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Machine Learning II
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Topic: Matching Street Clothing Photos to Online Shop Photos
Dataset: Street2Shop image dataset
Network: Convolutional Neural Network

After learning the image classification in the first exam with Fashion MNIST dataset, we would like to apply the knowledge of image classification on this Street2Shop dataset.
Using this dataset, we will be searching the matching street photos (pictures of people wearing clothing in everyday uncontrolled settings) and online shop photos (pictures of clothing items on people, mannequins, or in isolation, captured by professionals in more controlled settings).

Most traditional online clothing store support only text-based searches that make use of textual metadata of products such as attributes and descriptions. These methods are less effective, especially for the fashion category, since detailed text descriptions of the visual content of products are difficult to create or are unavailable.

Data Description: The data is collected by the North Carolina University (20,357 images of real-world clothing pictures, and 404,683 images of clothing from online stores). There is a total of 39,478 matching pairs of clothing. We assume this is a large enough data to train a deep network.

Network: Convolutional Neural Network would be used due to its proven performance on other image classification datasets such as the “Imagenet”. While we might consider customizing based on the progression of the project, and we are thinking of trying distance metrics in this project.

Framework: We are currently thinking of using pytorch as our framework. This is mainly due to the familiarity we have with the framework at this point in the course.

Performance: For this project, we will be using cross entropy as our performance index.

Schedule:
Nov. 1-3: Collect necessary resources, data and upload to AWS instance.
Nov. 4-6: Have data run using our chosen model to see how well it trains without any customizations.
Nov. 7-13: Begin training our model with some customizations.
Nov. 14-20: We hope to have done the necessary testing to finalize our model at this point

Nov. 21-27: Put together our presentation.
Nov. 27-Dec. 4: Practice and review Presentation

Current References for the Project:

http://acberg.com/papers/wheretobuyit2015iccv.pdf

https://github.com/flipkart-incubator/fk-visual-search

http://yugangjiang.info/publication/icmr16-productSearch.pdf

https://github.com/movchan74/street_to_shop_experiments

https://medium.com/@sidereal/cnns-architectures-lenet-alexnet-vgg-googlenet-resnet-and-more-666091488df5

M. Hadi Kiapour, Xufeng Han, Svetlana Lazebnik, Alexander C. Berg, Tamara L. Berg. **Where to Buy It:Matching Street Clothing Photos in Online Shops**. In International Conference on Computer Vision (2015).