

ABSTRACT

Following GAN's advancement in limited data and computation, this paper focuses on the mainstream applications of GAN on the increasingly popular batik generation, a popular icon, and fashion in Southeast Asia. Due to the difficulties and complexity of generating batik tasks, in this research, we focused on one of the common batik characteristics, which is seamless and symmetric properties. The seamless and symmetric pattern generation tasks, however, are not limited to and can be used on other applications such as Portuguese tiles as well. First, we collect and provide¹ publicly the first-ever high-quality 1,216 batik patch images straight from the design files. Next, we create seam and symmetry enforcement, a self-supervision method that improves and accelerate training on any GAN configuration for batik patch generation tasks. Then, we investigate a cheaper attention mechanism to adapt attention-based GAN to our limited settings. With both techniques, we create SNS-BatikGAN and compared it to FastGAN, the best GAN for limited settings, SNS-BatikGAN improve FID score from 110.11 to 90.76, an 18% decrease, and recall score from 0.047 to 0.204, a 334% increase. We believe this research will be the foundation of future research in batik or seamless and symmetric pattern applications in general.

Keywords : GAN, Application, Batik Generation, BatikGAN, Image Generation, Batik Creation

¹Dataset can be downloaded here:

https://drive.google.com/file/d/13ju-5XH4FVwsZHg9WCUhNbTOMw_kD51-/view?usp=sharing