

DESIGNING BATIK FRACTAL USING ADOBE PHOTOSHOP

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Abstract

Tourism is an important economic sector of Indonesia, for it is one of the significant devisa sources for Indonesia. To increase the role of sustainable tourism in economic growth, promoting tourism is essential to attract tourists continuously and effectively. Nowadays, promotion uses many methods and media, including mobile devices, for the fast-growing smartphone users globally. Therefore, mobile multimedia is considered an effective medium to convey promotion messages for tourism, as the essential to promote Indonesia tourism. According to Luther, this research consists of six phases of the Multimedia Development Life Cycle, such as concept, design, obtaining content material, assembly, testing, and distribution. During the assembly phase, the mobile multimedia is built using Adobe Photoshop. The application is expected to increase batik design innovation who visit Indonesia.

Keywords: tourism, art, batik, fractal

I. INTRODUCTION

The batik art is most developed in Java island, Indonesia. All the materials for processing are cotton and beeswax made of some vegetable dyes. After a cloth has been washed, soaked, and beaten with a large mallet, the patterns are drawn with pencil and later redrawn using hot wax, usually made from a mixture of paraffin or beeswax, sometimes mixed with plant resins, which functions as a dye-resist. The wax can be applied with various tools, using a pen-like instrument called a canting, made from a small copper reservoir with a spout on a wooden handle. [1] The most traditional type of batik, called batik tulis (written batik), is drawn using only the canting. The cloth must be drawn on both sides and dipped in a dye bath three to four times. The whole process may take up to a year; it yields considerably more acceptable patterns than stamped batik. [2]

It uses a stiff brush or a copper block stamp for larger patterns to cover large areas more efficiently. After the cloth is dry, the resist is removed by boiling or scraping the cloth. The areas treated with resist keep their original color; the contrast

between the dyed and the undyed regions forms the pattern when the resist is removed. [3] This process is repeated as many times as the number of colors desired.

Batik and fractal are two different concepts. Batik is in the region of art, while fractal is a mathematical concept [4]. Fractals are infinitely complex patterns that are never-ending and self-similar across different scales. It is called "self-similarity." They are created by repeating a simple process repeatedly in an ongoing feedback loop. Driven by recursion, fractals are images of dynamic systems. Fractal patterns are extremely familiar since nature is full of fractals. For instance: trees, rivers, coastlines, mountains, clouds, seashells, hurricanes, etc. Although fractals are very complex, they are made by repeating a simple process [5]. Batik and fractal join a new kind of batik concept: Batik Fractal. In Batik Fractal, the fractal is used to design and redesign new patterns using Batik software. [4]

A. Batik

Batik is an ancient art form of Indonesia made with wax-resistant dye on fabrics. Indonesian

coastal batik made in the island of Java has a history of acculturation, a mixture of native and foreign cultures. It is a newer model compared to inland batik, and it uses more colors, though the patterns are a lot less intricate. It is because inland batik used to be made by select experts living in palace areas, while anyone can make coastal batik. [6]

Batik is very important to Indonesians, and many people wear it formal or casual events. Indonesians commonly use batik in various rituals, ceremonies, traditions, celebrations, and even daily uses [7]. On October 2, 2009, UNESCO officially recognized the written batik and stamped batik as a Masterpiece of Indonesia's Oral and Intangible Heritage of Humanity. Since then, Indonesia has celebrated "the National Batik Day" (Indonesian: Hari Batik Nasional) annually on October 2. Nowadays, Indonesians wear batik in honor of this ancient tradition. [7]

B. Fractal

In the past, mathematics has been concerned largely with sets and functions to which the methods of classical calculus can be applied. Sets or functions that are not sufficiently smooth or regular have tended to be ignored as 'pathological' and not worthy of study. Certainly, they were regarded as individual curiosities and only rarely were thought of as a class to which a general theory might be applicable. In recent years this attitude has changed. It has been realized that a great deal can be said, and is worth saying, about the mathematics of non-smooth objects. Moreover, irregular sets provide a much better representation of many natural phenomena than do the figures of classical geometry. [8].

II. METHOD

In Creating batik fractal can be done using the research design includes eight processes, that are: (1) Create Adobe Photoshop document; (2) Setup dimension, resolution, and mode; (3) Create vector drawing using Adobe Illustrator; (4) Use the vector drawing in Adobe Photoshop document; (5) Duplicate the image and transform it; (6) Make sure the position of duplicated image to be a fractal; (7) Merge the fractal layer; and (8) Duplicate the image and then fill all the space, as presented in Figure 1.

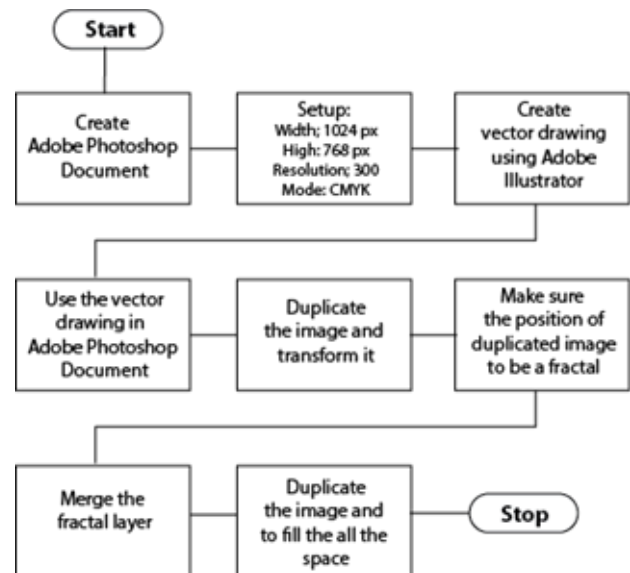


Figure 1. Research design

III. DISCUSSION

Adobe Photoshop graphic design tool [9] was used to create batik fractal, was done as follow:

1. Once Adobe Photoshop was open, create a new document and then decided the high resolution setting, Width: 1024 pixels, Height: 768 pixels, Resolution: 300 ppi, and chose CMYK mode, so that it could be printed if needed.
2. Created vector drawing using Adobe Illustrator and placed at Adobe Photoshop stage, and then filled the shape with color, as can be seen in Figure 2.
3. The image was duplicated, and selected it then press CTRL+ to start to be transformed. Using the options bar the image was reduced both the width and height values to 90%, changed the rotation angle to 20%. The new image was reposition at the new layer as needed, so that there was pivoting pattern from the center, as can be seen in Figure 3.
4. The process was repeated over and over until the appearance of fractal design style. The angle was always 20 degree with reduced size 90%, as can be seen in Figure 4.
5. The next step was to merge all the layers that were created into one fractal layer, just used the same technique before. Then, duplicated it, resized it a bit, and used the duplicates to fill all the other empty spaces creatively, as can be seen in Figure 5.

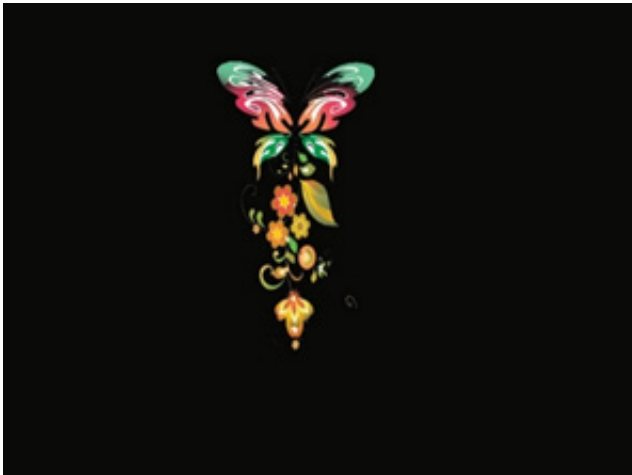


Figure 2. Imported vector drawing from Adobe Illustrator at Adobe Photoshop

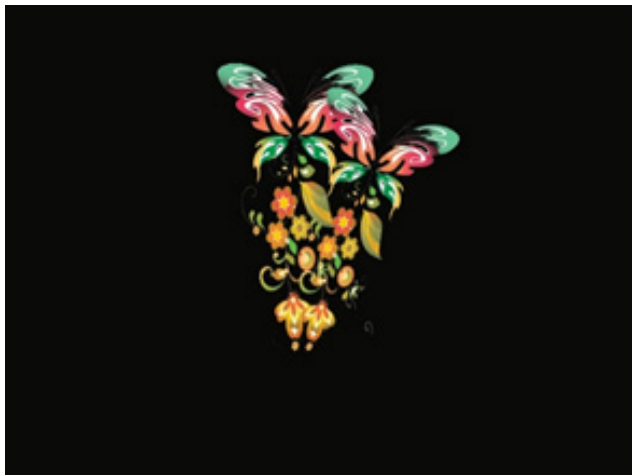


Figure 3. Duplicated image

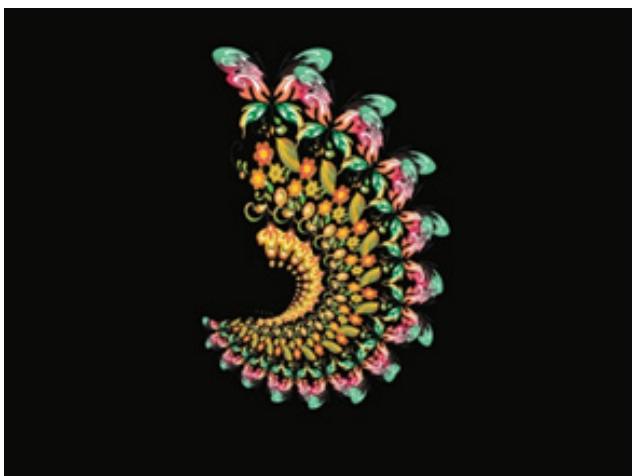


Figure 4. Fractal design style



Figure 5 Batik fractal

IV. LIMITATIONOF RESEARCH

This research described creating batik fractals using Adobe Photoshop. The fractal image was created manually in Adobe Photoshop through image transformation and carefully placed. The fundamental fractal is generated using programming language, which is done perfectly, but Adobe Photoshop can develop an attractive artistic design that meets the user's needs.

V. CONCLUSION

The analysis is written in section III, and it has achieved the conclusion: 1. Fractal was a method that could rapidly create different kinds of batik motives. 2. Batik patterns using fractals generated with Adobe Photoshop; therefore, it is possible to create various batik patterns using different rules. 3. The measurement of distant noise error was conducted on every fractal line of the formed fractal batik patterns. It is because generating noise was performed randomly on every fractal redrawing system process.

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