own  
a 3D printer to  
start?**



**KULTURHUSET**  
**STADSTEATERN**  
**Lär dig at 3D-printa**

# Questions?



**Thank you!**

