Group Proposal

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Problem

We all have our favorite pieces of clothing that we consistently wear. Over time, these clothing items may not fit anymore or degrade in quality. Due to this time lag, it may be difficult to find the same item. Due to the vast amount of clothing websites and clothing retail stores, it is time-intensive to search for the same/similar item. This is a common issue for both of us, it is something we would like to streamline.

Data

In order to address this problem will be using the DeepFashion dataset. DeepFashion consists of 800,000 diverse fashion images with 50 categories, 1,000 descriptive attributes, bounding box and clothing landmarks. With this dataset, we should have enough data to train a deep network. In addition, we will write a web scraping script to scrape images from BananaRepublic.com. The images from Banana Republic will be used to predict on.

Links to data:

DeepFashion:

http://mmlab.ie.cuhk.edu.hk/projects/DeepFashion.html

Banana Republic:

https://bananarepublic.gap.com

Network Architecture

We will be using a Convolutional Neural Network to solve this problem. If we have time, we will use the K Nearest Neighbors algorithm to build a recommendation system.

Framework

We will use Keras to build and train our model, if needed we will switch to PyTorch if necessary.

Reference Materials

The following are some papers that we have found useful.

https://arxiv.org/pdf/1901.07973.pdf

https://arxiv.org/pdf/1805.08694.pdf

Metrics

We will use the F1 score for the classification aspect of the project and Mean Average Precision at K (MAP@K) and Mean Average Recall at K (MAR@K) for the recommendation aspect.

Rough Schedule

November 3rd: Finish Proposal, start exploring the data.
November 4th: Meet with Dr. Jafari to narrow the scope of the problem.
November 13th: Trained Model finished
November 20th: Recommendation and basic web app finished
November 27th: Make sure everything is finished
December: 1st: Report and Presentation finished