Final Project

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# Inspiration: Velvet Flower: Traditional Hair Decoration

Velvet Flowers are made of metal wires that decide the shape of the flower, and the metal wires are covered with fluffy conture. It reflects ideas about repetition and generativity in physical world.

Concept and Motivation

- Exploring the generativity ideas inside the physical world
- Combining generativity and painting tools
- Exploring the possibilities of converting physical art into digital art
- Exploring a novel interpretation of traditional and cultural concepts

Overview
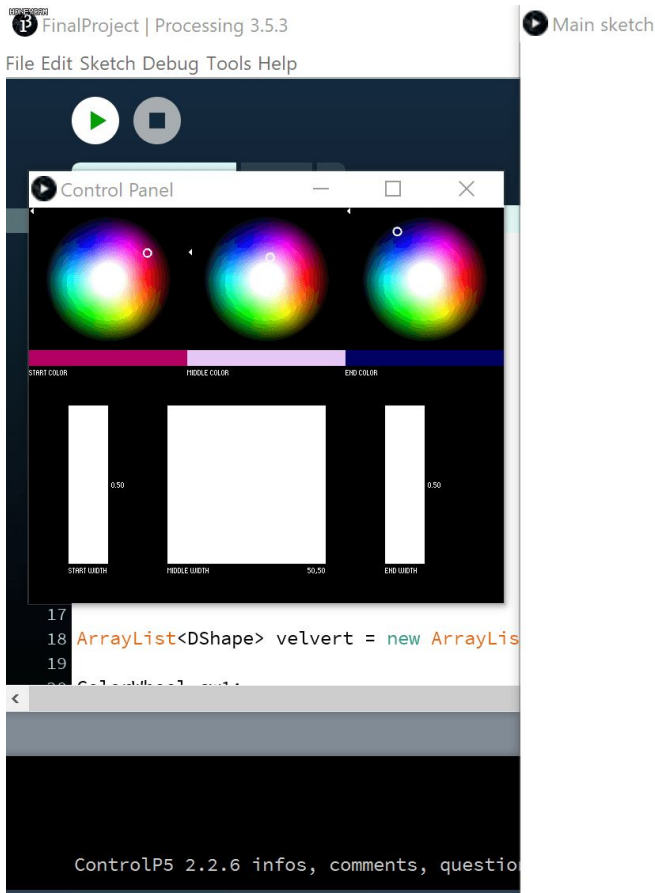
- 2D painting tool
- Digital and modern interpretation of traditional art and design
- Color gradient
- Velvet width gradient
- Customize color and velvet
- Simple interface

Primary implementation challenges

1. The generativity feature of velvets: a lot of debugging tests were performed.
2. User interface: what parameters should be exposed? How should those parameters, like color gradient and velvet width, be calculated and reflected by those parameters?
3. How to make the painting result less dependent on moving speed of mouse or pencil?
4. Comparison with physical images: I tried to mimic the style of physical hair decoration.

Process

1. Generate velvets: calculate the slope of mouse motion and paint vertices beside mouse curves.
2. In case the user move too fast so that the velvets will not align with the mouse motion curve: paint vertices in draw function which does not depend on mouse moving speed
3. Create interface: add color wheels and sliders for parameters
4. Calculate color gradient and width gradient using slider inputs
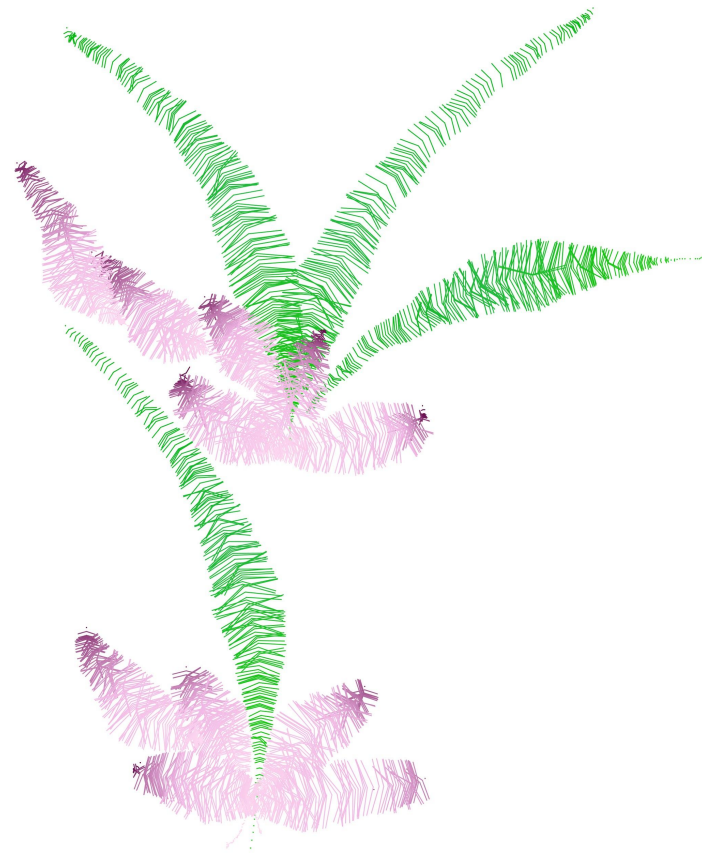
Results
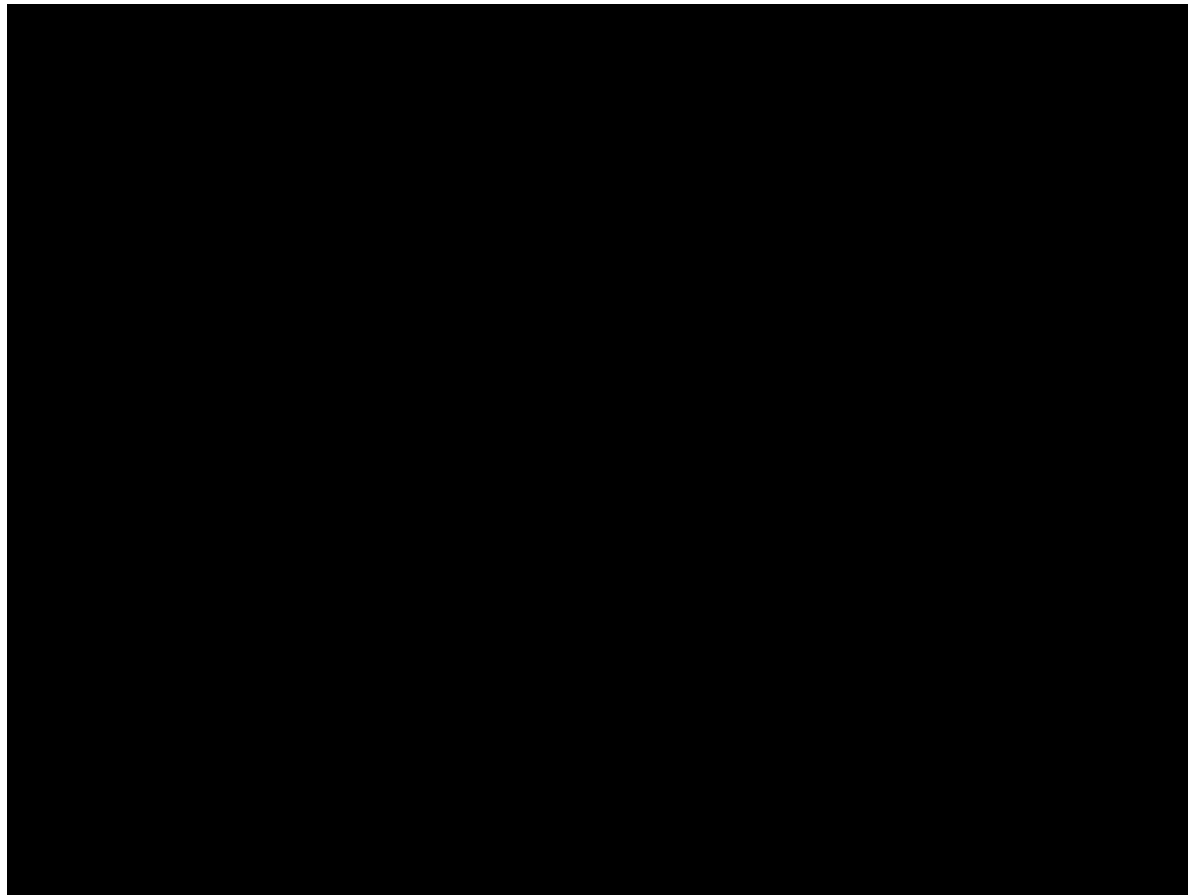
Results
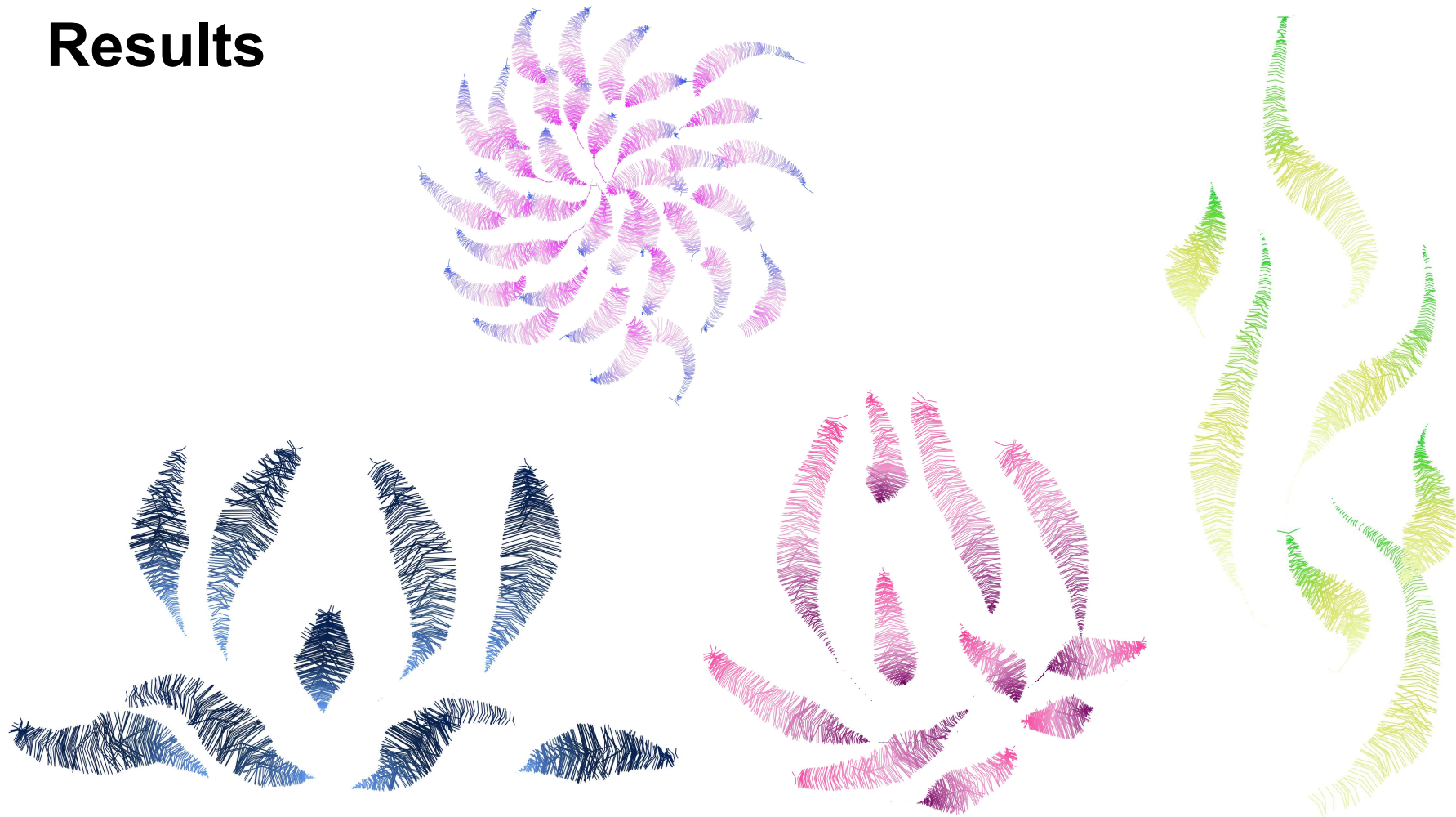
A Comparison Between Physical and Virtual

Future Implementation

- Extend into 3D, shader and material rendering involved, research based projects?
- Mathematical geometry or appearance modeling?
- VR, AR and Unity engine involved for more digital display possibility in 3D?