

## Several Patterns Classification of Batik Art in the World: A Study

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**Abstract:** One of Indonesian cultural heritage is batik, a traditional fabric. As a wealth of traditional art and cultural heritage, the existence of batik must be preserved. There are many effort to preserve it. For example, classify batik based on several thing. Batik can be classified based on how to make it, what method used and other classification. In this study will be presented several pattern classification of batik in the world.

**Key words:** Batik, classification, motif, Isen, pattern, batik

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### INTRODUCTION

Since, 2 October 2009, batik has been admitted by UNESCO (Azhar *et al.*, 2015; Haake, 1989). Batik admitted as one of Indonesian cultural heritage (Azhar *et al.*, 2015; Haake, 1989). Batik has a variety of patterns (motifs) which is repeat on 2D media. At this time, there are so many batik motif. In addition to classifying batik based on its motif, batik fabric can also be grouped based on its origin and based on many things others (Minarno *et al.*, 2014). Batik is one of the original indigenous industries which have existed since the first on Indonesian soil which is rich in style and typical batik patterns and had preserved its existence (Soesanti, 2016).

In the opinion of Asti and Ambar Arini based on etymology and terminology, batik is a series of mbat and tik. Mbat in Javanese can be interpreted as a flick or throw over and over again while the tik comes from the word dot. So, batik means throwing the dots many times on the cloth (Susanti, 2015).

In today's era of ICT has become a necessity for most industries, including the monitoring of the production process. The ICT system is a combination of information technology and human activities that use information technology to support management and decision-making (Soesanti and Syahputra, 2016).

Batik has its own characteristics for the wearer, because it is partly large of people wear batik on formal and non-formal activities. On the process of making batik the first thing to note is the pattern motive. Pattern of batik motif is very important to add to the attractiveness of batik itself (Adnyana *et al.*, 2013). Process to pattern motif of batik is varied. It is cause cassified of batik. In this case, classified of batik base on the process of making it. Besides of it, classification of batik based on certain things there are several.

### MATERIALS AND METHODS

**Classification of batik based on how to make it traditional batik:** This type of batik making is bound by the rules. The fascinating beauty of Indonesian batik lies in the changes in style and motif that have come about through its introduction to many different cultures (Anjana and Nagar, 2010). Pattern are produced more irregular. Example of the traditional batik is handdrawn batik or in Indonesia it is usually called batik tulis. Batik Tulis is a type of batik that produced by giving malam on fabric by using a tool that is called canting. Canting is made of copper that looks like a funnel. On one side it looks pinched and there is a hole at the end to pull out malam during the depiction. The method of making is written, making this batik seem flexible because there is no clear repetition also the shape and size are same. The basic color of batik cloth is younger than the motif. The resulting image was translucent back and forth (Aditya *et al.*, 2018) (Fig. 1).

**Modern batik:** In about 1850 the first attempts were made to simplify and speed up the production of batik and waxing by means of blocks or Tjap printing (Anjana and Nagar, 2010). This type of batik making is not bound by the rules. The trend today is to decorate the fabric in whatever way the artist wants. More resources are available which in turn create more freedom for batik artists (Anjana and Nagar, 2010). Material for this batik is cotton because it is an ideal fiber. The use in the production of batik is viscose Rayon and linen silk is available in a wide variety of textures and weight. The fabric contains impurities it will then be necessary to prepare it before start on the batik process. Microcrystalline wax, paraffin wax, pine resin



Fig. 1: Hand-drawn batik (Susanti, 2015)



Fig. 2: Hand-stamped batik (Susanti, 2015)

similar properties adheres and penetrates the fabric easily. There are six categories of dyestuff suitable for batik, it is fiber reactive, Naphthol or azoic, Vat, direct, acid and basic (Anjana and Nagar, 2010). Pattern are produced more regularly. Example of modern batik is:

**Handstamp batik (Tjap printing batik):** Batik cap is a type of batik produced through the wetting process of a certain part of the stamp then affixed to the darker colored fabric. This stamp shapes the pattern. Compared with batik, the size of the batik is also the same bigger because the repetition is clear. Viewed from the process of manufacture, batik cap requires a shorter processing than batik tulis (Aditya *et al.*, 2018) (Fig. 2).

**Batik printing:** Batik printing is a fabric that given batik motif through the printing process. The manufacturing process is done by using the machine (Aditya *et al.*, 2018).

#### Classification of batik based on ways to constructing the ornaments

**Batik fractal:** Visually, fractals can be designed to be an inspiration of batik (Tresnadi and Sachari, 2015). Batik and fractal is two different concepts. Batik is in region of art while fractal is a mathematical concept that discuss iteration and self-similarity. However, batik and fractal joins into a concept in new kind of

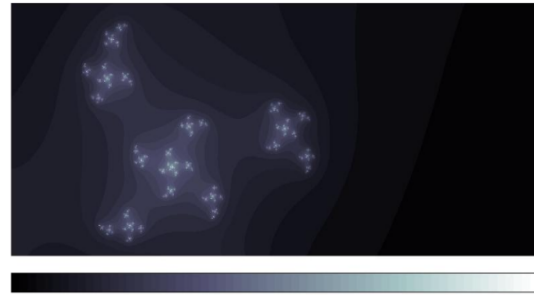


Fig. 3: The Julia sets with the gradation (Sitongkir, 2008)

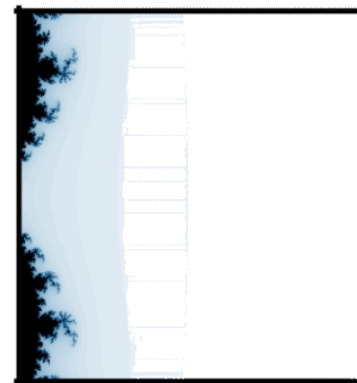
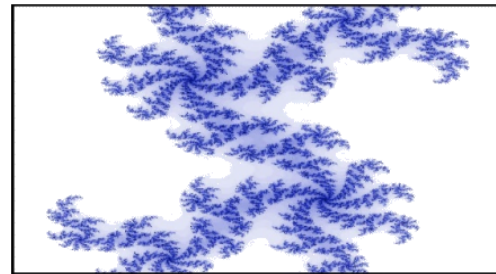


Fig. 4: The Mandelbrot and Julia sets (Sitongkir, 2008)

batik called batik fractal (Hariadi *et al.*, 2013). Combined of various coloring technique based on presentation in the complex quadratic polynomials as in the Eq. 1 is computational drawing of Julia and Mandelbrot set. The motif example of Julia sets with the gradation and comined of the Mandelbrot and Julia sets as batik fractal is contained in the Fig. 3 and 4:

$$F_c : z \rightarrow z^2 + c \quad (1)$$

Where:

$z$  = The complex numbers

$c$  = The complex parameter (Sitongkir, 2008)

The use of fractal in batik is not accidental but through several research which proves that there is fractal element in batik (Lukman *et al.*, 2007). To prove the

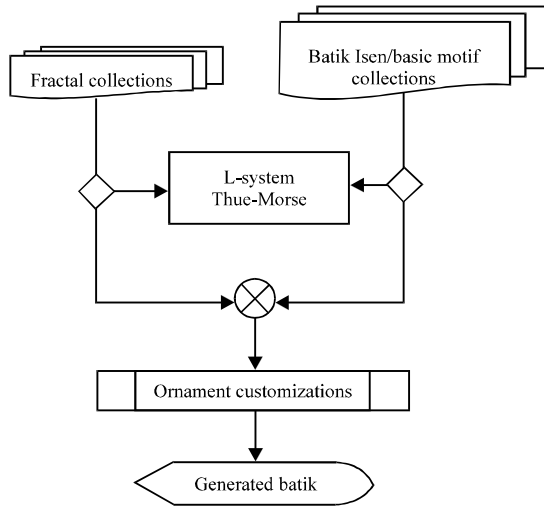


Fig. 5: Batik hybrid generation (Sitongkir, 2008)

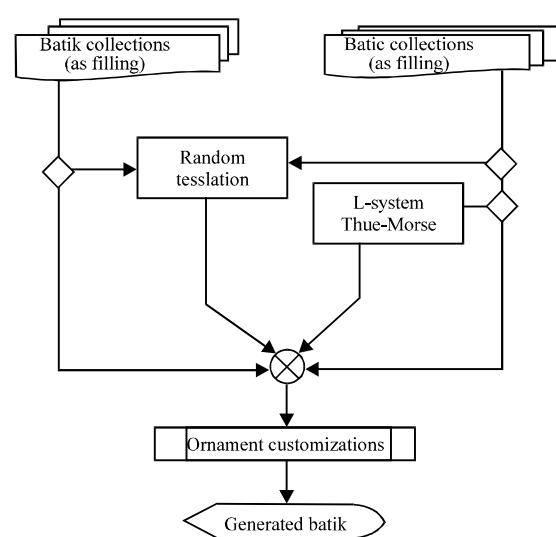


Fig. 7: Batik Innovation (Sitongkir, 2008)

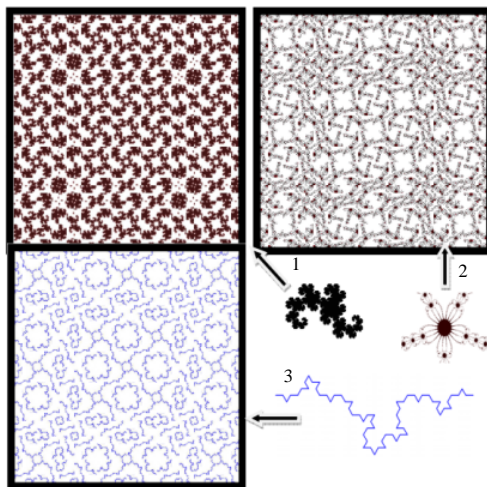


Fig. 6: Newton's method, Thue-Morse L-system, random Koch's snowflake (Sitongkir, 2008)

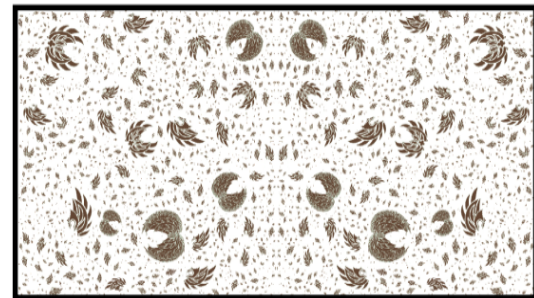


Fig. 8: Three variation of commonly used basic motif recognized as sawat superposed in the random tessellations algorithms (Sitongkir, 2008)

presence of fractal characteristic in batik to measure it can using fractal dimension, Julia and Mandelbrot set or other. Fractal dimension measurement is using box-counting methods and fourier transformation (Heurteaux and Jaffard, 2007).

**Batik hybrid:** Combination of batik fractal pattern and original or basic motif of batik (Sitongkir, 2008). The generations of this batik type showed in Fig. 5.

As we know, there are several method to generate batik fractal. In Fig. 6, display some batik motif of different method.

**Innovative batik:** Isen from original batik ornaments is used for implement the random image tessellation and tiling algorithm (Sitongkir, 2008) (Fig. 7 and 8).

## RESULTS AND DISCUSSION

**Classification of batik based on the motif shape:** Based on the motif shape, batik is classified into 2 types that is:

**Batik geometry:** Geometry batik motif is a regular batik motif. For example, swastika batik motif. Swastika batik motif is the basic shaped motif of the z letter that is opposite each other. In batik swastika motif is usually used as a decoration edge (Anonymous, 2013) (Fig. 9-11).

**Batik non-geometry:** Geometry batik motif is a random batik motif. For example, Gumelem batik (Fig. 12).



Fig. 9: Various types of swastika batik (Anonymous, 2016)



Fig. 10: Batik ceplok (Haake, 1989)

### Classification of batik based on elements of batik motif

**Batik motif ornaments:** Batik motif ornaments consist of main motifs and additional motifs. The main ornaments is an ornamental variety that determine from the motive and in general the main ornaments have meaning. No additional ornaments has a meaning in formation motive and function as filler field (Moerniwati, 2013) (Fig. 13 and Table 1 and 2).

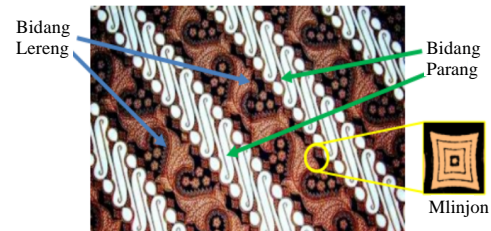


Fig. 11 : Parang batik (Haake, 1989)



Fig. 12: Gumelem batik motif

cecek siji	cecek telu	cecek limo	galaran	galaran putus	rawan
rawan putus	cacah gori	sirapan	berasmawur	gabah mawur	truntum
truntum	nitik	nitik	tapak doro	bilik	gringsing
sisik melik	banji	ukel cilik	ukel gede	unte melati	bang padi
carcena	cabeng	sulus pakis	sulus pakis	mo-ramo	ukel pakis

Fig. 13: Several isen-isen ornaments (Tresnadi and Sachari, 2015)



Table 1: Values and meanings of several Isen-Isen (Tresnadi and Sachari, 2015)

Isen-Isen	Values and meanings
Cecek, cecekan	Small dots
Rawan	Imitation of mares
Cacah gori	Imitation of jackfruit slices
Sirapan	Imitation of roofs
Beras (rice), biji-bijian (seeds), gabah,	Spread, scattered, strewn
Wos utah, mawur	This isen symbol of fertility, prosperity and wellbeing
Truntum	Budding love, peace of heart, prosperity and splendour
Nitik, patola, jlamprang	Wisdom, well-wish the married lives of a couple symbol of imitation of weaves
Tapak doro, cakar ayam	Fowl footprints which is imitated
Bilik	Woven structures (bamboo bilik) which is imitated
Gringsing, sisik	Snakeskin, fish scales and feather structures; repels bad fortune which is imitated
Banji, swastika, svastika	Three cultures, that is Islam, China and Hindu influence this isen
Ukel	Nature which is imitated
Unte melati	This isen meaningful of purity in cultural rites (marriages)
Galaran	Imitation of woven mat structures

Table 2: Table comparison several classification of batik motif in the world




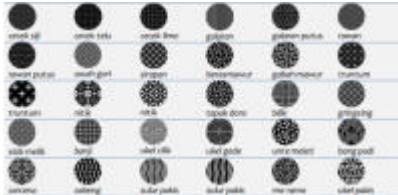
Classification based on/type of batik	Pictures	Information
<b>Ways to make it</b>		
Traditional batik		Manual making methods, for example, drawn directly using canting
Modern batik		Automatic making methods, for example, printing
<b>Ways to constructing the ornaments</b>		
Batik fractal		Constructing the ornaments with mathematical concept
Batik hybrid		Combine between original or basic isens motif of batik and the pattern from fractal
Innovative batik		Originals batik ornaments which is implemented into the random image tessellation
<b>The motif shape</b>		
Geometry batik		Regular motif

Table 2: Continue

Classification based on/type of batik	Pictures	Information
Non-geometry batik		Random motif
Elements of batik motif Batik motif ornaments		Main motifs and additional motifs
Isen motifs		Dots, lines, combined dot and line that work

**Isen motifs:** Isen motifs of dots, lines, combined dot and line that work to fill the ornaments of motifs or filler fields between the ornaments (Moerniwati, 2013).

## CONCLUSION

Batik is one of some heritage of Indonesia's ancestors. It's has been admitted by the world too. The existence of batik is never extinct because it is always developed every era from generation to generation. This development causes batik have several classification. This study has been described about classification of batik in the world, based on:

- Ways to make it
- Ways to constructing the ornaments
- The motif shape
- Elements of batik motif

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