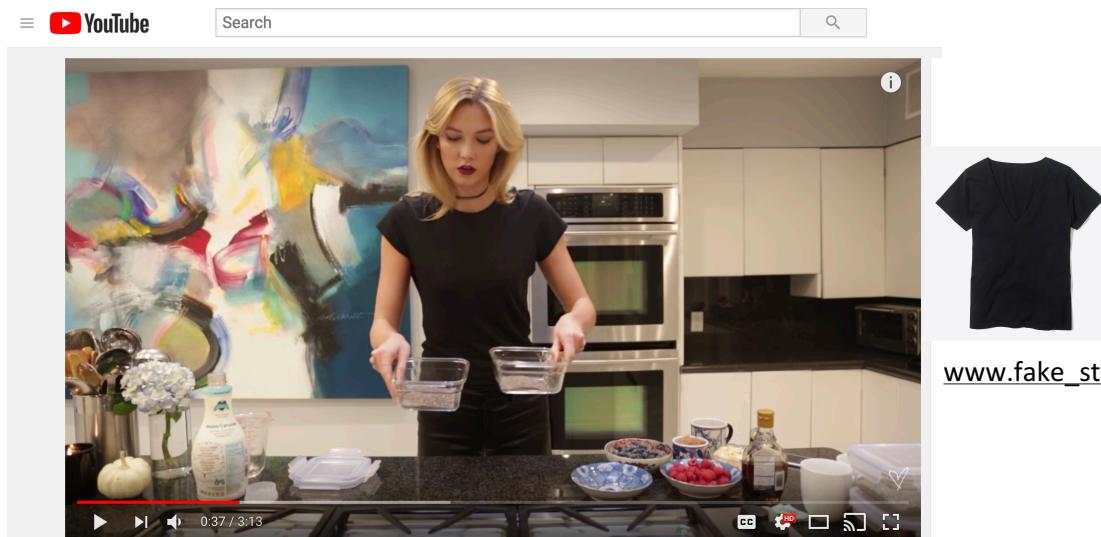
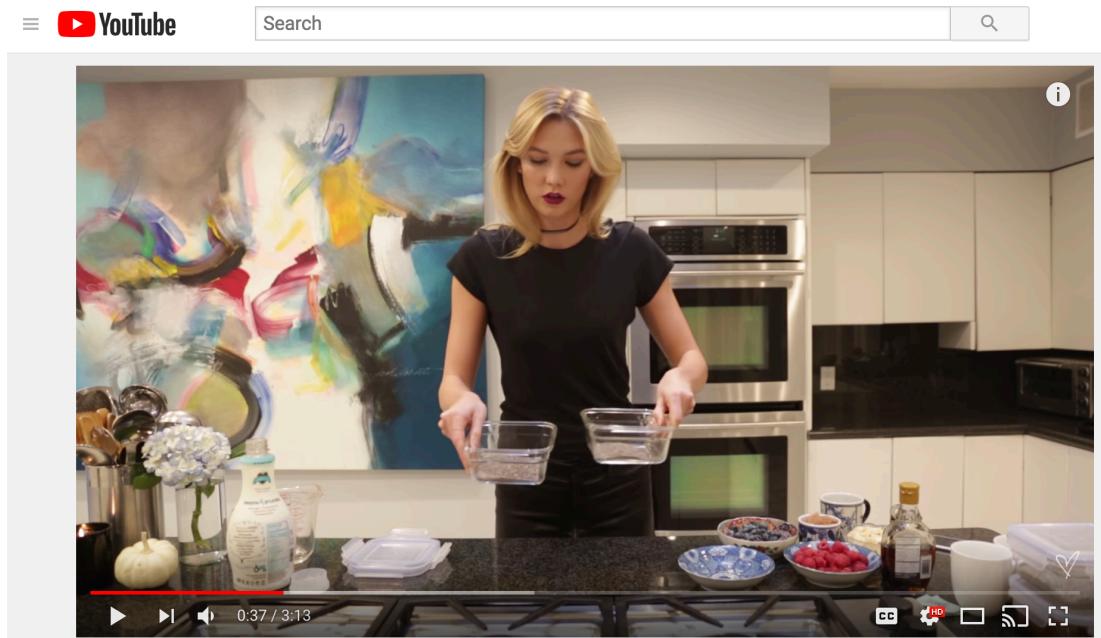




Yanxi Lu
12/12/2017

Goal

- Detecting apparels in video.
- Finding the similar clothes to the apparel in video and providing the purchase link.





Application

- Video Websites

NETFLIX

 **YouTube**

 **amazon.com**

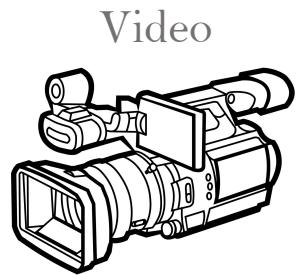
- Apparel Retailer

J.Crew

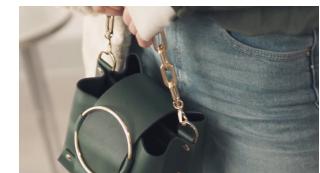
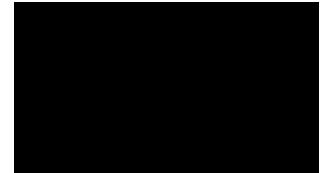
NORDSTROM

- Browsers Extensions





Model 1:
Detect Upper Body

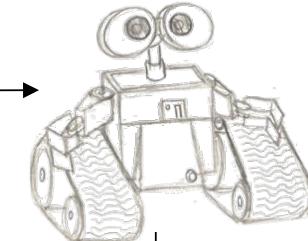


Preprocess



Training Convolutional Neural Networks
(CNN)

Model 2:
Find feature vectors
of each image using
CNN and compare
the similarities.



Working Flow

Details about the Models

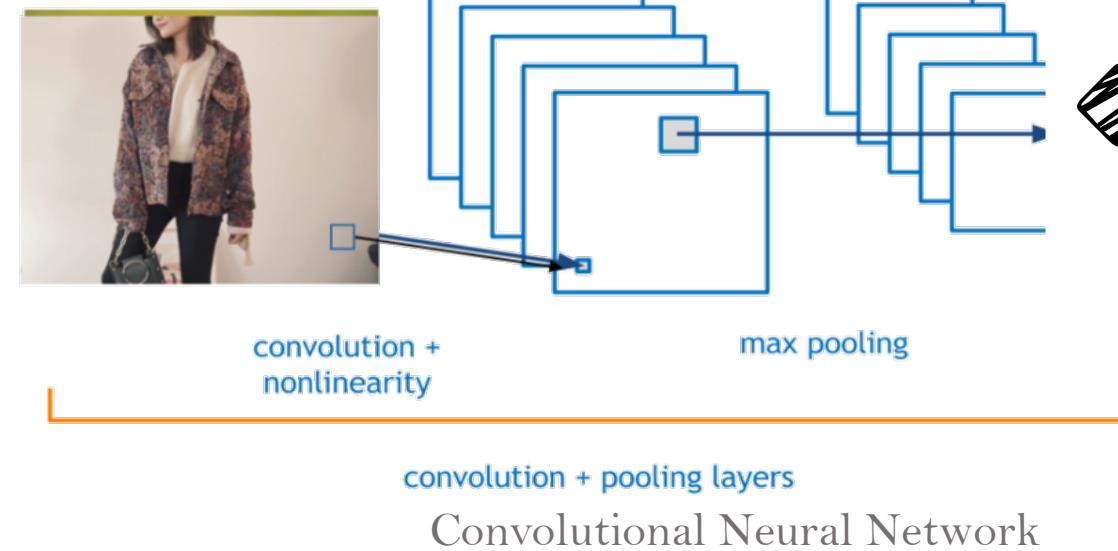
Model 1

- Based on Haar Cascades.
- Detecting face first and autocrop the image to isolate upper body.



Model 2:

- Fashion images are from online fashion store and augmentation.
- CNN transferred from Resnet-50.
- Feature Vectors based on the third to last layer (Dimension: 250).
- Cosine Similarities.



Feature
Vector

fully connected layer

O DANG LONG SLEEVE



Video Frames



Similar Apparel



Conclusions and Future Work

- Poor performance on detecting color.
 - Adding color features.
- No standard to evaluate the similarity.
 - User feedback.
- Adding more apparel types and expanding the database to improve accuracy.

$\frac{\partial \bar{v}}{\partial t} + \bar{v} \cdot \nabla \bar{v} = -\nabla p + \mu \nabla^2 \bar{v} + \bar{\rho} \bar{g}$
 $\frac{\partial \rho_1}{\partial t} + \bar{v} \cdot \nabla \rho_1 = -\frac{\partial p}{\partial x_1} + \alpha_1$
 $\frac{\partial \rho_2}{\partial t} + \bar{v} \cdot \nabla \rho_2 = -\frac{\partial p}{\partial x_2} + \alpha_2$

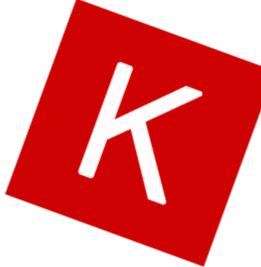
matplotlib



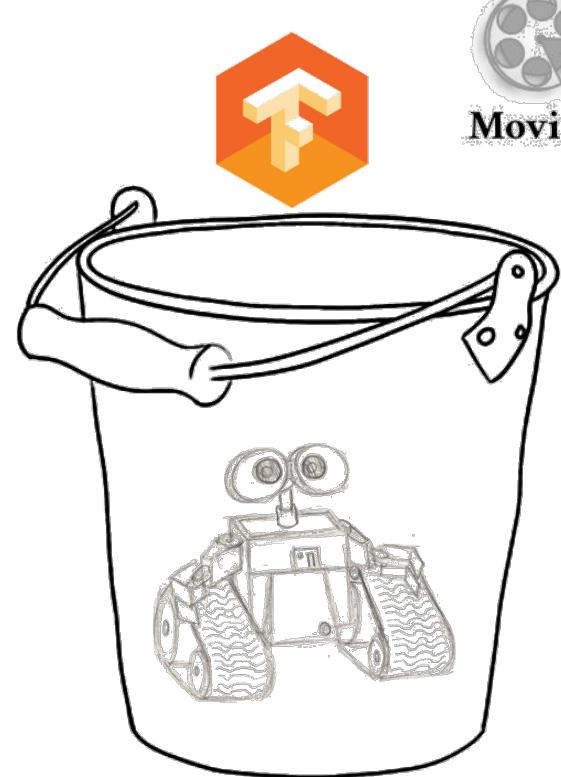
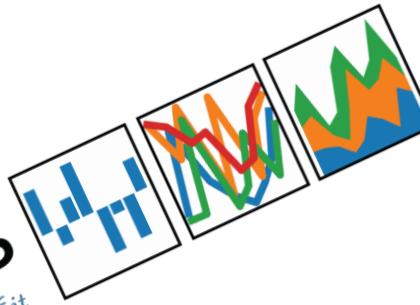
aws



Keras



pandas



MoviePy



scikit
learn





Thanks!

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