
Project Proposal

DMG220 – Creative Design for the Screen - Technology for Society

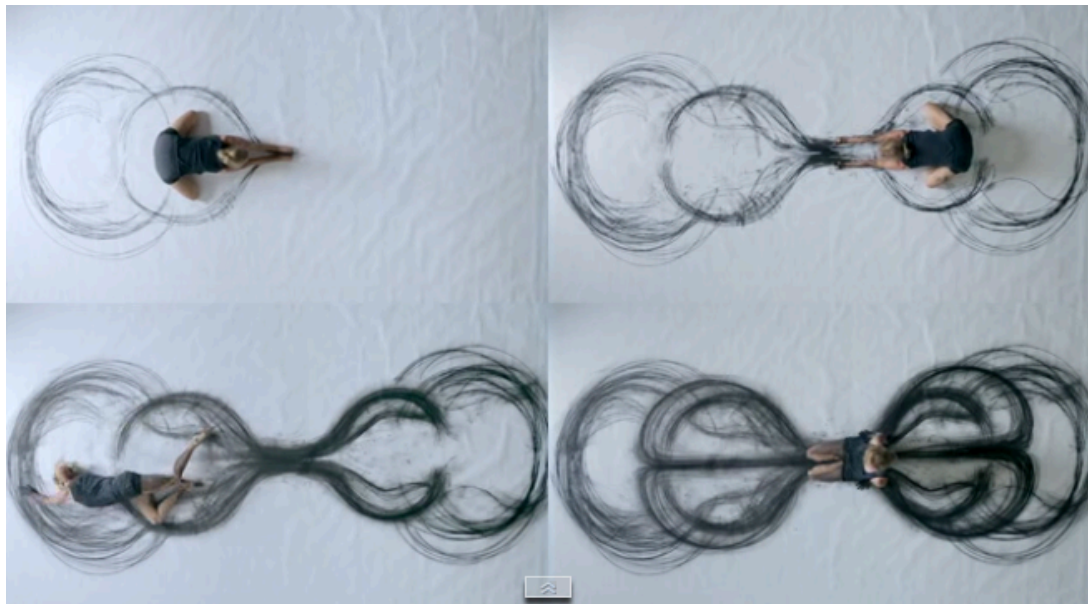
Interactive Dance Canvas - Meriem Evans

Interactive dance canvas project concept revolves around visualising the relation between visual arts and performing arts.

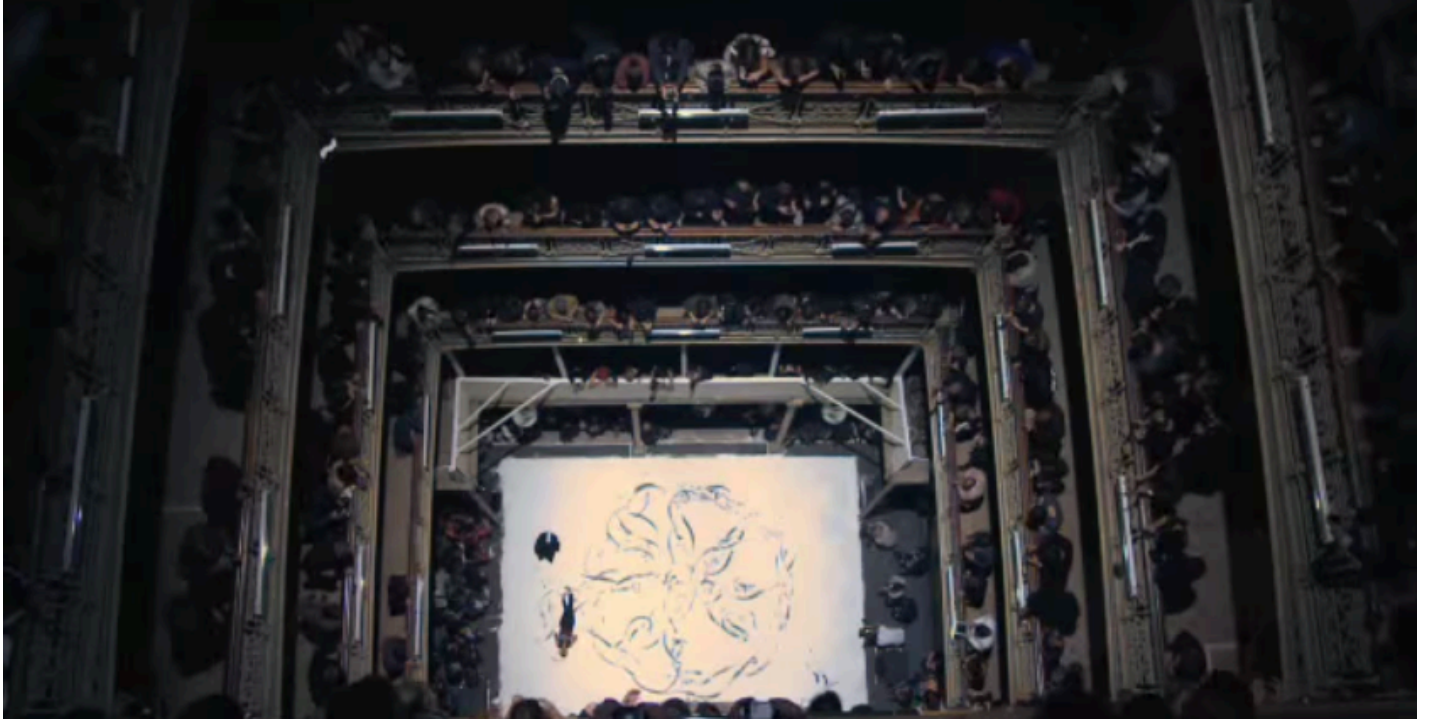
Art is motion whether its seen instantly before disappearing as in dancing, or it is recorded graphically by painting brush strokes. Both motions are expressive reactions to the mood or atmosphere felt at that moment of time. Music is an element that enables people to express feeling it in a variety of ways.

Many people do not believe that they have artistic abilities. This project is to break that idea to enable the community to experience seeing their mark making through translating their physical body motions into visual graphics projected on an interactive canvas.

Many artists produced static visual pieces of their dances by using different mediums and materials. Heather Hansen creates large scale kinetic drawings resulting in kaleidoscopic and organic visual patterns as a response to musical pieces. Her project is part of the Harmonic Film exploring the spherical harmonic function through kinetic drawing, dance and sound.



Another example is H&M collaboration with Choreographer Anne Teresa de Keersmaeker for a launch event creating live art installations based on mark making over sandy surfaces recording the dancing movements while on the move changing the garments; resulting in a large scale art canvas that can be fully appreciated by looking down from a higher distance.



A third example is a live drawing and dance response to visual art by Dancer Laura Kvelstein and Artist Jaanika Peema who follows the dancer's motions by drawing the movements on a large piece of paper placed on the floor at the Gallery of Architecture and Design in Tallinn, August 2012.



Responding to music can take a variety of forms; dancing and drawing are some of these possible expressive ways. Tate organises an activity for kids to create a 3d sculpture as a piece of response to music.

TATE KIDS

MY GALLERY GAMES FILMS TATE CREATE WHAT'S ON? ADULT ZONE

ART AND MUSIC

Where? Tate Modern SEE MORE ACTIVITIES

The Idea
Different types of music can create different responses. Responses to music can be made through drawing, painting, 3D sculpture, movement, dance, story, poetry, photography, slide projection and video. You can probably think of others, too. The idea here is to show how the music inspires you. Your work will show how music makes you feel, what it makes you think of and what you can create from what you hear.

The Plan
You are going to respond to your chosen piece of music by creating a sculpture known as a 3D kinetic (that means movement) sculpture-drawing. This means you will respond by creating a sculpture that represents the way the music makes you feel.

You Need

- A selection of any bits and pieces you can find, including lolly sticks and different sized and coloured pieces of paper.
- String, wool or ribbon, so you can make a music sculpture mobile if you wish.
- Scissors, sticky tape, glue.
- A hook - if you want to hang your mobile up.
- Your chosen piece of music or sounds.

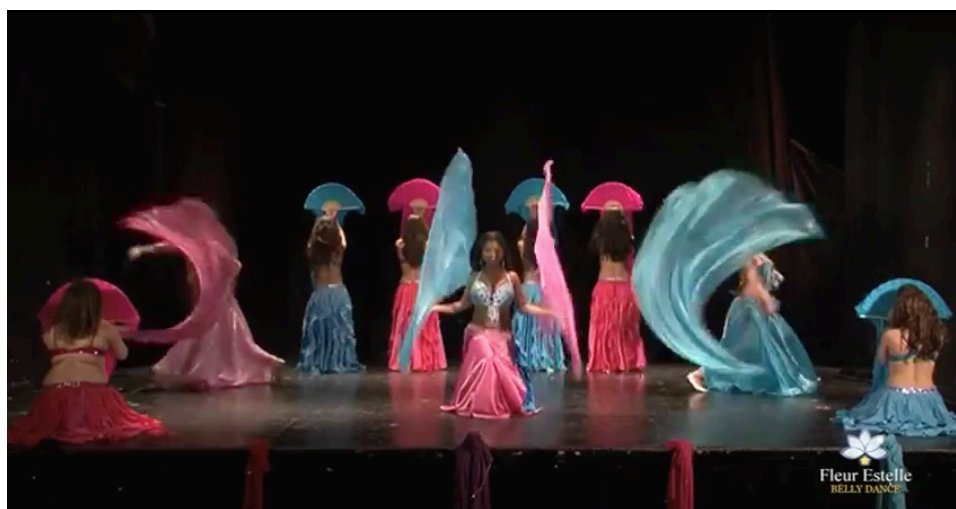
Do it!

- Listen carefully to your music and think about how the music moves.
- Does it make big swooshing shapes? Does it make small, quiet movements or is it jerky and repetitive? Perhaps it sounds like it is creeping along the floor? Or is it more like it is flying and swirling through the air.
- You might find yourself moving to the music. That's good - dance if you want to.
- Now you are ready to make your 3D sculpture by choosing bits and pieces that represent the feel of your music. For example a curled waving piece of paper might move in a whirly, swirling way or a collection of lolly sticks might clink against each other in a jerky, clicky way.
- Hang your sculpture up like a mobile so it can rotate and move freely.

In dancing, veils and ribbons have been used to enchant some dances as it flows with the dancer's moving arms creating beautiful fluid looking strokes which enhances the visual experience of a dance. Belly dancing and Chinese ribbon dance are known to use colourful veils and ribbons to add a touch of charm to the performance.

These are some examples:

Belly Dance by Fleur Estelle Dance Company. Choreographed and led by Fleur performed at their School Showcase. London, UK.





NYCCC students performed the Red Ribbon Dance in the Donghwa 2011 Asian Traditional Performing Arts Competition.

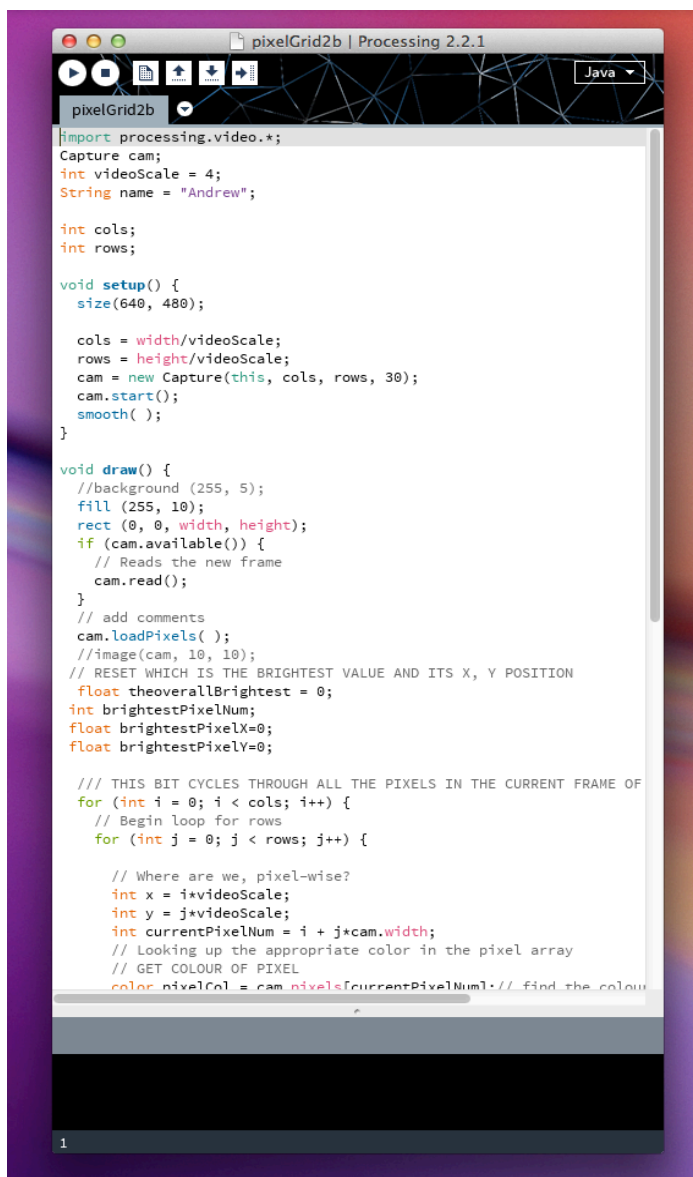


I aim to depict the effect that the ribbons or veils give without physically using them in order to achieve an interactive responsive installation to enable the general public to experiment with.

An interactive canvas would be the appropriate solution providing a clean, user friendly and engaging installation. The installation can be placed in a gallery using different techniques and equipment to track motions. Using the Xbox 360 Kinect technology for motion capture and projection is one way of realising this idea. Another possible and interesting path is using Processing programming code.

I will be exploring Processing programming to enable creating an interactive installation for this subject.

The idea was inspired by interactive white boards but with a need to be able to move freely in 3d space without having to touch a surface. A possible solution is tracking light, as in torch, held while dancing. The camera is programmed to capture the lightest pixel colour to trace it and project it on the screen, creating a trail of graphics that follow motion.



```
import processing.video.*;
Capture cam;
int videoScale = 4;
String name = "Andrew";

int cols;
int rows;

void setup() {
  size(640, 480);

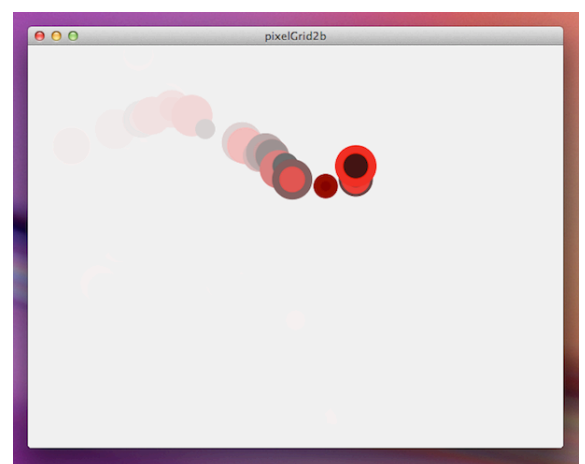
  cols = width/videoScale;
  rows = height/videoScale;
  cam = new Capture(this, cols, rows, 30);
  cam.start();
  smooth();
}

void draw() {
  //background(255, 5);
  fill(255, 10);
  rect(0, 0, width, height);
  if (cam.available()) {
    // Reads the new frame
    cam.read();
  }
  // add comments
  cam.loadPixels();
  //image(cam, 10, 10);
  // RESET WHICH IS THE BRIGHTEST VALUE AND ITS X, Y POSITION
  float theoverallBrightest = 0;
  int brightestPixelNum;
  float brightestPixelX=0;
  float brightestPixelY=0;

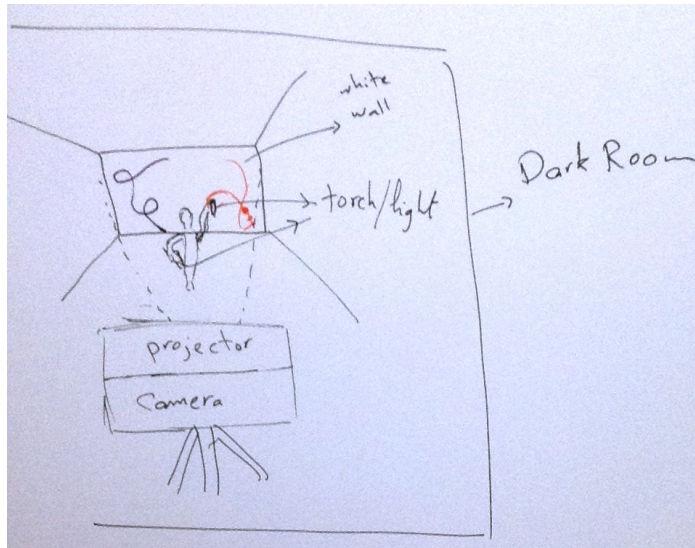
  // THIS BIT CYCLES THROUGH ALL THE PIXELS IN THE CURRENT FRAME OF
  for (int i = 0; i < cols; i++) {
    // Begin loop for rows
    for (int j = 0; j < rows; j++) {

      // Where are we, pixel-wise?
      int x = i*videoScale;
      int y = j*videoScale;
      int currentPixelNum = i + j*cam.width;
      // Looking up the appropriate color in the pixel array
      // GET COLOUR OF PIXEL
      color pixelCol = cam.pixels[currentPixelNum]; // find the colour
```





This is a sample of programming it using Processing. Creating an interactive screen which traces and visualises the movement of my hand by tracking the hand held light casting from my phone translating it into graphics.



The graphics can be affected by the motion's speed, direction and distance, creating a variety of marks projected on a white screen or wall. A computer will be connected to a projector and camera in a dark room where the processing file is run to create this interactive installation.

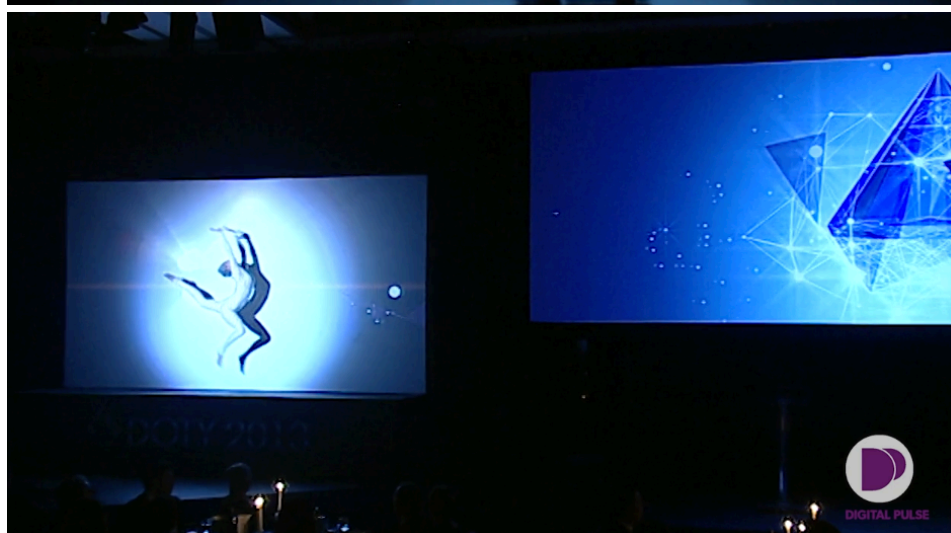
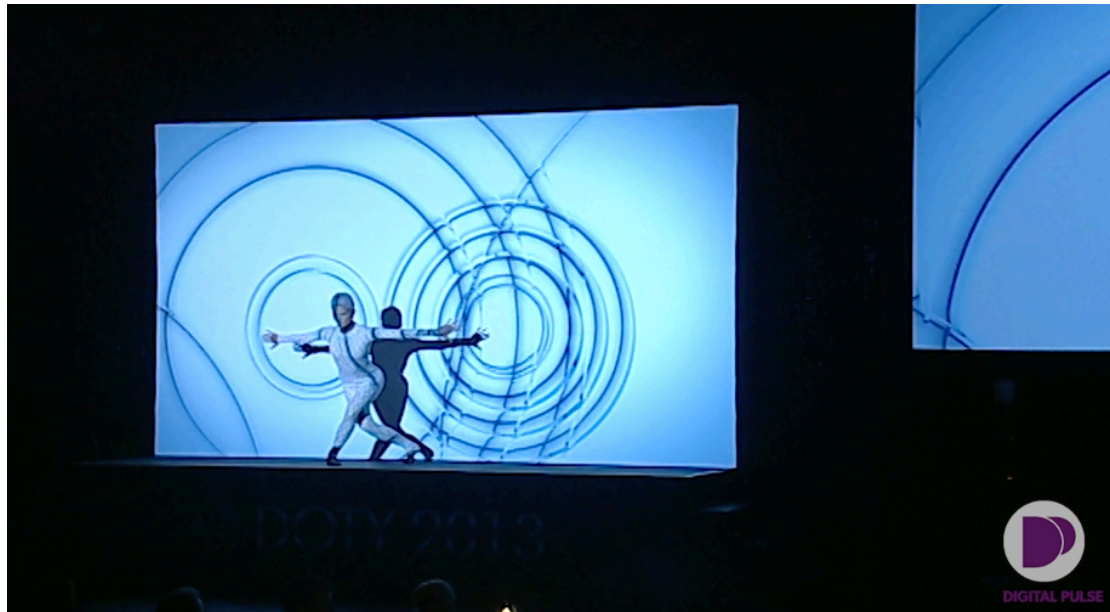


Dance City in Newcastle is a perfect location to research different dances to realise the concept using motion-tracking animation as an experiment prior to programming. This will allow me to see the kinds of graphics that different dances could create. The following are some classes that I am planning to attend to record students dancing, at different levels, who would represent the public audience that will be interacting with the installation when it's completed.

 <p>Tap Intermediate (55+)</p> <p>£ 6.00 Every Monday 11.15am-12.15pm Next Class: Mon 10 Nov 2014, 11.15AM Term Dates: 22/04/14 - 19/07/14</p> <p>BOOK NOW MORE INFO</p>	 <p>Cuban Salsa (55+)</p> <p>£ 6.00 Every Tuesday 11am-12pm Next Class: Tue 4 Nov 2014, 11.00AM Term Dates: 08/09/14 - 13/12/14</p> <p>BOOK NOW MORE INFO</p>	 <p>Ballet (55+)</p> <p>£ 5.00 Every Wednesday 11.15am-12pm Next Class: Wed 5 Nov 2014, 11.15AM Term Dates: 08/09/14 - 13/12/14</p> <p>BOOK NOW MORE INFO</p>	 <p>Pilates (55+)</p> <p>£ 5.00 Every Friday 11.15am-12pm Next Class: Fri 7 Nov 2014, 11.15AM Term Dates: 08/09/14 - 13/12/14</p> <p>BOOK NOW MORE INFO</p>
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Deconstructing dance movements into graphics can be achieved in motion graphics. This was demonstrated in an Interactive Dance Performance project by Digital Pulse for this year 2014.

Graphic Designers and Choreographer collaborated to create a stunning visual performance where dancers' movements were synchronised with previously made motion graphics based on the choreography designed for this performance.



The plan is to study the graphics produced by variety of dances by photographing the dance in dark with light sources in each of the dancer's hands setting long exposure time on the camera to record the moving lights. As in this photograph of light painting by Patrick Rochon



This should create different graphics for each dance style to correspond with, which will enable me to test it by creating motion-tracking graphics prior to coding using Processing.

References:

<https://www.kickstarter.com/projects/713328954/harmonic>

<http://www.youtube.com/watch?v=jaEYDDTNIWQ>

<http://www.youtube.com/watch?v=7K4Tr70q5Jl>

<https://www.processing.org>

<https://www.youtube.com/watch?v=nCJZYskdoiw>

<https://www.youtube.com/watch?v=LB9jAwSd5vg>

http://kids.tate.org.uk/create/art_and_music.shtm

<https://vimeo.com/88320973>

http://www.patrickrochon.com/wp-content/uploads/2013/07/Patrick-Rochon_TRANSIT_0028.jpg

Research links:

<http://www.pinterest.com/meriemevans/research-interactive-dance-canvas/>