**Final Project Report:**

**I Am Not A Dancer**

# Inspiration

For my final project in DXARTS 472, I drew inspiration from my life-long experience as a human with seemingly little-to-no control over my own body. I was always a restless kid. I spoke out of turn, got up without asking, and was “a distraction to others”. But as I’ve gotten older, I’ve found an outlet through dance. To be very clear, I am not a dancer (as the title of my project suggests). I have never taken dancing lessons, nor do I wish to. But when I am alone, with only myself a good song, I no longer need to concern myself with how others expect me to restrain my body. I can move however I like; however the music inspires me, without fear of embarrassment or being told not to.

Building off this concept of movement and self-expression, I was also inspired by *A City is not a Computer* by Shannon Mattern. In the first chapter, this book discusses “grafting” new things onto preexisting city infrastructures. This made me think about grafting art onto my own body. Connecting this back to the previous concept surrounding movement and self-expression, what if the grafted art was in some way controlled by my own dance movements?

The last piece was inspiration I found was in a mechatronic art installation called the *Electropolluck,* an abstract art robot controlled by music. The machine works by squirting different colored paint onto a moving canvas. But what if instead of a canvas, I created machine that applied ink to my own skin? This was the last piece of inspiration I needed in order to define my final project.

# Design

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In the image to the left was my original concept for my design. The idea for this project was to record my body’s movements in way which said movements are “permanently” imprinted into my skin. I planed to attach tracks to my arms and legs which drag pens across my skin, leaving marks as they go.

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The pens are attached to motors, which move back and forth in response to sensors connected at my joints. The results are zig-zags drawn on my skin which represent my own movements as detected by the sensors. The overarching idea was that when I danced, the sensors could detect my movements and trigger the motors to draw my dancing onto my body.

In the end, I ended up only designing a single track for my left arm.

# Technical Components

1. The Track

The physical track holding the motors was 3D modeled in Fusion 360 and printed using black PLA. I then sewed fabric and Velcro onto the track so create a strap so I could securely fasten it to my arm.

1. The Motors

Connected to the track were two motors. One was a stepper motor glued to the front of the track near my elbow. The other was servo motor that was actually being dragged along the track by a string which was wound by the stepper motor.

1. The Sensor

As the servo motor was dragged along the track, it simultaneously received input from a Myoware sensor located on my other arm. This sensor detected electrical impulses in the skin when one engages their muscles. The serial output produced by the sensor was then mapped to degrees on the servo motor, causing the motor to twitch.

1. The Drawing

For the project, I purchased a pack of colorful face paint pens. Using one of these pens, I removed the inky felt tip and attached it to the end of the twitching servo motor. That way, as the servo motor was dragged across my arm, it also left behind a zig-zagged line from the felt tip of the pen!

# A person holding a device Description automatically generatedA person wearing glasses and holding a device Description automatically generatedPictures

# A black shirt with wires attached to it Description automatically generatedA hand with a tattoo on it Description automatically generated

# References

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