**Lab 04 Proposal + Report (algorithmic painting)**

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## 1. Reference Image Selection

For this project, I selected an inspiration image from an artist I follow on Twitter and Instagram. I often use their artwork as my wallpaper. The inspiration image is attached as inspo.jpg.

### Identifying Important Shapes and Coordinates

I identified some easy to draw objects and things that stand out in the image, including:

* Character’s Face & Blanket: Positioned centrally, defined by a set of polygons and curves.
* Desk Lamp: Composed of lines and polygons to form the lamp and its arm.
* Background Elements: Includes books, decorations, and window using rectangles and lines.
* Bed & Rug: Defined by polygons and curved edges.

Coordinates of major shapes were obtained using a utility program that extracts polygon vertices from the reference image.

## 2. Primitive Shape Approximation

Coordinates were captured using a utility program that I developed to extract polygon vertices. The generated text files store the X and Y positions for all necessary polygons.

## 3. Algorithm & Implementation

### Programming Approach

To implement the algorithmic painting, I developed a program that utilizes:

* Five Different Shapes: Point, Rectangle, Circle, Line, Polygon.
* Control Structures:
* Randomization: For subtle color variations.
* If-Else Statements: To manage shape layering and conditional rendering.
* For and While Loops: To iterate through stored polygon coordinates and draw them dynamically.

### Utility Program & Data Handling

To efficiently create the painting, I built:

1. Polygon Extraction Utility: Implemented in MousePolygonModule.pde, this program allows manual selection of key shapes from the reference image. It records the X-Y coordinates of these shapes and saves them in separate text files.
2. Polygon Rendering Module: Implemented in PolygonOutputModule.pde, this module reads the stored text files containing polygon data and uses them to reconstruct the image in the Processing window. This ensures accurate recreation while maintaining artistic integrity.
3. Main Algorithm: Implemented in algoPaiting4\_MehtaA.pde, this program reads all the pre-processed data and draws the full scene using a structured approach to layering and positioning shapes.

This method makes drawing the images simpler compared to a trial and error method.

The output image from Processing is shown bellow.

A cartoon of a child lying on a bed under a blanket

Description automatically generated

## 4. Reference Link

*twitter.com*. X (formerly Twitter). (2024, October 31). https://x.com/t\_oo\_r\_oo/status/1851956832107139518

0 50 100 150 200 250 300

0

50

100

150

200

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