Annotated Portfolio

Digital Craftsmanship

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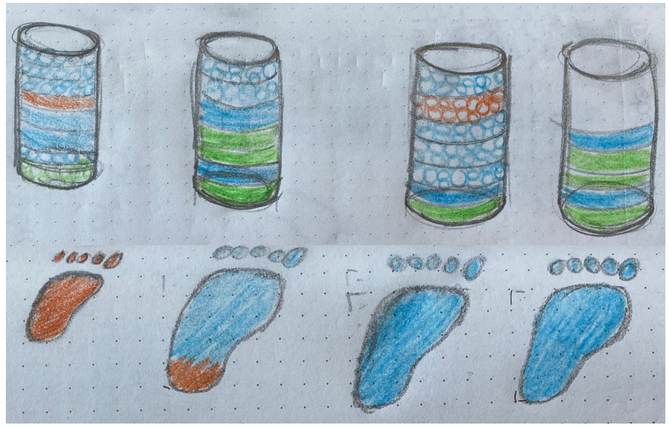
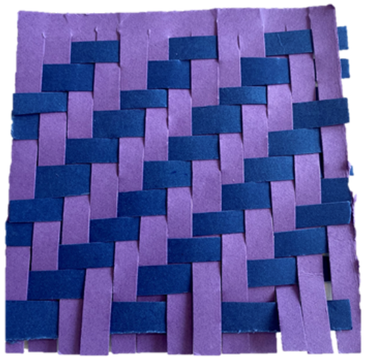
Method

Challenge/Obstacle

Design Decision

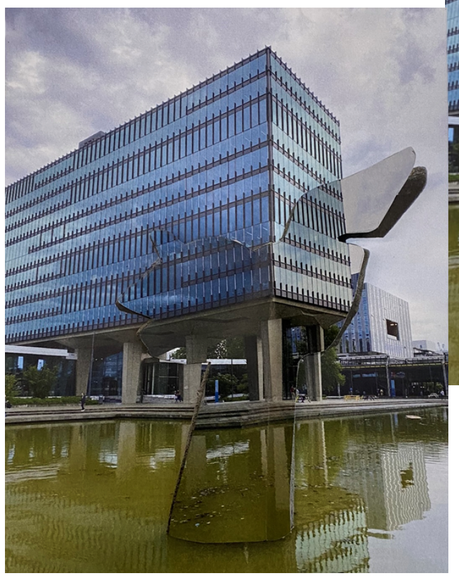


Data Visualization



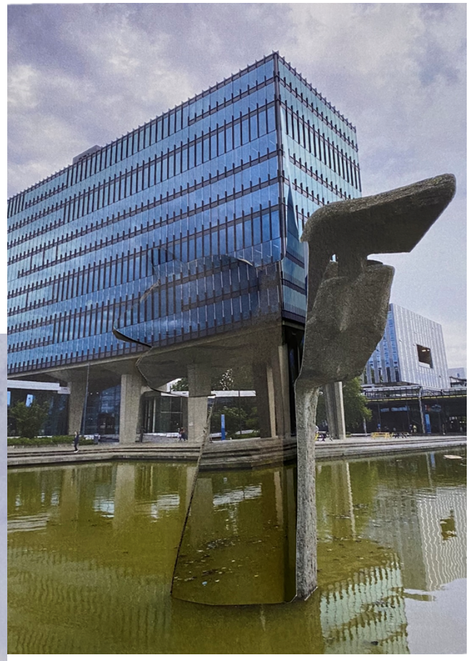
Pattern making

Values: Social Contact



Hiding

Seeing



Optic Illusion

Lo-fi prototyping

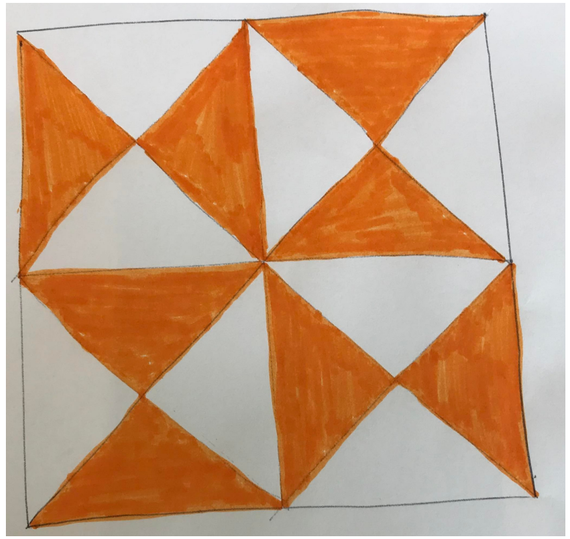
WORKSHOPS

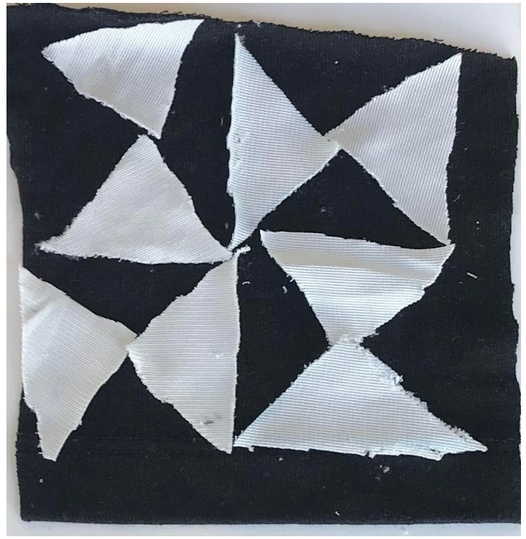
Start the
making process

Making patterns

Getting familiar with
the machines

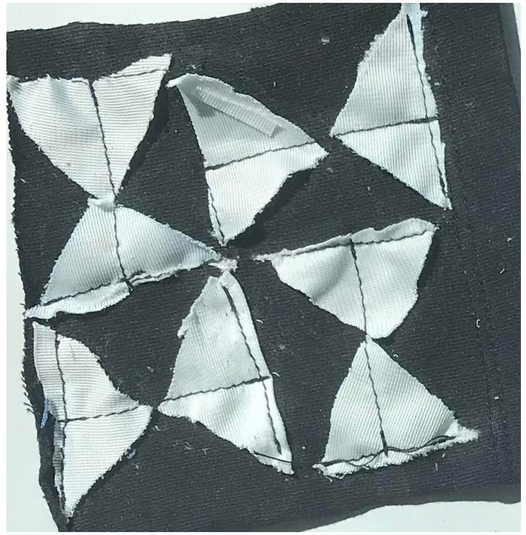
Lo-fi
prototyping





Folding

Making a pattern



Hiding & Seeing

Lo-fi prototyping

CHOOSING A DATA SET

Values workshop

Social Impact

Gender inequality

Data set: Domestic violence in the Netherlands [4]

Jaartal	Aantal geweldsmisdrijven
2015	92.475
2016	90.200
2017	85.335
2018	83.325
2019	83.765*
2020	79.410*

**voorlopige cijfers*

Minor/proportional changes

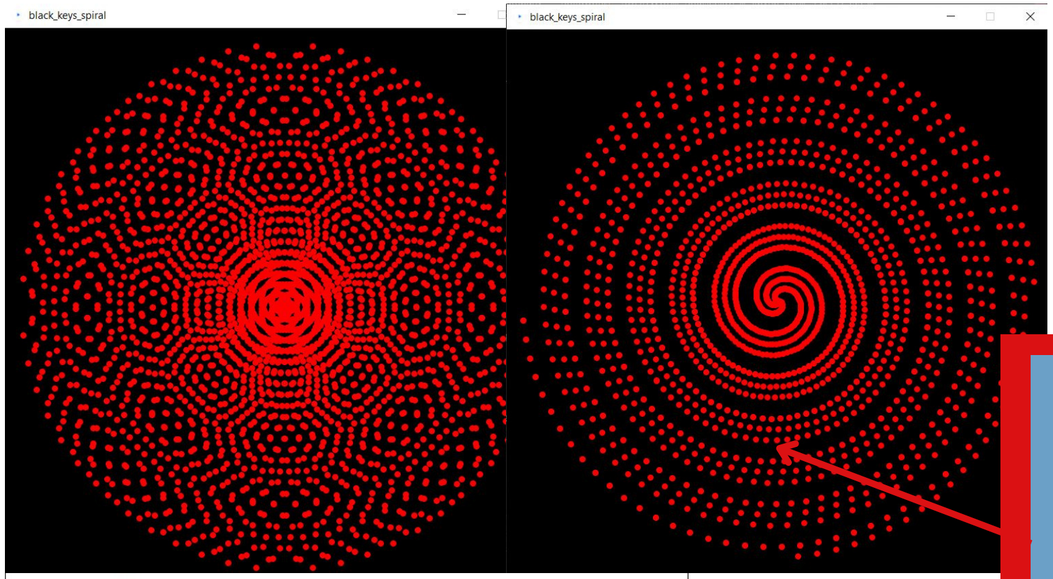
Pivoting to a more dynamic dataset

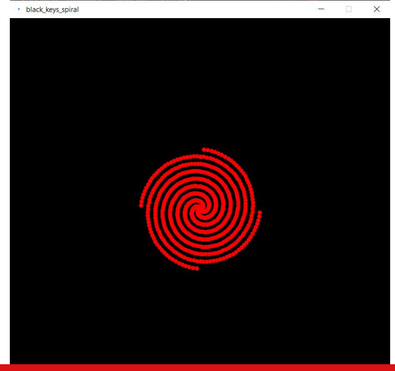
How to implement data into bag?

Loe Feijs's spiral code [1]

Setting up parameters

```
//(c) Loe Feijs and TU/e 2016-2019
//for Golden Ratio and Digital Craftmanship
//The Archimedean spiral is approximated by red dots
//Using the function, we can make four spiral-arms

import processing.pdf.*;

void setup() {
  noLoop();
  beginRecord(PDF, "SPIRAL" + ".pdf");
  size(800,800);
  stroke(255,0,0);
  strokeWeight(5);
  background(0);
}
```





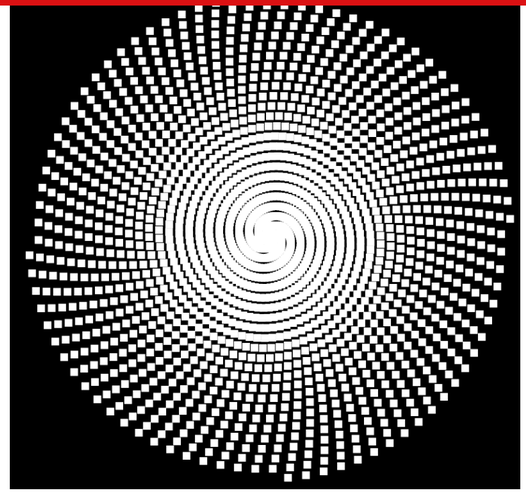
Original product of source code

```
void spiral(float xc, float yc, float rot){
    //xc,yc are the coordinates of centre
    //rot is the initial orientation
    //a defines radius growth
    int steps = 500;
    int windings = 6;
    float a = 10;
    float dt = windings * TWO_PI / steps;
    for (int i=0; i < steps; i++){
        float t = i * dt;
        float x = a * t * cos(t + rot);
        float y = a * t * sin(t + rot);
        noStroke();
        rect (xc + x, yc+y, 12, 12);
        //point(xc + x,yc + y);
    }
}
```

Explorations of variations in parameters: steps, windings and variable a

Inspiration aesthetic [2]

Manipulated result of source code

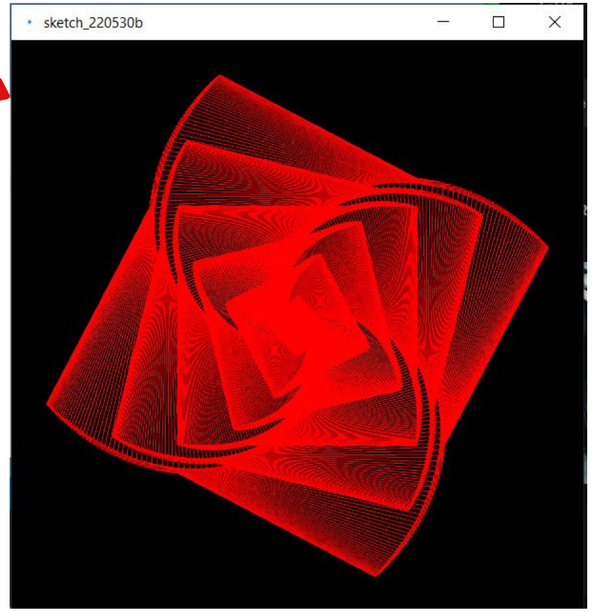


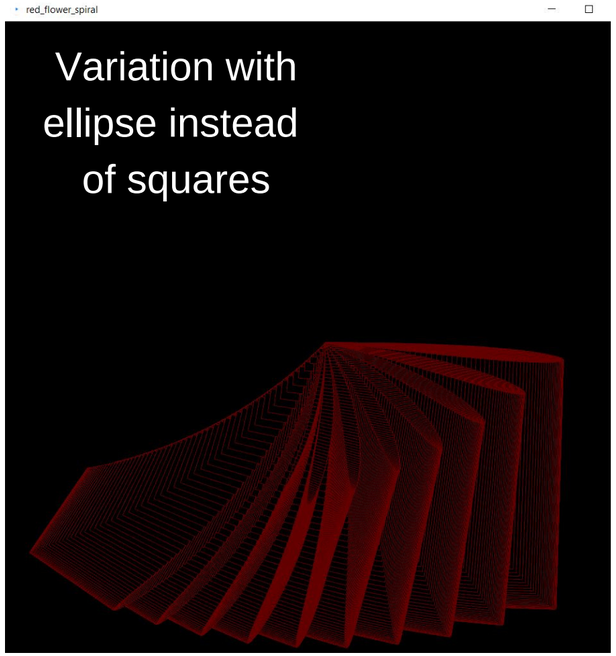
Loe Feijs's spiral code [1] + Red flower [3]

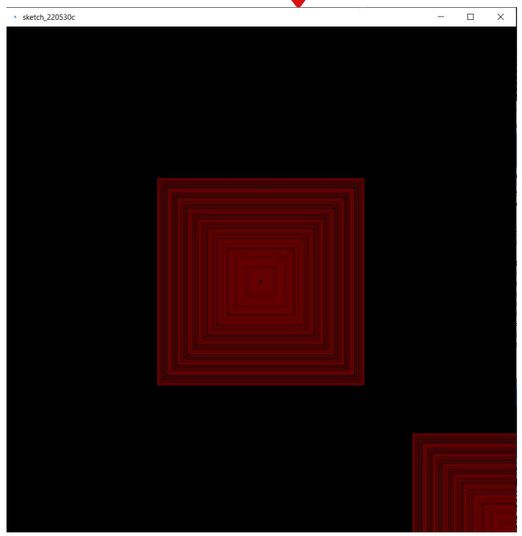
```
void spiral (float xc, float yc, float rot){
  int steps = 500;
  int windings=6;
  float a=10;
  float dt = windings * TWO_PI/steps;
  for (int i=0; i<5; i++){
    float t = i* dt;
    float x = a* t* cos(t + rot);
    float y = a* t* sin(t + rot );
    //fill (random (0,80), random (0,20), random (0,120));
    stroke (100, 0,0);
    rectMode(CENTER);
    angle = -adecay;
    side = decay *rside;
    rotate(angle);
    rect(width/2,height/2,side, side);
    //rotate (radians(5));
    translate(width/2, height/2);
    frame = frameCount%frameRange;
    direction = abs(sin(radians(frame*frequency)));
    decay = direction*lerp(1, 0, frame/frameRange);
    adecay = -direction*lerp(0,1, frame/frameRange);
    //adecay = direction*lerp(c,d, frame/frameRange);
    //point (yc + y, xc +x);
  }
}
```

Using the spiral for loop, we use squares that keep being translated and scaled at the center of the screen

Product of red flower code

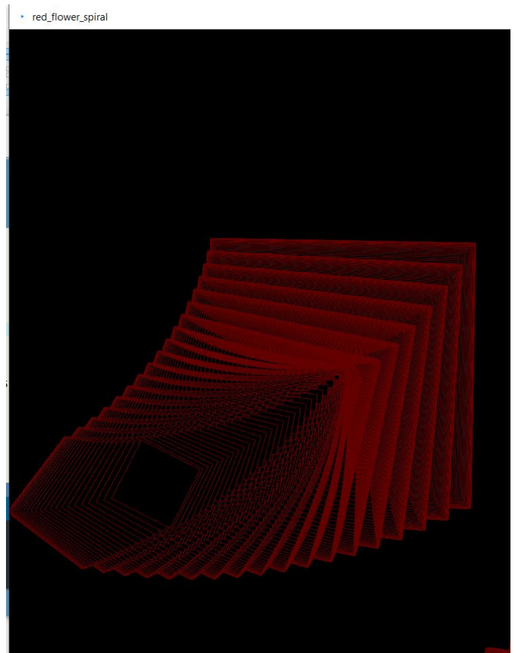







```
void draw(){
  float x = width/2;
  float y = height/2;
  float z = 50.5;
  float l = 160.5;
  spiral (x,y,0);
  //spiraltwo (z,l, 0);
  //spiral (x,y, PI/2);
  //spiral (x,y, PI);
  //spiral (x,y, 3*PI/2);
  }


void flower (float sidex, float
  rectMode(CENTER);
  angle = adecay;
  side = decay*rside;
```

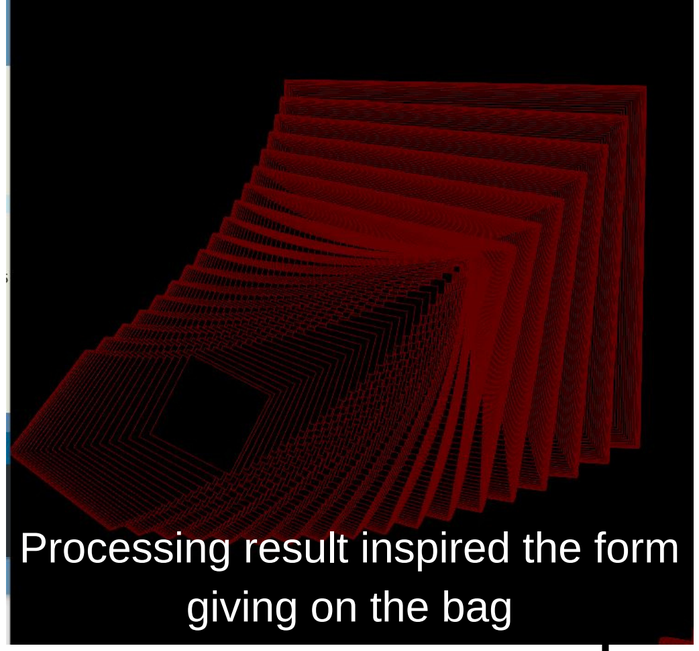
Experimenting with changing parameters



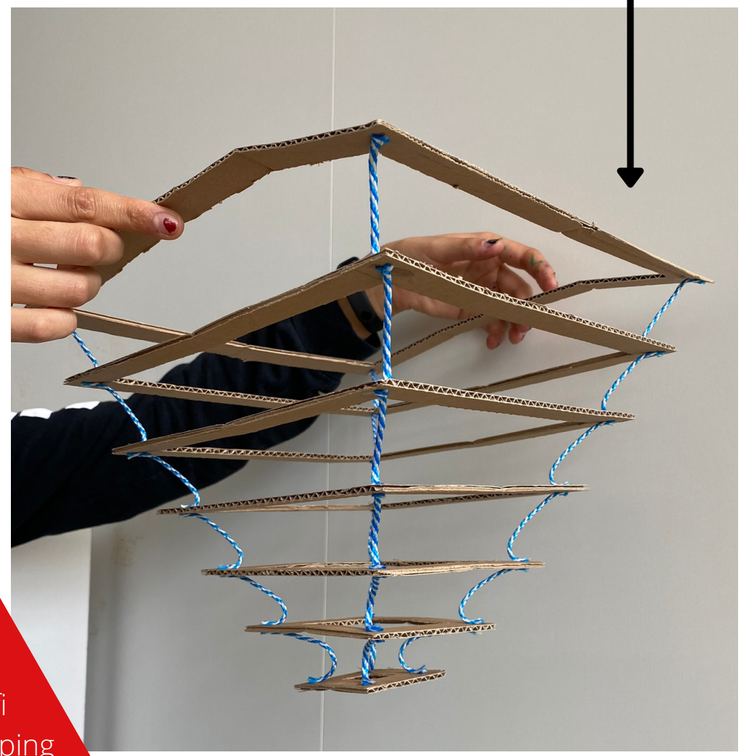

```
float frequency = 4;
boolean paused;
float frame;
float direction;
float decay = 0.0;
float adecay = 0.0;
float angle = 0.0;
float side, rside;

float a = 1;
float b = 0;
float c = 1.5;
float d = 0.5;
float r;
int frameRange = 20;
```

Narrative:

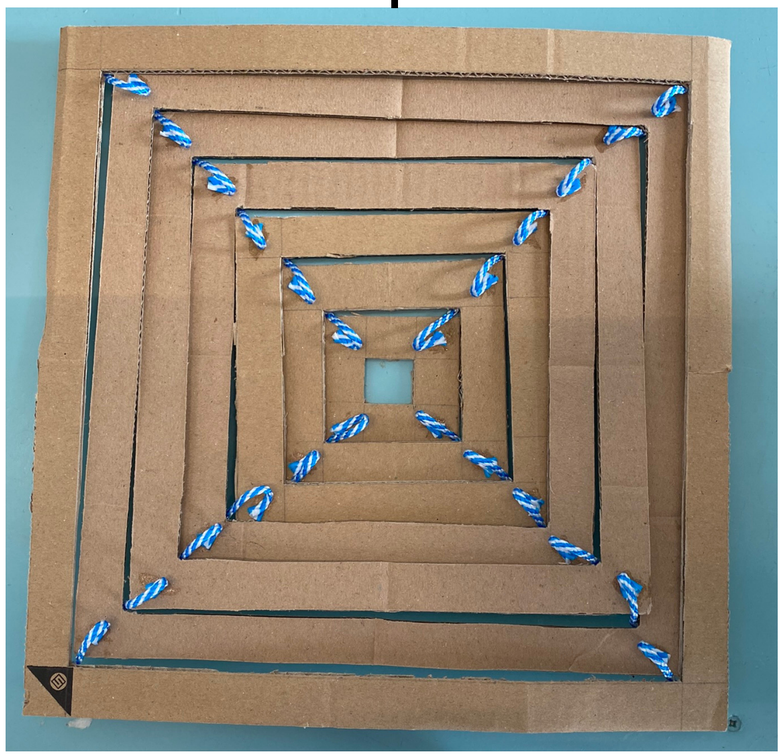
ILLUSION OF EQUALITY



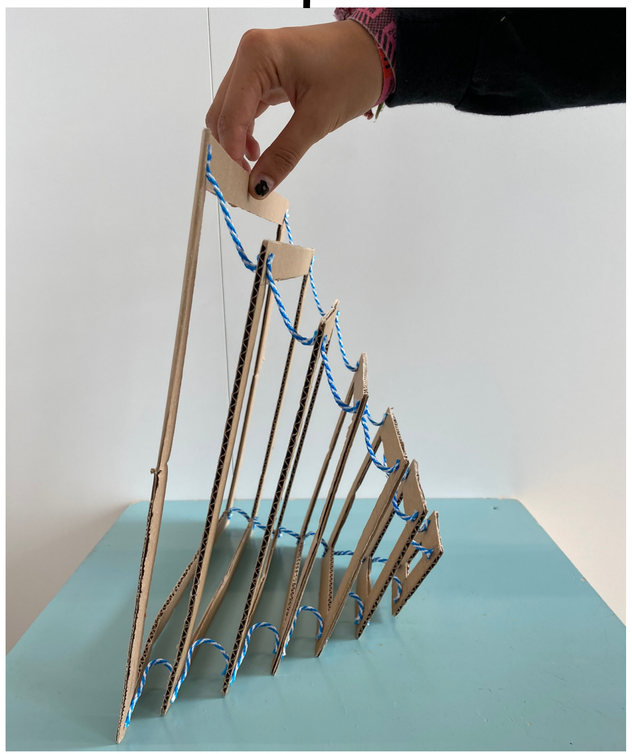
Processing result inspired the form giving on the bag



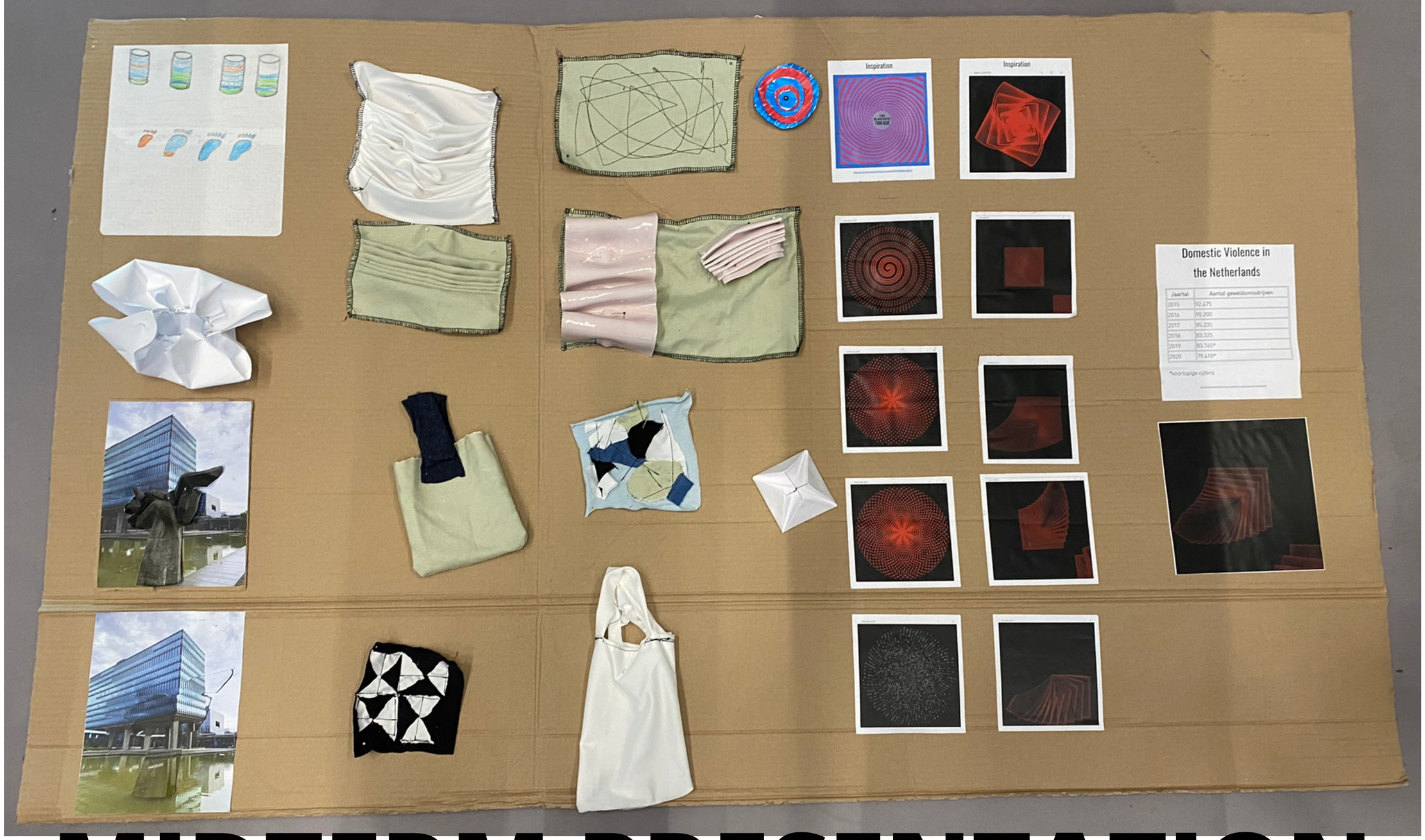
Influence on narrative:
equal/symmetrical when folded



Influence on narrative:
skewed/distorted perspective

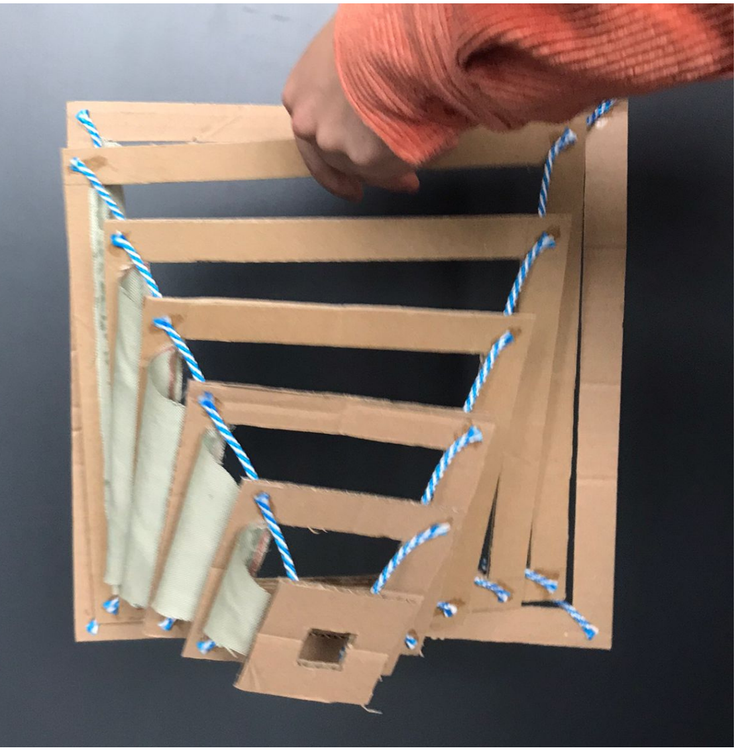


Lo-fi prototyping

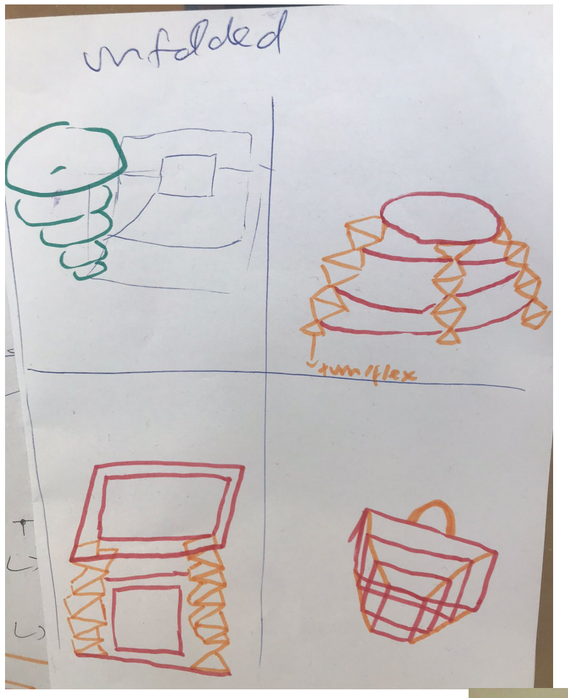


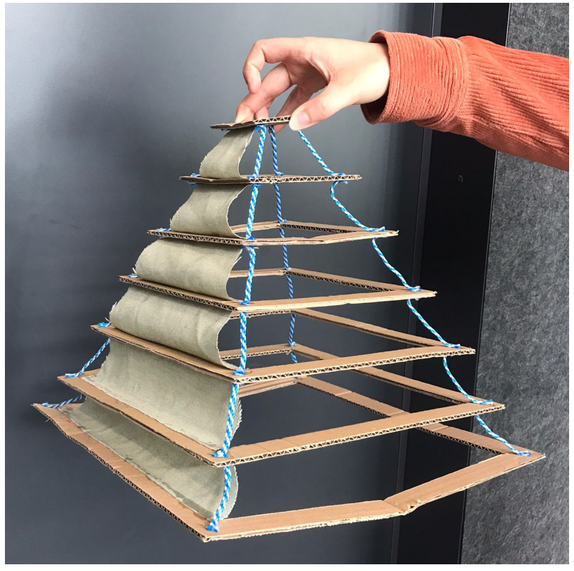
MIDTERM PRESENTATION

Iteration



Adding fabric to lo-fi prototype





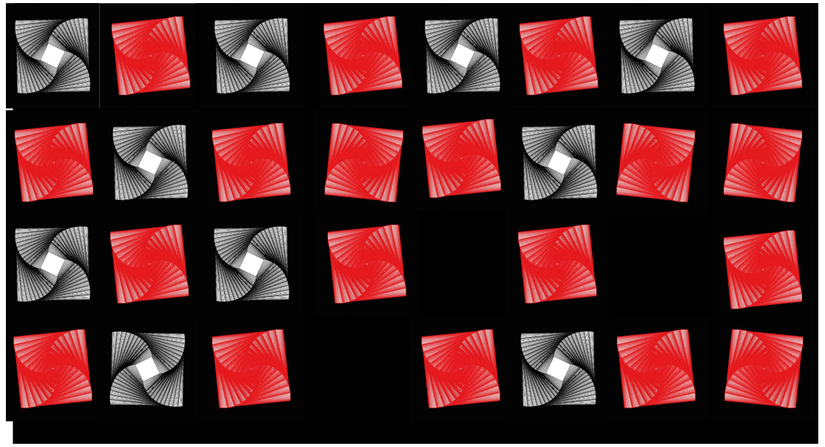
Square as a bag

Exploration of rotation and distortion of square

MIDTERM FEEDBACK:

- How to incorporate data?
- Use rotation
- Choose different data set

- color parameters
- scaling
- tickness of squares



PG = pay gap
DPG = Dutch pay gap

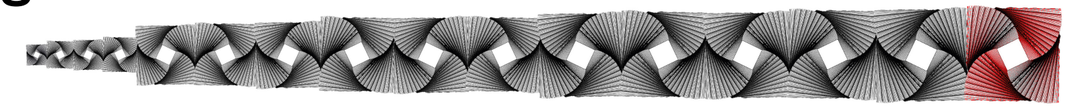
red = PG < DPG
black = PG > DPG

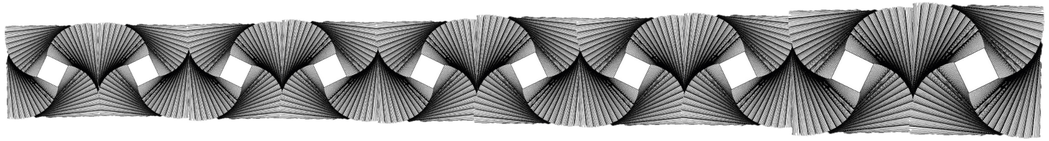
Data Set

European Union Gender Pay Gap [5]
29 countries' gender pay gap
(not including Part-time workers)

The pay gap percentage of each country is compared to the Dutch percentage

Each square is scaled proportionally





Awareness→
Empowerment

What makes you feel powerful?

You don't have to loud to take up space

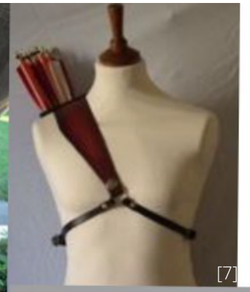
Silent protest

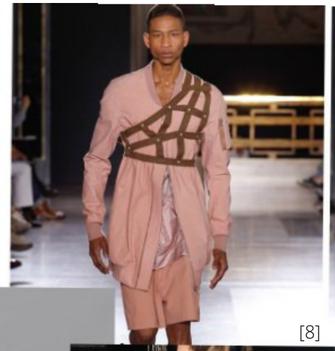
Moodboard

Female superheroes don't look powerful...

Metal briefcase + harness

Archery equipment, sword holder, bondage



[7]

[6]

[8]

[9]

[10]

[11]

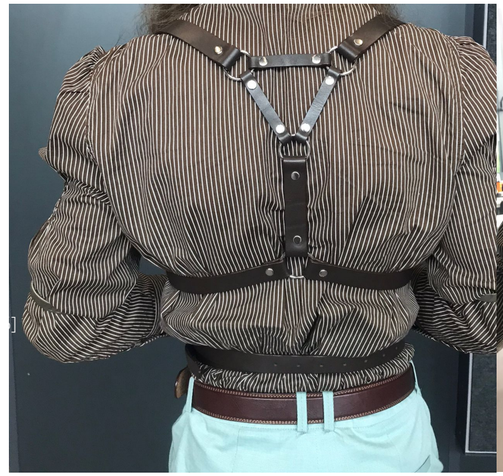
[12]

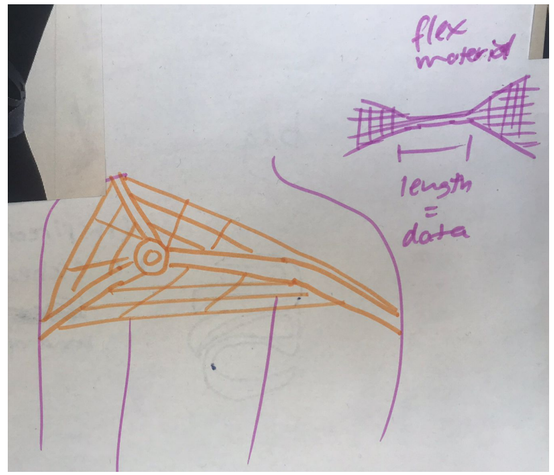
[13]

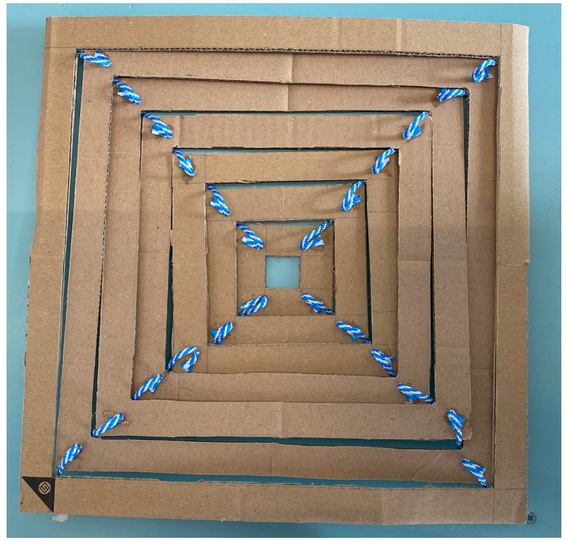
[14]

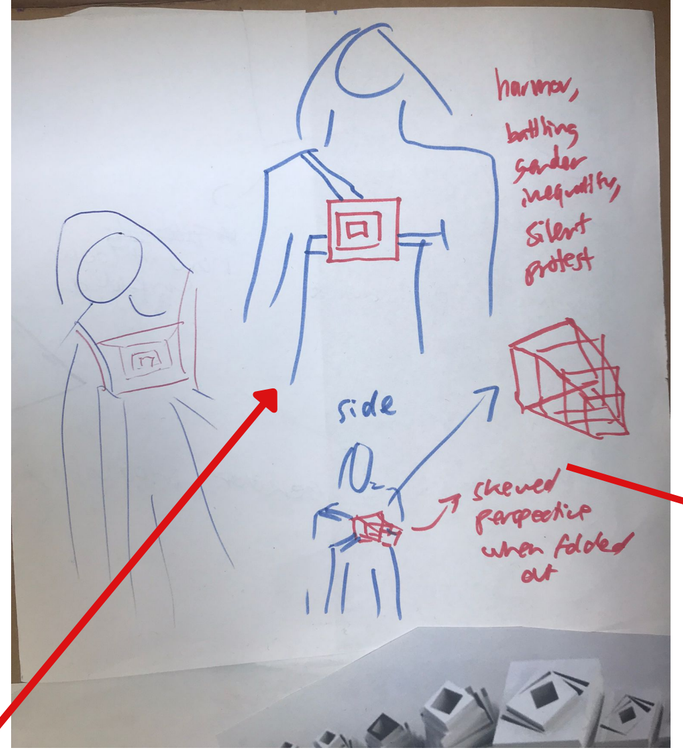
[15]

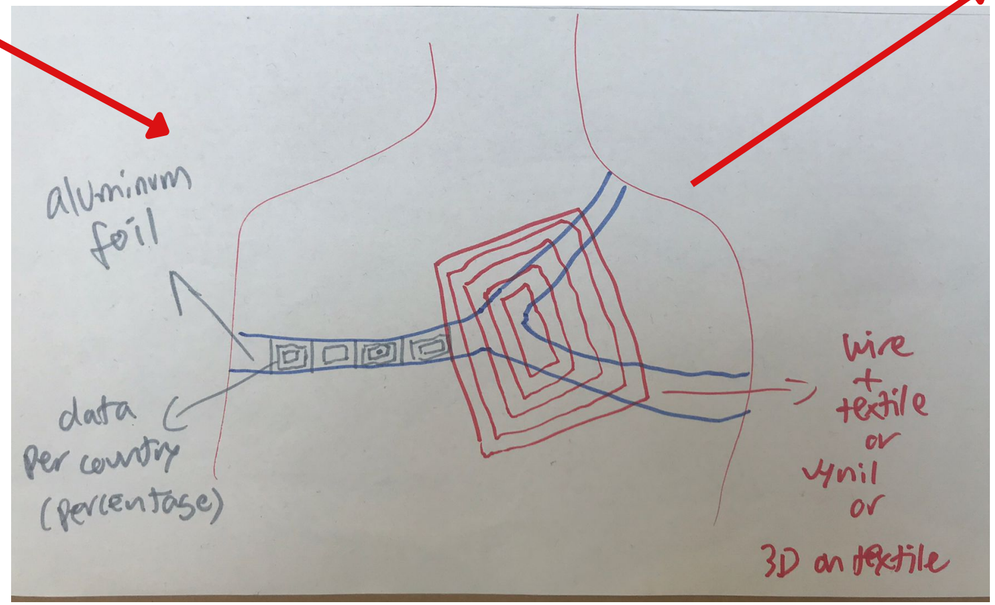
[16]

[17]










Bag Concept

What if instead of the harness being the bag holder, the harness is the bag itself?

Ideation

Form exploration

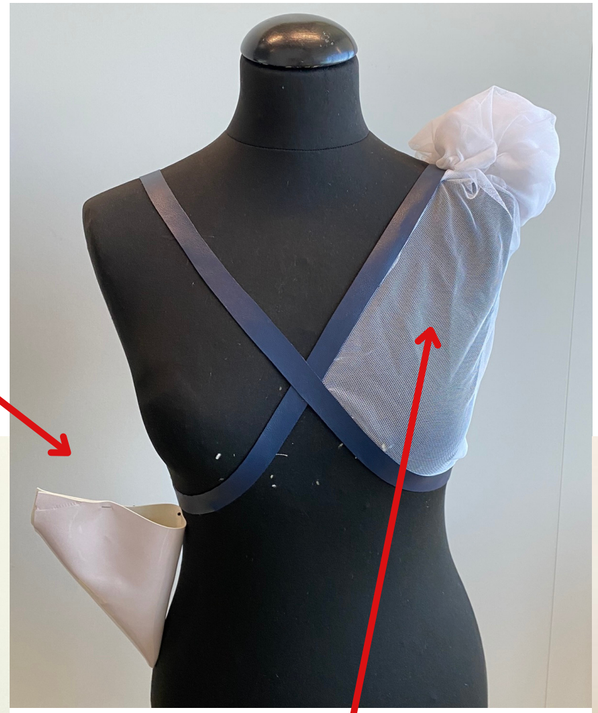
Incorporating data in shape

Contrast of rough leather and soft mesh

Duality/contrast between both sides

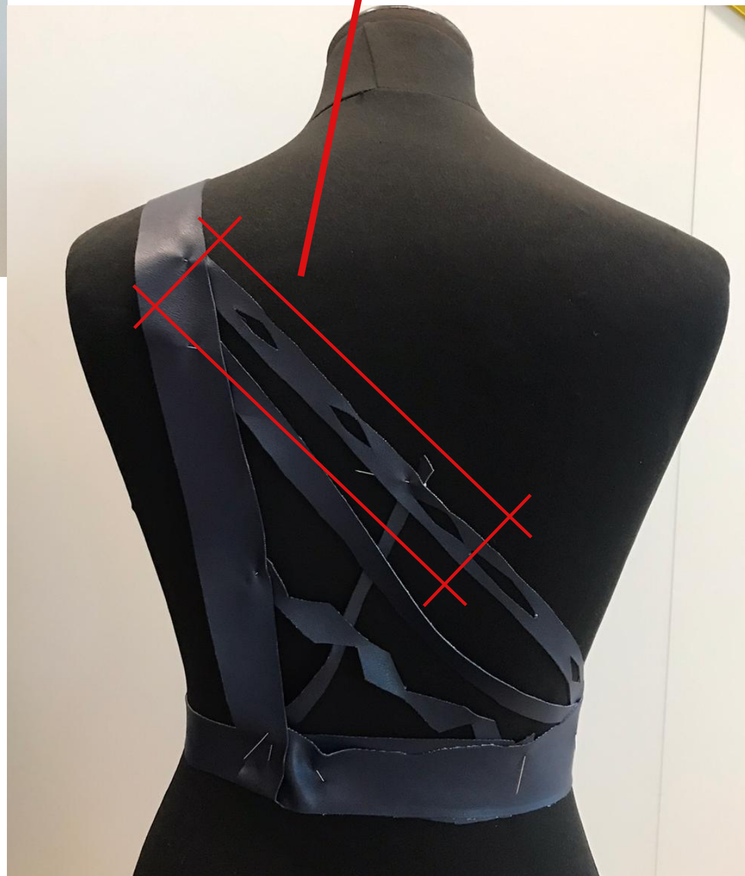
Form exploration

External pocket



Internal pocket

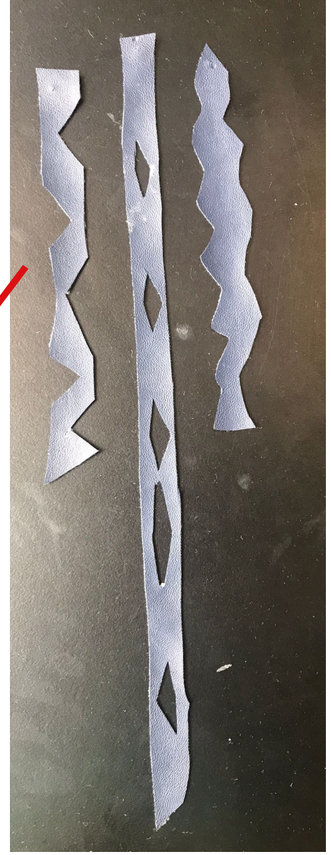
"Laser cut" data exploration



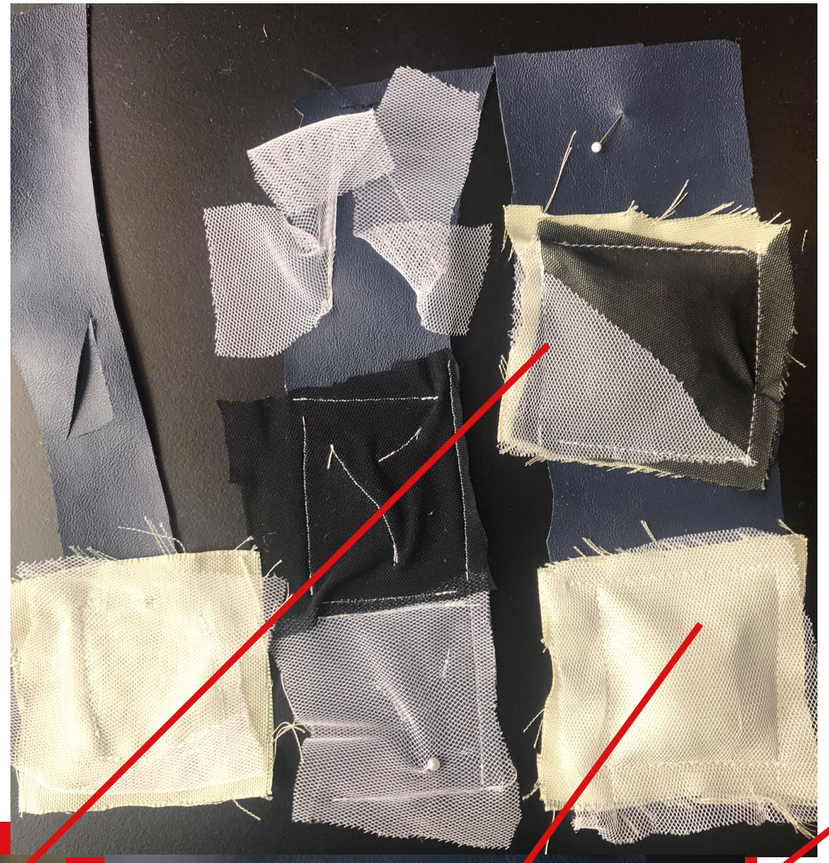
How to incorporate the bag concept?

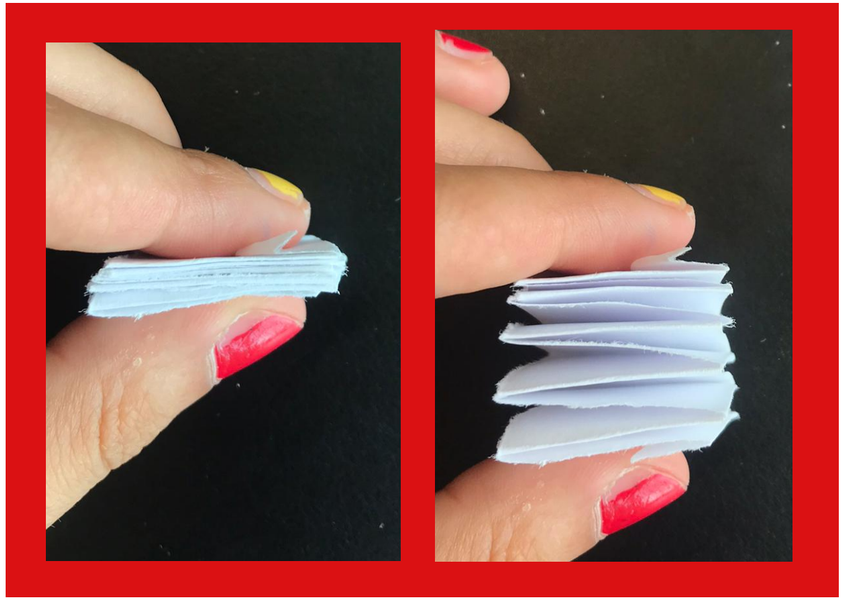
Exploration

Data incorporation exploration



2D "laser cuts"





Pillows filled with paper folds

3D pillows

Using 3D form to create perspective
Contrast: 2D vs 3D

Final Harness

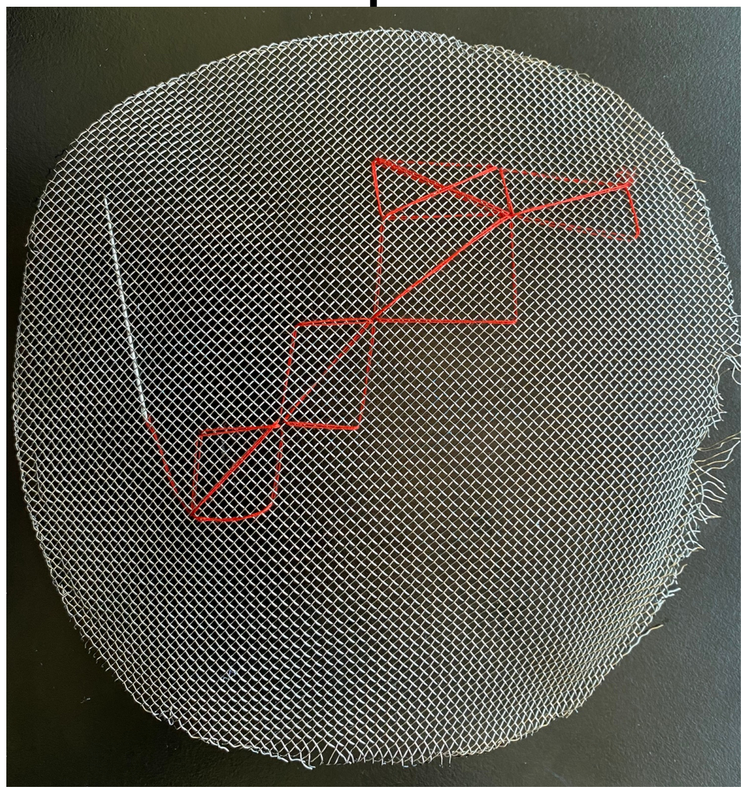
Coloring black

Final form harness

Fitting on ourselves

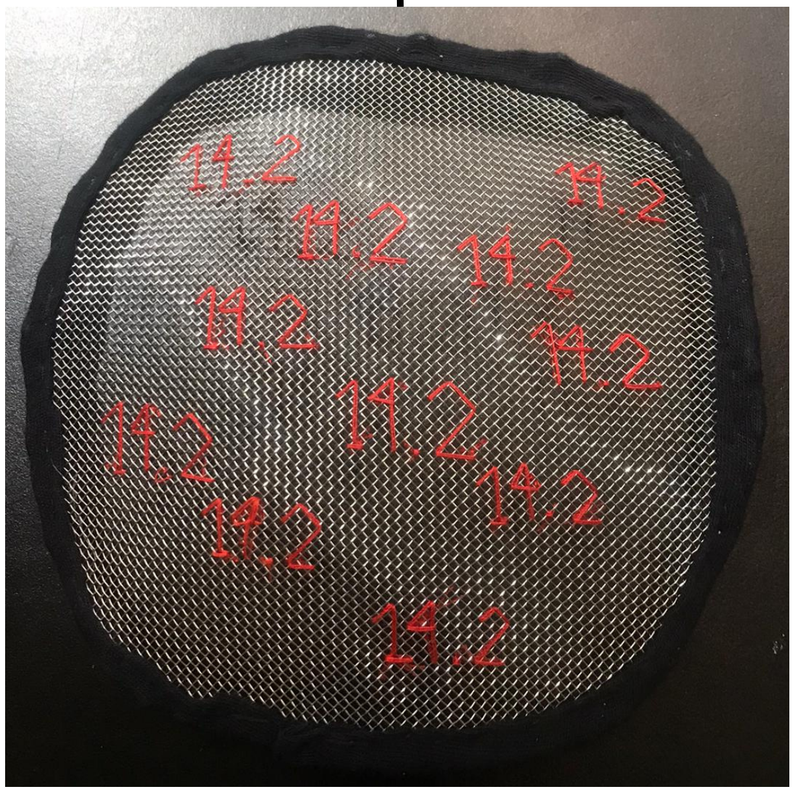
Final harness

Hand embroidery



Inspired by fashion and military metal armours

Dutch gender pay gap percentage = 14.2%



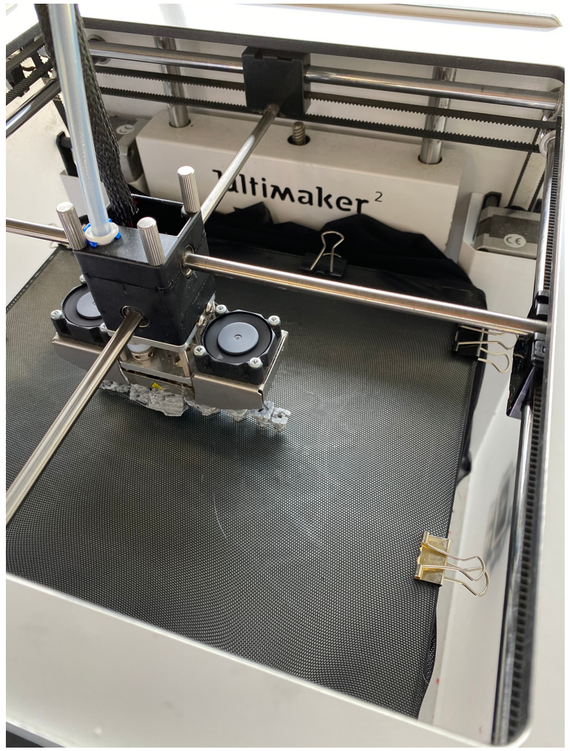
Powerful look

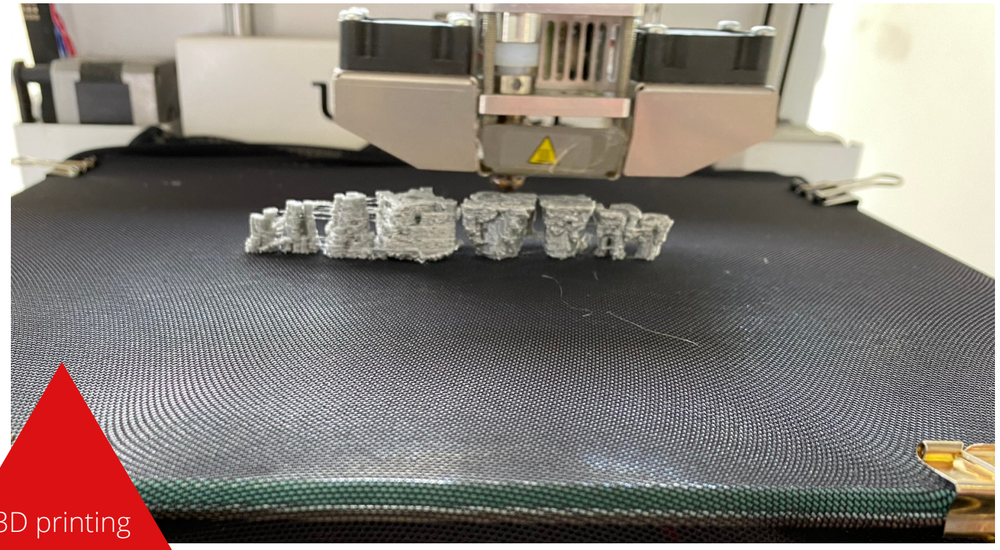
Embroidery

Sublimation printing on mesh

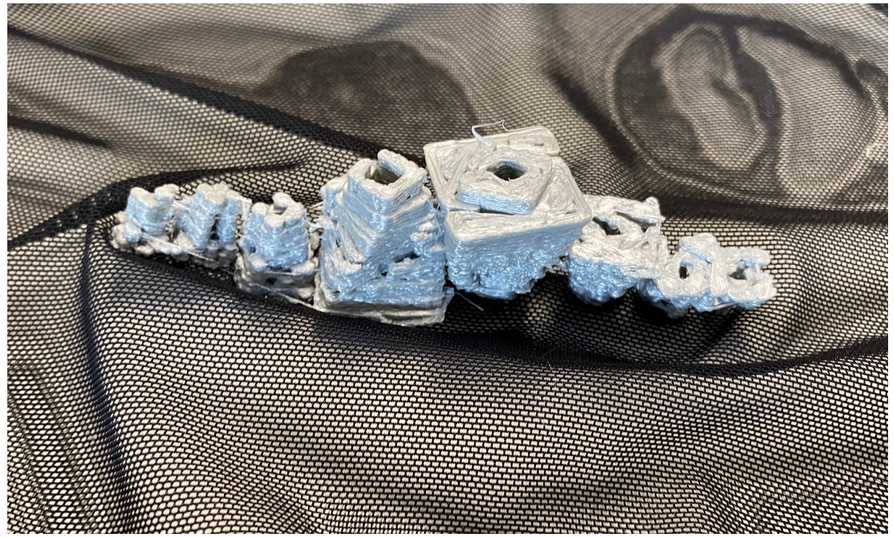
Creating a sleeve

Sublimation Printing

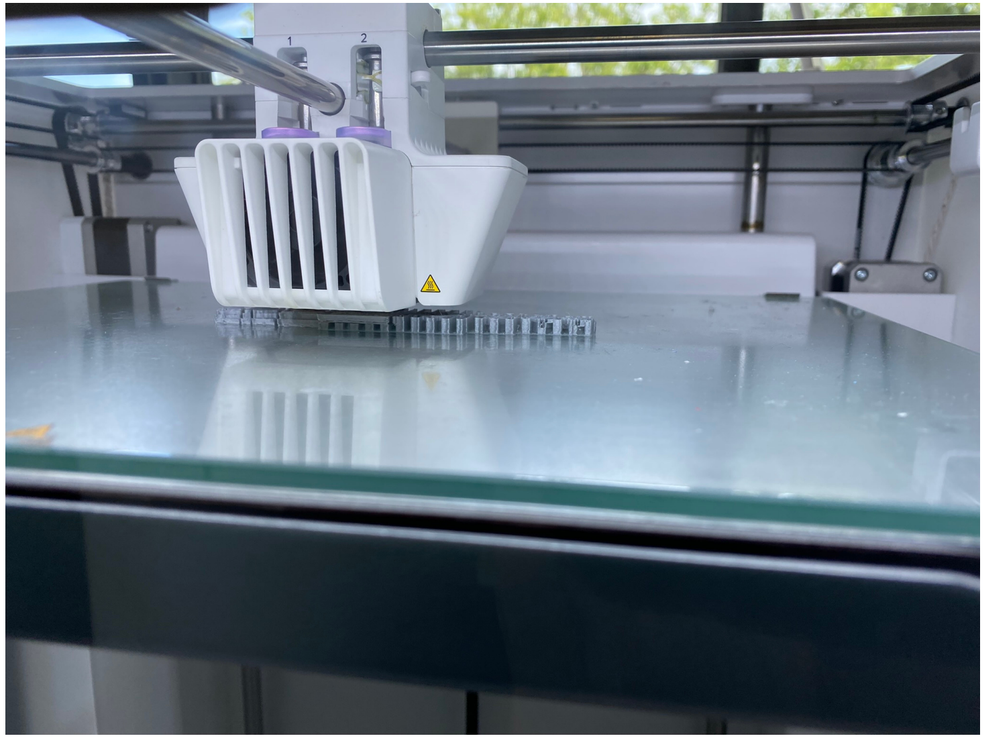


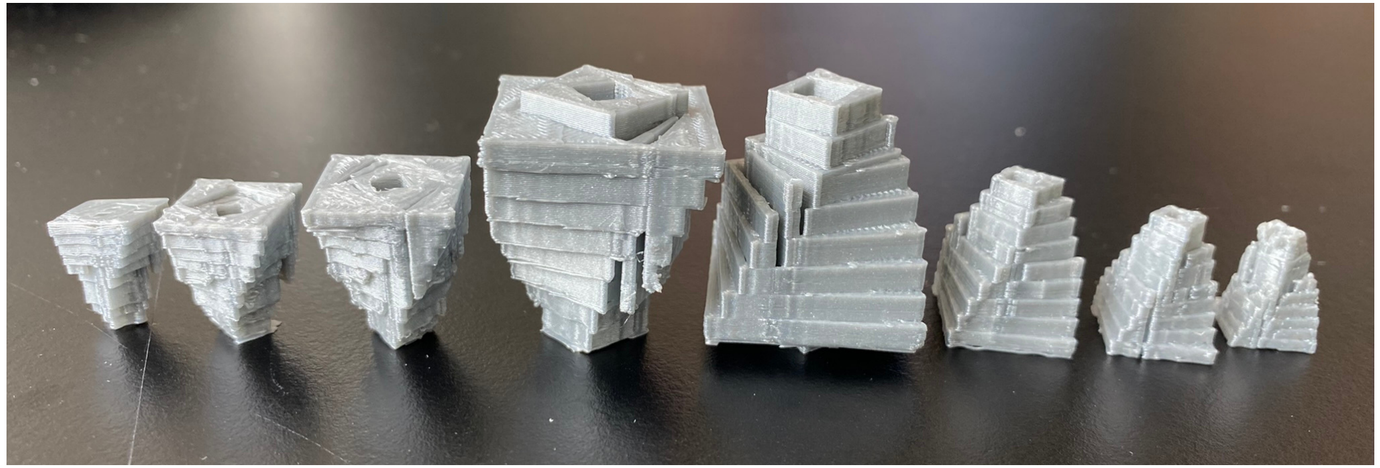


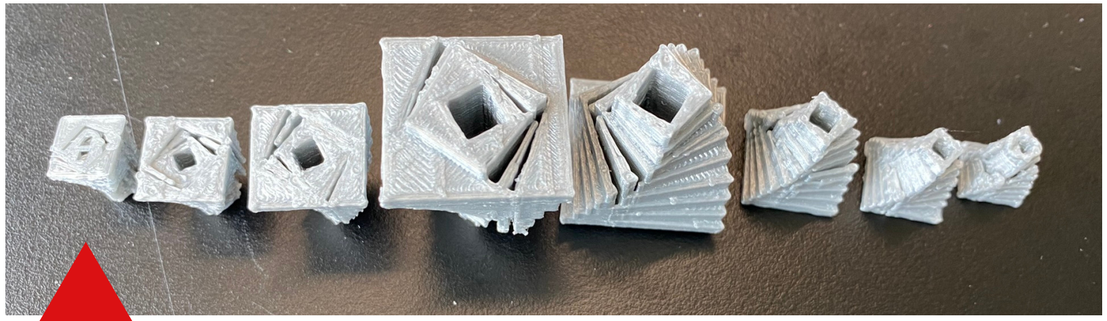
#1 try with PLA printing
3D printing on fabric at LABELEDBY



3D printing







#2 try 3D printing on a more precise 3D printer

3D printing

DESIGN RATIONALE

1

Narrative:

ILLUSION OF EQUALITY

(Silent protest)

Influence on narrative:
Black VS White

Contrast and duality

Contrast/duality:
3D printed on one side
looks unequal
2D sublimation print that
looks symmetric

Skewed perspective and
playing with imbalance

Imbalance of symmetry
of the harness

Metal
+
Leather

Sturdy and strong look

Mesh

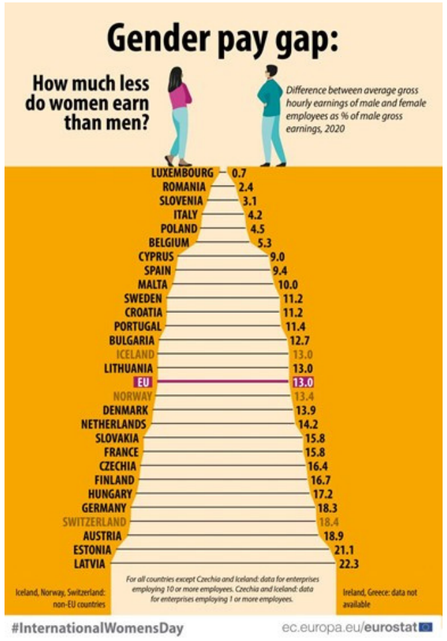
Soft look

Contrast and duality

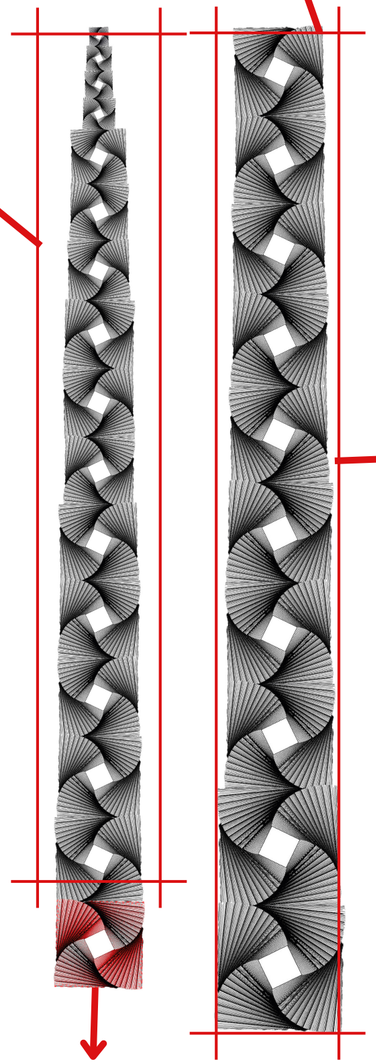
2

10 squares that are bigger than Dutch square = countries with bigger gender pay gap

19 squares that are smaller than Dutch square = countries with smaller gender pay gap

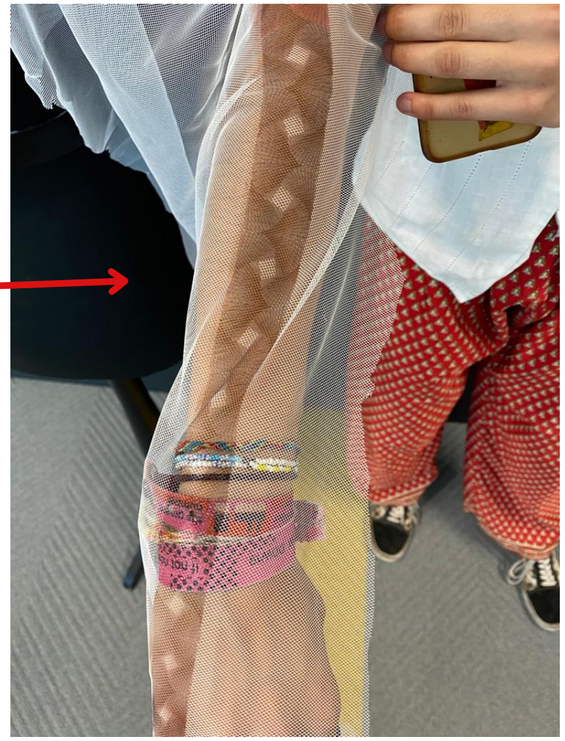


Data set [5]



Baseline square: 100% scale represents the Dutch gender pay gap

creates a hidden/discrete statistic which looks equal from afar



Sublimation printing

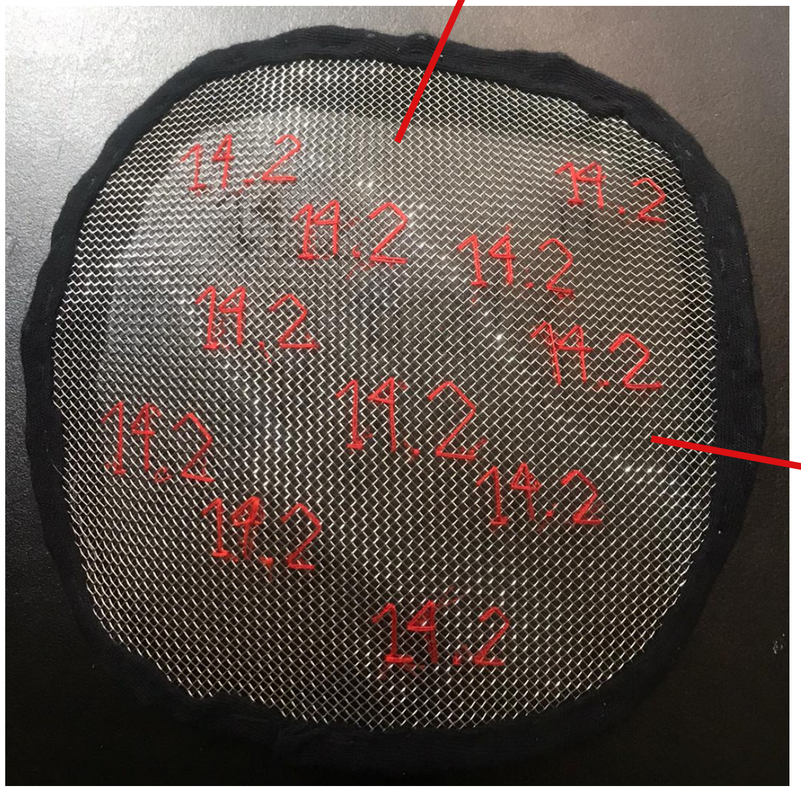
Mesh materials aids in hiding the pattern when not placed under a contrasting background

3

Used as a way of silent protesting

14 times 14.2% sparks curiosity by others

14.2 stands for Dutch gender pay gap difference in percentage

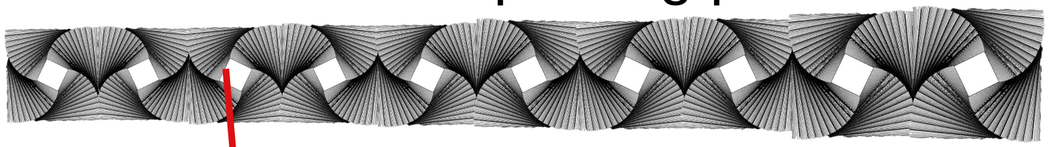


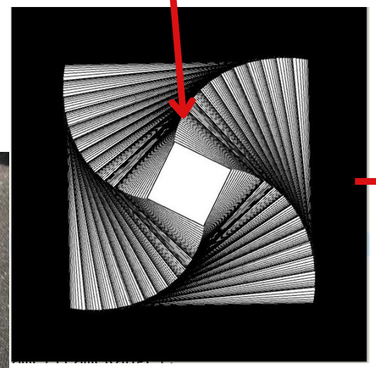
Metal

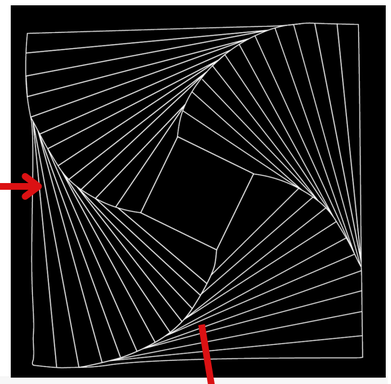
Strong material for powerful look and feel

4

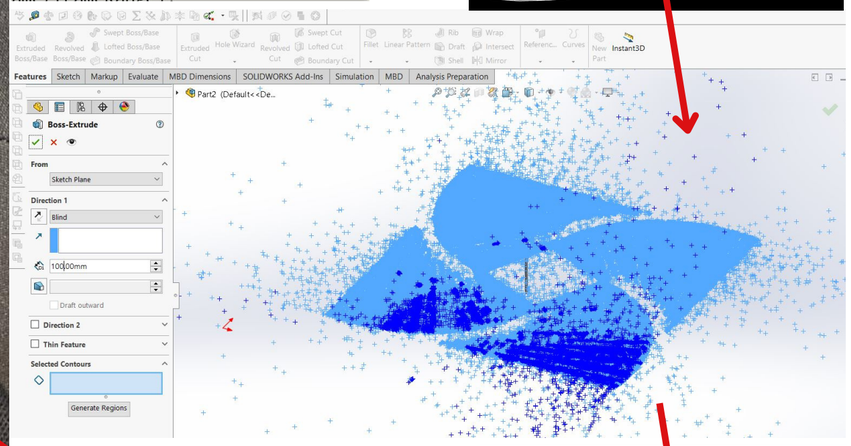
Sublimation printing pattern



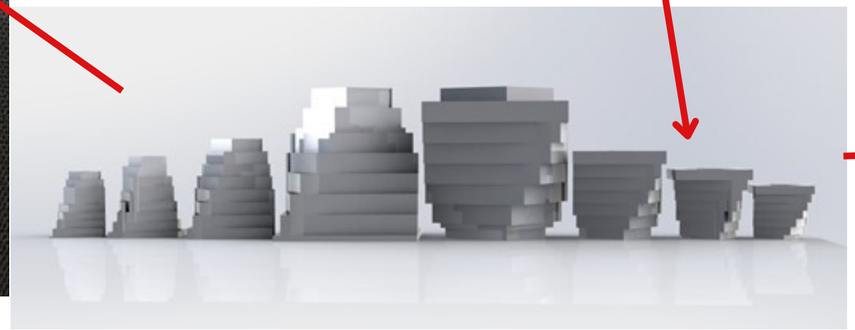


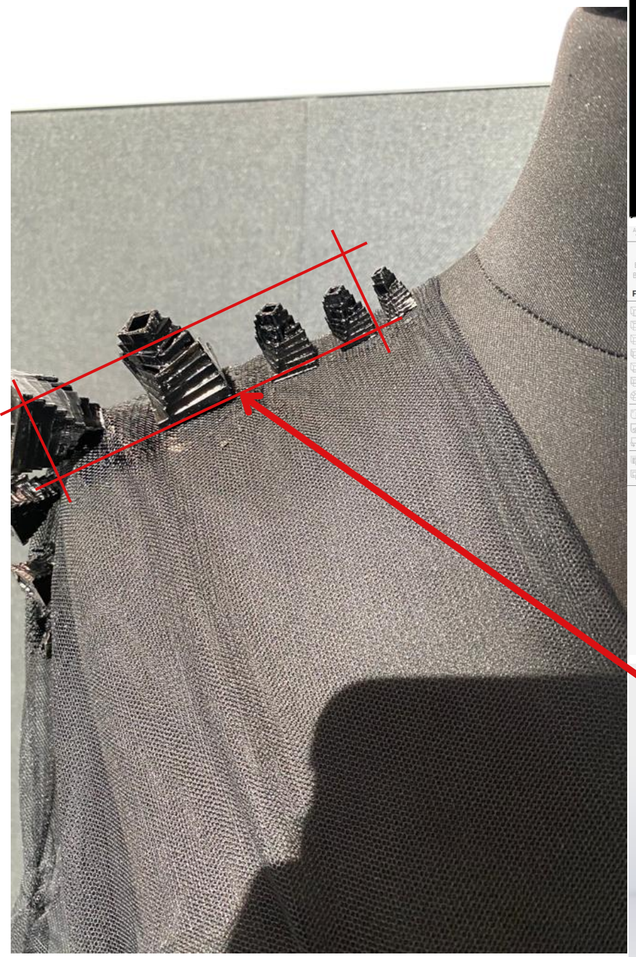


Used illustrator to turn pattern into vector



Extruded vector in Solidworks

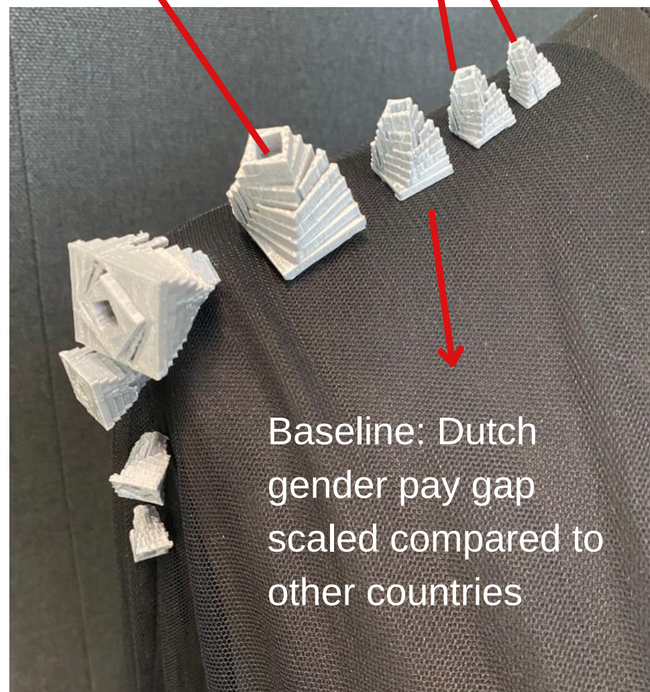


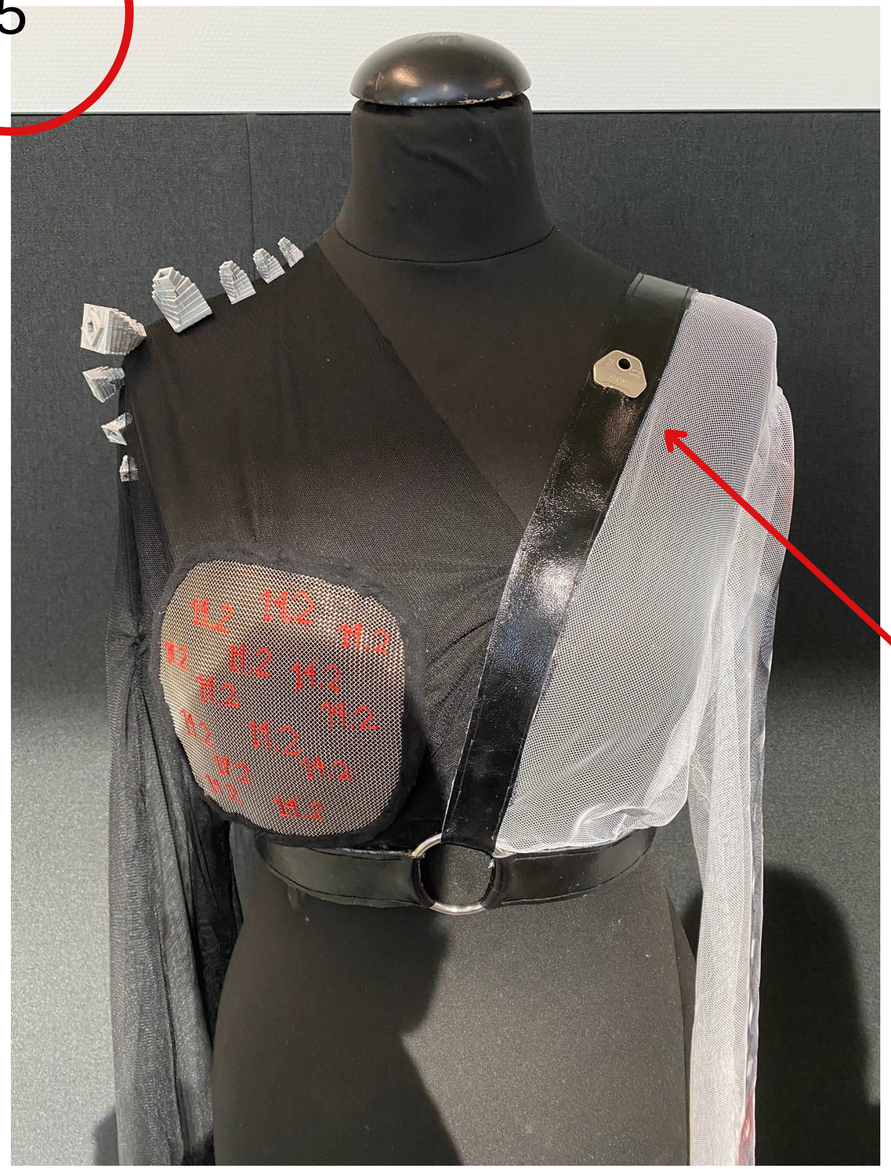


4 towers each representing a 1/4 of the 29 countries in dataset

1/4 has a bigger pay gap compared to NL

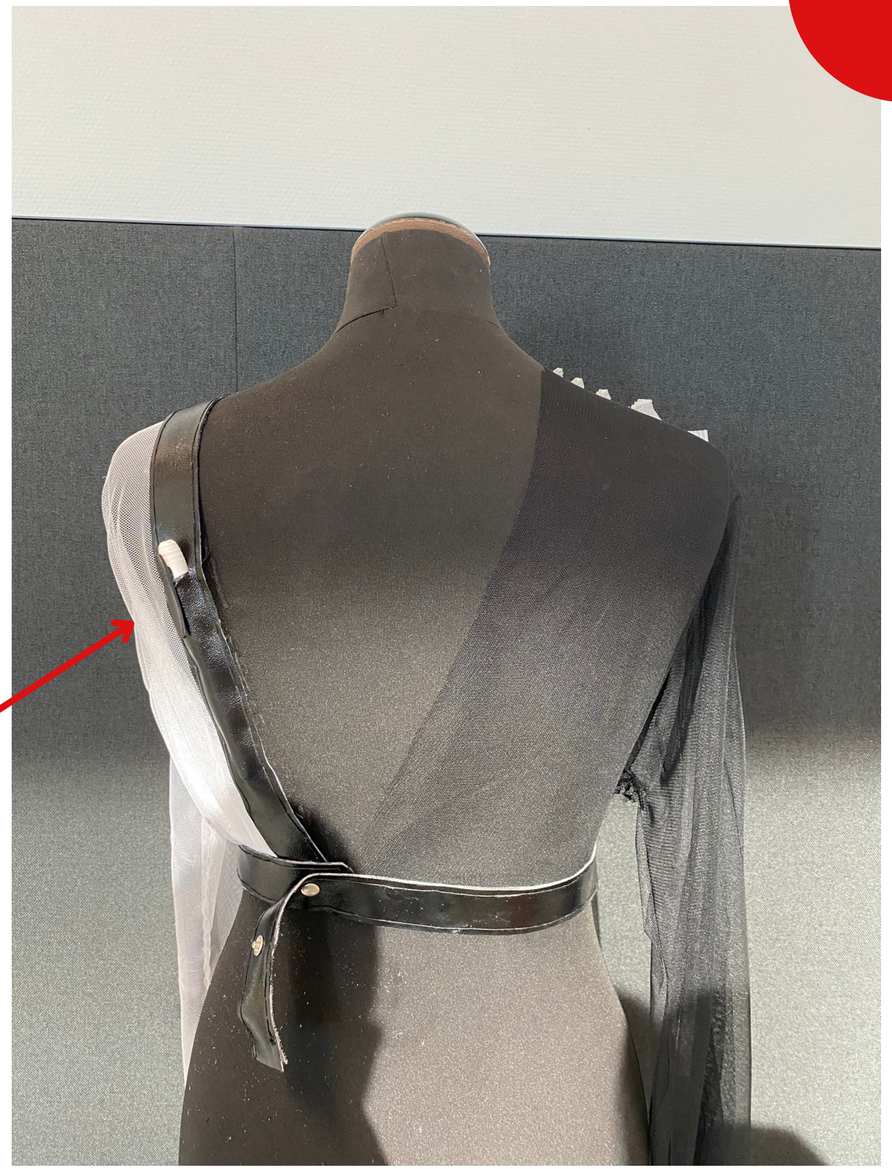
2/4 have a smaller pay gap





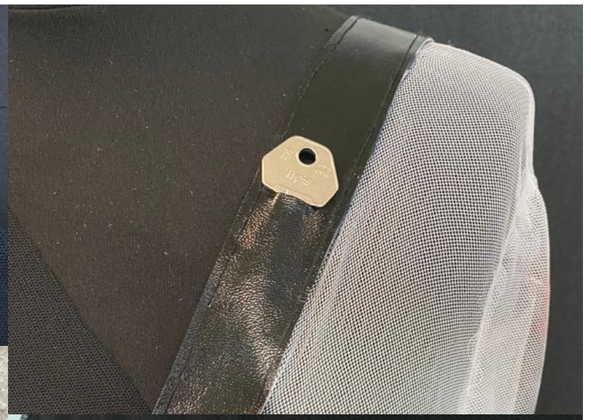
POCKETS

for work essentials



Taps into aesthetic of hidden features

FINAL DESIGN



FINAL PRESENTATION

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- Koen Giesen

APPENDIX A: ITERATION 1 CODE: Page 7 (Square illusion)

red_flower_spiral | Processing 4.0b8

File Edit Sketch Debug Tools Help

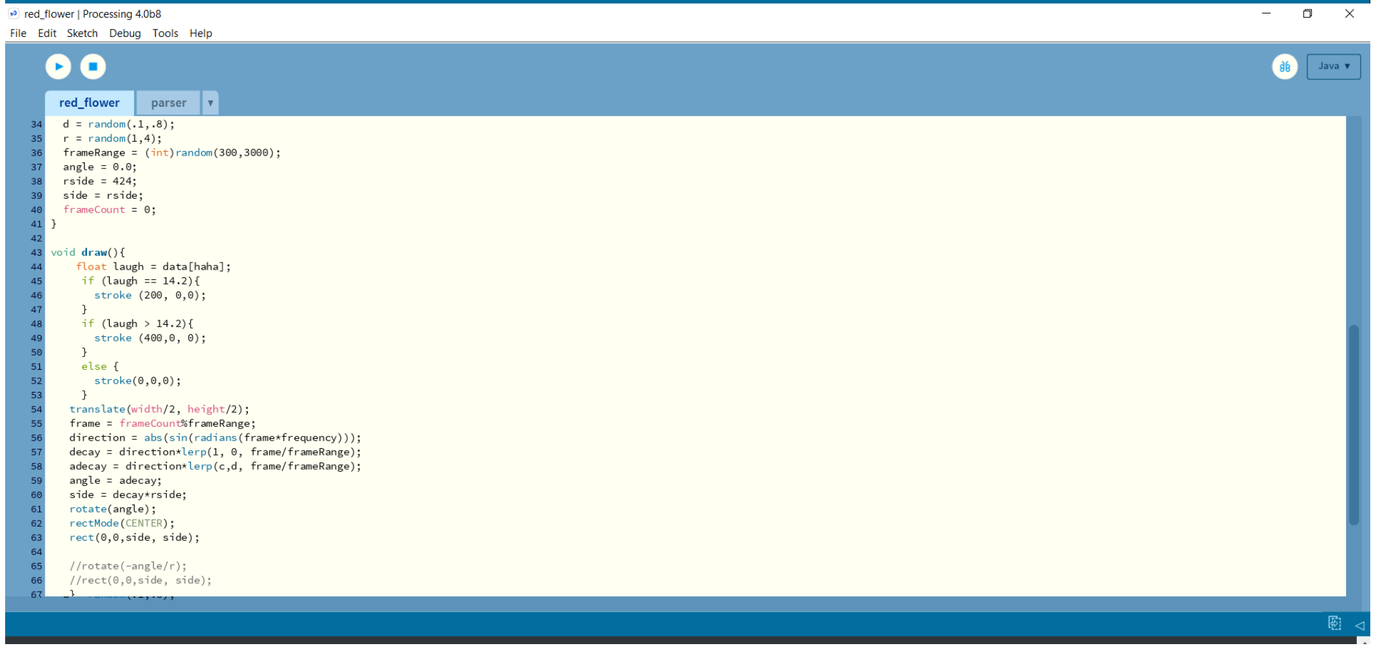
red_flower_spiral

```
//combination two source codes:
//source code: https://openprocessing.org/sketch/189708
//inspired by "red flower" from emdrift
//source code: https://github.com/digital-craftsmanship/GOLDEN-RATIO/blob/4e9b45f12119432160baee79d1e65c260db3f2c8/DAY1-COORDINATE-SYSTEMS/fromCircleToSpiral/fromCircleToSpiral.pde
//inspired by "fromCircletoSpiral" by Loe Feijs

float frequency = 4;
boolean paused;
float frame;
float direction;
float decay = 0.0;
float adecay = 0.0;
float angle = 0.0;
float side, rside;

float a = 1;
float b = 0;
float c = 1.5;
float d = 0.5;
float r;
int frameRange = 20;

void setup (){
  size(1000,1000,P3D);
  background(0);
  //stroke (255, 0,0);
  stroke (30, 0,0);
  //strokeWeight(1.5);
  //background (3,156,228);
  fill (0);
  frequency = random (0.9, 3.5);
  frame = 0.0;
  direction = 0.0;
  decay = 0.0;
  adecay = 0.0;

  a = random(1, 1.5);
  c = random (1.5,3);
  d = random(0.1, 0.8);
  r = random (1,4);
  frameRange = (int)random(300,3000);
  angle = 0.0;
  //rside = 424;
  rside = 400;
  side =rside;
  frameCount = 0;
}

void draw(){
  float x = width/2;
  float y = height/2;
  float z = 50.5;
  float l = 160.5;
  spiral (x,y,0);
  //spiraltwo (z,l, 0);
  //spiral (x,y, PI/2);
  //spiral (x,y, PI);
  //spiral (x,y, 3*PI/2);
  }


void flower (float sidex, float sidey){
  rectMode(CENTER);
  angle = adecay;
  side = decay*rside;
  rotate(angle);
  rect(width/2,height/2,side, side);
  rotate (radians(45));
  translate(width/2, height/2);
  frame = frameCount%frameRange;
  direction = abs(sin(radians(frame*frequency)));
  decay = direction*lerp(1, 0, frame/frameRange);
  adecay = direction*lerp(c,d, frame/frameRange);
  }


void spiral (float xc, float yc, float rot){
  int steps = 500;
  int windings=6;
  float a=10;
  float dt = windings * TWO_PI/steps;
  for (int i=0; i<5; i++){
    float t = i* dt;
    float x = a* t* cos(t + rot);
    float y = a* t* sin(t + rot );
    //fill (random (0,80), random (0,20), random (0,120));
    stroke (100, 0,0);
    rectMode(CENTER);
    angle = -adecay;
    side = decay *rside;
    rotate(angle);
    rect(width/2,height/2,side, side);
    //rotate (radians(5));
    translate(width/2, height/2);
    frame = frameCount%frameRange;
    direction = abs(sin(radians(frame*frequency)));
    decay = direction*lerp(1, 0, frame/frameRange);
    adecay = -direction*lerp(0,1, frame/frameRange);
    //adecay = direction*lerp(c,d, frame/frameRange);
    //point (yc + y, xc +x);
  }
}

void spiraltwo (float xc, float yc, float rot){
  int steps = 500;
  int windings=6;
  float a=10;
  float dt = windings * TWO_PI/steps;
  for (int i=0; i<5; i++){
    float t = i* dt;
    float x = a* t* cos(t + rot);
    float y = a* t* sin(t + rot );
    //fill (random (0,80), random (0,20), random (0,120));
    stroke (255, 255, 0);
    rectMode(CENTER);
    angle = adecay;
    side = decay *rside;
    rotate(angle);
    rect(width/2,height/2,side, side);
    //rotate (radians(5));
    translate(width/2, height/2);
    frame = frameCount%frameRange;
    direction = abs(sin(radians(frame*frequency)));
    decay = direction*lerp(1, 0, frame/frameRange);
    adecay = -direction*lerp(0,1, frame/frameRange);
    //adecay = direction*lerp(c,d, frame/frameRange);
    //point (yc + y, xc +x);
  }
}
```

Saving...

APPENDIX B: ITERATION 2 CODE: Page 7 (Red Flower)


```
float frequency = 3;
boolean paused;
float frame;
float direction;
float decay = 0.0;
float adecay = 0.0;
float angle = 0.0;
float side,rside;
float a = 1;
float b = 0;
float c = 1.5;
float d = .5;
float r;
int frameRange = 200;
int haha = 0;
int LAUGHS = 0;
int MAXLAUGHS = 28;
int[] data = new int[MAXLAUGHS];

void setup()
{
  size(600,600,P3D);
  LAUGHS = parseFile("EU_data.txt");
  background(0);
  //fill(0);
  frequency = random(.9,3.5);
  paused  = false;
  frame = 0.0;
  direction = 0.0;
  decay = 0.0;
  adecay = 0.0;
  a = random(1,1.5);
  c = random(1.5,3);
  d = random(.1,.8);
```




```
  d = random(.1,.8);
  r = random(1,4);
  frameRange = (int)random(300,3000);
  angle = 0.0;
  rside = 424;
  side = rside;
  frameCount = 0;
}

void draw(){
    float laugh = data[haha];
     if (laugh == 14.2){
       stroke (200, 0,0);
     }
     if (laugh > 14.2){
       stroke (400,0, 0);
     }
     else {
       stroke(0,0,0);
     }
   translate(width/2, height/2);
   frame = frameCount%frameRange;
   direction = abs(sin(radians(frame*frequency)));
   decay = direction*lerp(1, 0, frame/frameRange);
   adecay = direction*lerp(c,d, frame/frameRange);
   angle = adecay;
   side = decay*rside;
   rotate(angle);
   rectMode(CENTER);
   rect(0,0,side, side);

   //rotate(-angle/r);
   //rect(0,0,side, side);
```

APPENDIX B: ITERATION 3 CODE: Page 6 (Spiral)

black_keys_spiral | Processing 4.0b8

File Edit Sketch Debug Tools Help

Java

black_keys_spiral | circle | parser | spiral

```
void setup (){
 noLoop();
// beginRecord(PDF, "SPIRAL" + ".pdf");
 countries = parseFile("EU_data.txt");
 size (800, 800);
 stroke (255, 0,0);
 strokeWeight(9);
 //background (3,156,228);
 background (0);
}

void draw(){
  float x = width/2;
  float y = height/2;
  //spiral (x,y,0);
  //spiral (x,y, PI/2);
 // spiral (x,y, PI);
 // spiral (x,y, 3*PI/2);

 // spiral (x,y, 6*PI/2);
 //  spiral (x,y, 20*PI);
 //  spiral (x,y, 20*PI/2);
 // endRecord();
   int country = data[paygap];
 // int steps = 200;
  int steps = 500;
 // int windings=4;
   int windings=6;
  float a=10;
  float dt = windings * TWO_PI/steps;
  for (int i=0; i<steps; i++){
    float t = i* dt;
    float x = a* t* cos(t + rot);
    float y = a* t* sin(t + rot );
    //point (xc + x, yc+y);
    noStroke();
    rect (xc + x, yc+y, 12, 12);
    //country <= 13
    if ((country > 13) && (country < 14.2)){
      fill (0, 200, 0);
      //fill (random (0,80), random (0,20), random (0,120));
   // ellipse (xc + x, yc+y, 12, 12);
    //point (yc + y, xc +x);
    }
    else if (country <= 13){
     fill (0, 0, 200);
     println ("blue");
    }
    else if (country >= 14.2) {
      fill (200, 0,0);
      println ("red");
    }

   delay(5000);
}
}
```

black_keys_spiral | Processing 4.0b8

File Edit Sketch Debug Tools Help

Java

black_keys_spiral | circle | parser | spiral

```
void spiral (float xc, float yc, float rot){
  int country = data[paygap];
 // int steps = 200;
  int steps = 500;
 // int windings=4;
   int windings=6;
  float a=10;
  float dt = windings * TWO_PI/steps;
  for (int i=0; i<steps; i++){
    float t = i* dt;
    float x = a* t* cos(t + rot);
    float y = a* t* sin(t + rot );
    //point (xc + x, yc+y);
    noStroke();
    rect (xc + x, yc+y, 12, 12);
  }
}
```