Patterns

Project 2 for class CS6491 Computer Graphics

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1 Definitions of pattern

My definition: A pattern is a rule that can be deduced from data (image, nature, coordinates, etc.) that can be used to generate parts of the data from the rest.

Wikipedia definition: A pattern is a discernible regularity in the world or in a manmade design.

Difference: I asserted that the pattern should have sufficient information in it such that parts of the "world"/"design" (in wiki lingo) can be regenerated/modeled. This difference could be important from a motivation and functionality point of view because at least in positive sciences, we would like to detect patterns to make use of them.

2 Concept of beauty in patterns

2.1 Beautiful examples

Figure 1 below contains the three patterns that I thought were beautiful.
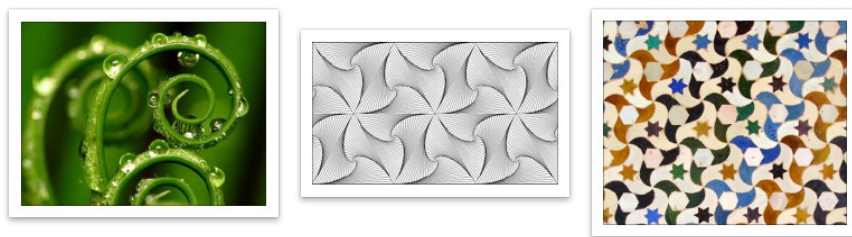

Figure 1: Choices for beautiful pattern

Specifics about each picture:

- **Pattern 1:**

    1. It reminds me of the golden spline.
    2. Finding mathematical patterns in nature is cool. (Can't go to more specifics without going philosophical :-)).
    3. No gestalt effect.
    4. It is a logarithmic curve that has nice higher-order continuities.

- **Pattern 2:**

  1. It reminds me of waves in the sea - a flow procedure that is somehow regular.
  2. The image is a mosaic of the same bent sandclock shape fitted together in different orientations. That's a challenging design.
  3. The endpoints of six shapes seem to generate a flower like object in the middle of the frame.
  4. There is a regularity in the image that I suspect is due to the each line segment that joins at a vertex actually approximates 60 degrees.

- **Pattern 3:**

  1. I like that the diagonal pattern is reinforced by the color scheme.
  2. Most of the patterns we see are generated via 2D data and this frame makes use of additional color data to reinforce the concept of a pattern.
  3. In the negative space between any three contorted triangles, there is a white contorted triangle.
  4. The aesthetic principle is the exploitation of the negative space - lots of examples such as birds-fish pattern.

2.2   Not so beautiful examples

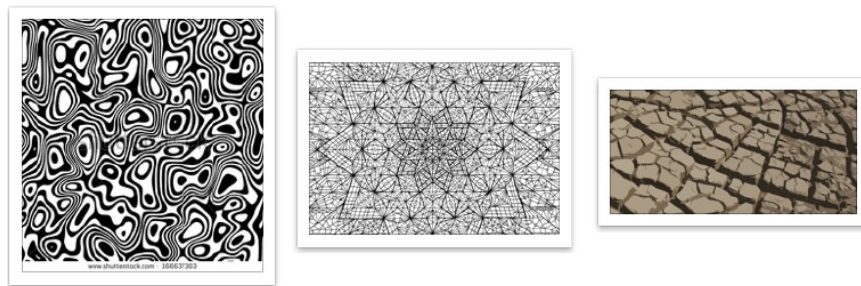Figure 2 below contains the three patterns that I thought were not as so beautiful.

Figure 2: Choices for beautiful pattern

Specifics about each picture:

- **Pattern 1:**

  1. The lack of a pattern.
  2. The flow-like motion of the "bubbles" compel the viewer to search for a non-existent pattern.
  3. No gestalt pattern.
  4. I'd generate some type of repetition, even if it is only local, but not global.

- **Pattern 2:**

  1. Overwhelming number of patterns that are hard to distinguish from one another.
  2. This example is probably one of the most crowded one in the entire set, not only with regards to number of patterns (starts, hexagons, circles, etc.) but also just the sheer number of line segments.
  3. No gestalt pattern.

4. One approach could be, instead of decreasing the patterns, use line thicknesses to promote some of them to focus the viewer's attention.

- **Pattern 3:**

    1. It is underwhelming in that in comparison to other examples, (1) there is no distinct pattern, and (2) coloring is uniform.

    2. In comparison to the previous example, this one makes use of line thickness to focus the viewer's attention but the thicker lines do not generate any pattern (they even intersect outside the frame).

    3. No gestalt pattern.

    4. I could imagine that the same desert-type pattern in a zoomed out version could be awe-inspiring since it would be easier to find patterns and appreciate the play between thicker and thinner lines.