# AI Fashion

OBJECTIVE

In the fashion industry there is a constant demand for new and interesting design patterns, which can often be expensive and time consuming to create. Fashion designers are bound by their own internal biases and have limitations on the level of creativity and in-demand fashion that they can create within a given timeframe. Neural networks can be used to alleviate some problems in this field by improving the level of creativity in design for both quantity and quality output.
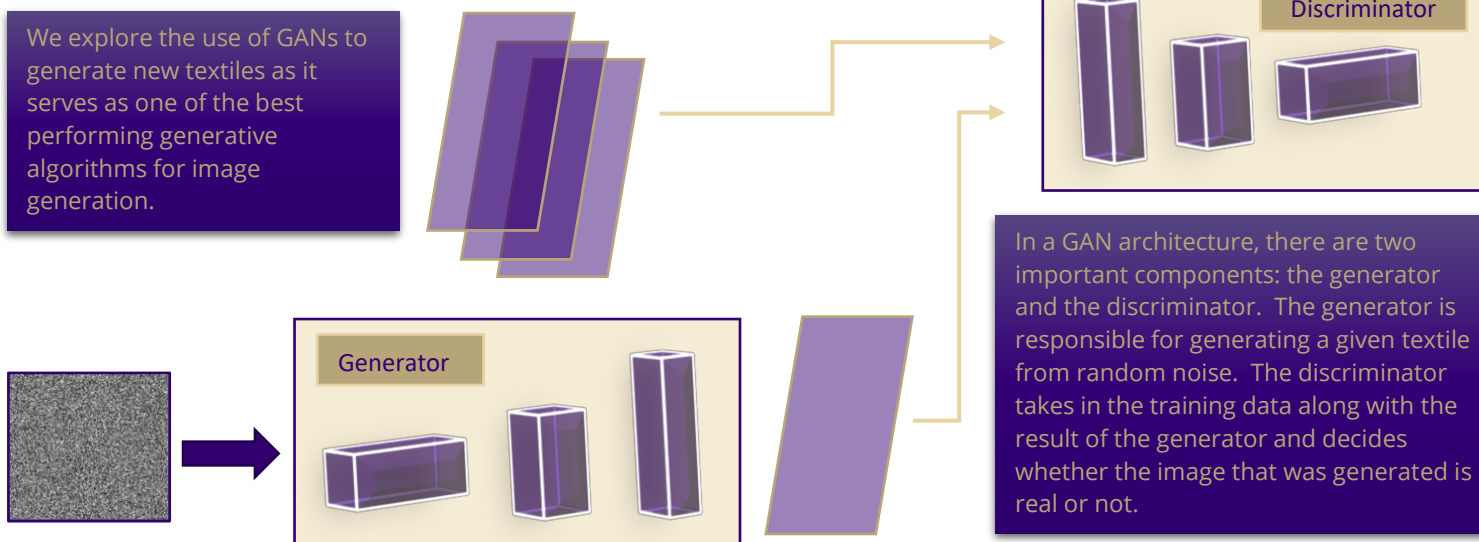
DATA

The input data used in our model comes from three sources: web-scraped images from fabric retailers, dataset used in related works; TexGAN, and a clothing pattern repository found on Github. We use the following 6 textiles.

Checkered | Cheetah | Dotted | Floral | Leaves | Zigzag

Training Data Textile Counts
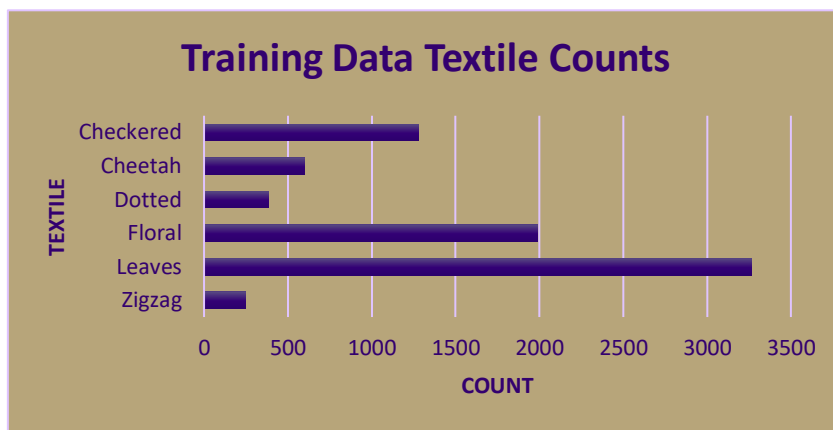
COMPONENT 1: GENERATE TEXTILE USING GANs

We explore the use of GANs to generate new textiles as it serves as one of the best performing generative algorithms for image generation.

Discriminator

Generator

In a GAN architecture, there are two important components: the generator and the discriminator. The generator is responsible for generating a given textile from random noise. The discriminator takes in the training data along with the result of the generator and decides whether the image that was generated is real or not.

COMPONENT 2: APPLY TEXTILE TO GARMENT

In our final step, we apply the newly generated textile onto some garment or accessory. To do this, we use a pre-trained binary segmentation deep learning algorithm used for clothing. The two inputs for this step will be the textile generated from Step 2 along with a stock image of the garment or accessory that we are applying that textile to.

COMPONENT 1:
Generated Pattern

COMPONENT 2:
Segmented Clothing

RESULT