

## ABSTRACT

In recent years, the field of e-commerce business has increased dramatically. One of the most purchased products by consumers through e-commerce is clothing products. This encourages a lot of research in virtual clothing trials or commonly known as virtual try-ons. Virtual try-on is the development of image-to-image translation which is an application of Generative Adversarial Network (GAN). The models that are often used for virtual try-on in recent years are the Conditional Analogy Generative Adversarial Network (CAGAN) and the Virtual Try-on Network (VITON). However, there are still some shortcomings in both models. Based on previous research, the CAGAN model produces an output that has a lot of noise and the clothing location is not quite right from the target image, while the VITON model produces output that is blurry and lacks detail from the target image.

To overcome these deficiencies, a model for virtual try-on called Clothes Translation (Clotion) was designed. Clotion consists of four stages, namely Segmentation, Masking, Transformation, and Try-on. Segmentation uses the Pix2Pix method to describe the human body with different color representations, the goal is to distinguish the part of the body that is wearing clothes from other parts of the body. Masking uses the Color Thresholding method to separate the part of the body that is wearing clothes from the other parts of the body, then changes the color of that part to black. Transformation uses the Geometric Matching Module (GMM) method to change the shape of the clothes you want to try on following the shape of the resulting masking. The try-on uses the Bitwise Logical Operation method to produce output in the form of translated clothing images.

Clotion can produce output images with better quality than previous studies. The resulting image has no noise and the clothes look more detailed. Clotion was evaluated using three metrics, namely Structural Similarity Index Measure (SSIM), Learned Perceptual Image Patch Similarity (LPIPS), and Frechet Inception Distance (FID). Clotion produced an average SSIM of 0.898, an average LPIPS of 0.088, and an average FID of 25.43. When compared with several other models, Clotion produces output that is superior both qualitatively and quantitatively.

Keywords – Clothes Translation, Virtual Try-on, Generative Adversarial Network