INFORMATICS INSTITUTE OF TECHNOLOGY

In Collaboration with

UNIVERSITY OF WESTMINSTER (UOW)

"FASHIONIZE"

AN AI BASED FASHION DESIGN TOOL

A dissertation by

Mr Bombuwalage Gayashan Kalhara Bombuwala

Supervised by

Mr Guhanathan Poravi

Submitted in partial fulfilment of the requirements for the BEng (Hon's) Software
Engineering Degree, Department of Computing

BEng (Hon's) in Software Engineering

May 2019

ABSTRACT

Generating photorealistic images holds great value to many applications. Several interesting examples could be visualizing how a newly designed dress looks on people in different poses, manipulating a specific character's human body to the desired pose in a movie-making scene, generating training data for rare important poses for human pose estimation, and etc. However, understanding and analysing the way of, how to model images, in order to synthesize new photorealistic images is a quite complex task. The process of learning how to synthesize images by understanding the underlying representation of similar images can be defined as generative image modelling. A component that uses generative image modelling techniques can be defined as an image synthesizer. This project focused on developing an image synthesizer which can be used as a solution to address several prevailing issues in the fashion design industry.

Developing an image synthesizer that can synthesize person image in arbitrary poses, involves several stages like pose estimation and pose integration. Each of these stages is incorporated in developing this project to reach a final product which can be used as an artificial intelligence-based fashion design tool to enhance the fashion design industry. Once, a reference image of a person and one or more target pose images are given as input the system, the system will first extract the target poses using a pose estimator. Then, the extracted poses are integrated to separate instances of the reference person images using generative image modelling techniques.

Keywords:

Generative Modelling, Generative Image Modelling, Image Synthesizers, Fashion Design Tool