

# Introduction

Nowadays, people are purchasing most of their items online and are spending more on it especially in fashion items since browsing different styles and categories of clothes is easy with just a few mouse clicks. Despite the convenience that online shopping provides, customers tend to concern about how a particular fashion item image on the website would fit with themselves. Therefore, there is an urgent demand to provide a quick and simple solution for virtual try-on. Instead of using 3D information such as depth of the image, we believe simply rely on the regular 2D photo is the most convenient way to satisfy this need. With the recent progress in virtual try-on technologies, people can have a better online shopping experience by accurately envisioning themselves wearing the clothes from online categories. Furthermore, virtual try-on technologies not only have demand in online shopping but also in physical shopping. In other words, with the try-on technologies developed on mobile application, customers can save their time of going into the fitting room.

In this project, we investigate the evolution of the virtual try-on systems using images of clothes on the Internet and photos of models from e-commerce websites. There are two stages of the development for our project. First, to prepare input image for the network in the second stage, we investigated computer vision techniques that we have learned in class such as image stitching, background removal, and edge detection. In the second stage, we developed framework that implements recent deep learning techniques in virtual try-on applications. For example, using generative adversarial nets (GAN) (Goodfellow et al. 2014) as a generative machine learning model to synthesize virtual image of the model wearing unseen clothes. As a deliverable, [we developed a web service](#) based upon current state-of-the-art virtual-try-on architecture, CP-VTON (Wang et al. 2018), which is published in ECCV 2018.

