

## **Mannequin Image Recognition in Retail Window Displays**

### **Problem Statement:**

Reduce the need for manual data entry for an image-oriented retail database by establishing an image processing algorithm that determines the presence of mannequins within window display images, this automation should reduce two weeks of manual work to less than one day.

### **Context:**

WindowsWear is a company on the frontier of data collection in the fashion industry. Each month, the company captures over 1,000 images of window displays throughout fashion capitals around the world – London, Milan, Hong Kong, Paris, and New York. At the moment, the company manually examines each of the 1,000 images every month and determines the photo's main content and color scheme. The goal of the project is to implement a machine learning method that diminishes the need for manual data entry.

### **Criteria for success:**

Delivery of an algorithm that can be used to classify images with mannequins in a window display. This will be used for past and present photos on the database.

### **Scope of solution space:**

The initial focus of this project will specifically include monthly window display images from the year 2022 in five specific fashion capitals – London, Milan, Hong Kong, Paris, and New York. Photos were captured in fashion districts only.

This process will utilize Convolutional Neural Network methods to classify content of an image and detect the presence of mannequins.

Future models can look into photos from additional years, cities, areas within the city and/or additional databases, such as photos of “pop-ups”, store interiors, and digital campaigns.

### **Constraints:**

This project is constructed on data provided from one specific company and from one specific database. The photos also are specific to the year 2022, in 5 specific cities, and in specific areas of those cities. The features of these photos may be constrained due to these consistencies.

### **Stakeholders:**

CEO of WindowsWear - Jon Harari (jon.harari@windowswear.com)

Creative Director of WindowsWear - Raul Tovar (raul.tovar@windowswear.com)

**Data Sources:**

High resolution images were provided by Creative Director Raul Tovar via DropBox. For the sake of commercial interests, WindowsWear requested the images included in this project to be condensed to a lower resolution.

Low resolution images are included in a file located on my github:  
*<https://github.com/chase-weber/Mannequin-Image-Detection/tree/main/data>*

Alternative Images are collected from Kaggle, the following website:  
<https://www.kaggle.com/datasets/nitinss/fashion-dataset-with-over-15000-labelled-images?resource=download>