

This project is part of the evaluation of generative adversarial networks for improving image retrieval systems. It uses a fashion dataset to synthesize new images of fashion products based on user input, and to trigger a search of similar existing products.

The main application allows user to modify the shape and pattern of a dress, and then choose the best match from the retrieved products. The user can then further modify the chosen product.

Usage

App

To use the project run the *FashionGAN_search.ipynb* notebook in the given conda environment (see requirements). The application started in the notebook prompts the user to control the image modifications and search by text input.

Processing

The notebooks in processing folder were used to download the feature vectors for image retrieval and clustering model images. All the data that they produce is already provided in the data folder. However, these notebooks can be run to further understand these processing steps.

Networks

The networks folder contains the three generators used in the final model

- **StarGAN** originally from: <https://github.com/yunjey/StarGAN>
- **CycleGAN** originally from: <https://github.com/junyanz/pytorch-CycleGAN-and-pix2pix>
- **Pix2Pix** originally from: <https://github.com/junyanz/pytorch-CycleGAN-and-pix2pix>

The networks were trained on the fashion dataset, and the best models are provided in the data folder.