	status	Organizer	Season 1	bonus	Team
Attributes Reconition of Apparel-Chall...	processing		2020-01-01	¥ 0	387

Document	format
fashionAI_attributes_md5.txt	. TXT (201B)
fashionAI_attributes_test.zip	. zip (5GB)
fashionAI_attributes_train1.zip	. zip (6GB)
fashionAI_attributes_train2.zip	. zip (7GB)

Introduction of track: Attributes Recognition of Apparel

Apparel attributes are the basic knowledge of fashion field, which are large and complex. We constructed a hierarchical attributes tree as a structured classification target, to describe the cognitive process of apparel. You are invited to design algorithms to recognize attributes of apparel images. Task might be widely applied to apparel image searching, navigating tagging, mix-and-match recommendation, etc.

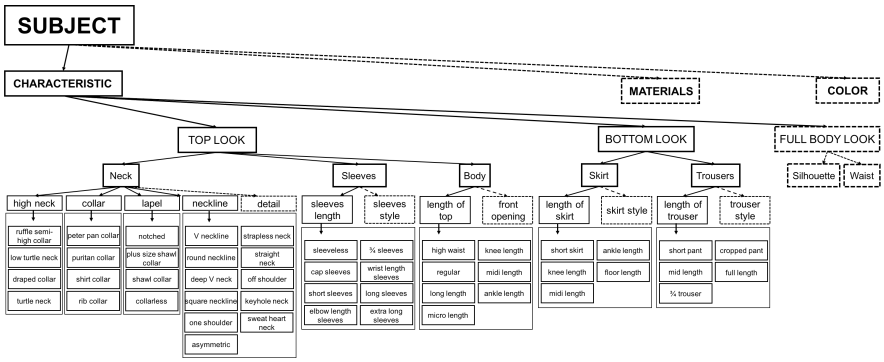

Figure 1. An architecture of the apparel attributes used in the track

Introduction of the dataset

Terminology

a) Attribute Dimension (AttrKey): A specific apparel attribute, eg sleeve length.
b) Attribute Value (AttrValues): The specific value under a specific attribute dimension, eg short-length and mid-length under the dimension of sleeve length.

Image data

All image data is from Alibaba e-Commerce platform.
This track aims at apparel attribute recognition. All distinguishable apparel attribute labels in Figure 1 are required to be detected. With the consideration of the complexity of fashion knowledge, only single-subject (single- Model or tiled single-piece) product images are used in this challenge . Contestants can thus focus on the task of recognizing each fine-grained apparel attribute.

Labels

a) The above image data are labeled by well-trained annotators. These labels are then double-checked by fashion experts to guarantee a high labeling accuracy. A certain amount of missing-labels exist in the annotated data. For instance, there may only Be a neck design label in an image with visible neck design and sleeves length. The sleeves length is no longer labeled to maintain the evenness of data for each attribute dimension.

b) Eight major attribute dimensions are selected for this track, ie neckline design, collar design, high neck design, lapel design, sleeves length, length of top, length of skirt, and length of trousers.

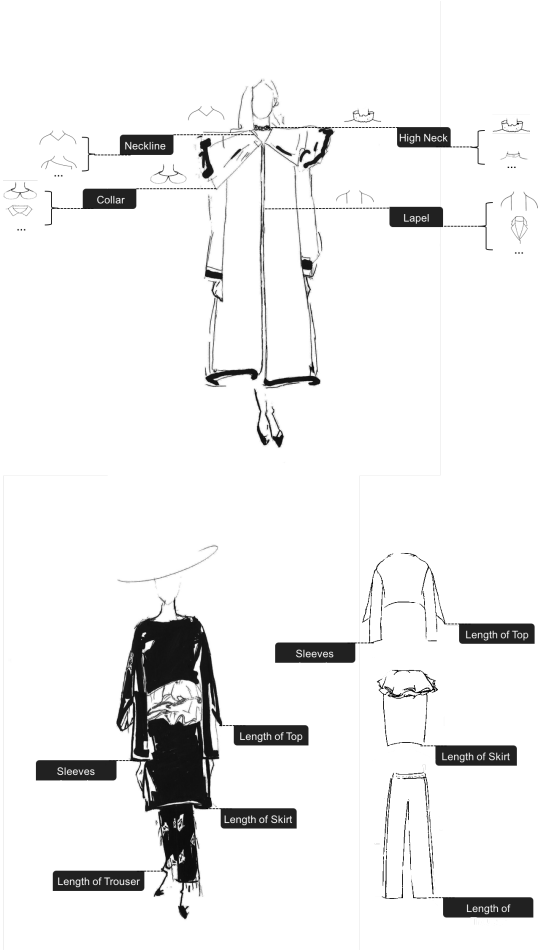

Figure 2. Demonstration of the attributes on model

Data Characteristics

a) Mutual exclusion: Attribute values under a specific attribute dimension are mutually exclusive. For example, in high neck design dimension, a high-collar and a ruffle semi-high collar cannot coexist in the same image. One thing has to be noticed: Considering the rigor of the challenge, to guarantee the mutual exclusion of attribute, we abandoned some specific images in which a model wears several overlaid apparel items and thus generates several different attributes in one dimension.

b) Independence: Attribute values under different dimensions can coexist in the single image, and they are independent of each other. For instance, "neck-high neck design-turtle neck" and "neck-collar design-shirt collar" can coexist in a single image.

c) Under each attribute dimension, there is an "invisible" value. It means that a particular attribute is defined in the perspective (top look, bottom look or body look) but does not appear or is occluded in the specific image. , give an image of a model wearing a dress as shown in Figure 5, this image contains two perspectives, top look and bottom look. The hemline of the skirt is occluded, so the dress length dimension will be labeled as “invisible”. The But we will not examine the negation ability for attributes that are defined in the corresponding perspectives. For example, like a pant image that has only the bottom look (in Figure1), we Will not examine its attributes (like "sleeve length") of the top look.

File structure of the training data

Image data and annotated labels of the training set are provided in the following structure:

- o Images
- o Annotations
- o README.md

a) The "Images" folder has image data in JPEG format. For example, an image can be named as "0000001. Jpg..

b) The "Annotations" folder has annotated attribute labels in csv format.

c) README.md: a detailed introduction to the above data.

An example of the training data

Figure 3. Demonstration of the apparel attributes of training data

The csv file corresponds to the example of Fig. 3:

ImageName	AttrKey	AttrValues
0000001.jpg	sleeve_length_labels	nnnnnnnym
0000001.jpg	skirt_length_labels	nynnnn
0000001.jpg	neck_design_labels	nnnyn
0000001.jpg	coat_length_labels	nnynnnnn

The format of the annotation file

ImageName: the image name corresponding to a specific image file in "Images" folder.

AttrKey: the attribute dimension, such as sleeve length (sleeve_length_labels), trousers length (pant_length_labels), etc.

AttrValues: the attribute values corresponding to an attribute dimension in AttrKey. For example, there are nine values in the sleeves length dimension: invisible, sleeveless, cup sleeve, short sleeve, mid length, 3/4 sleeve, wrist length sleeve, long sleeve And extra-long sleeve which are corresponding to the "nnnnnnmyn" annotation in the figure above. The annotations contain nine digits in total, with each digit representing one of the three letters below:
y(means "yes", "must be") , m(means “may be”, “probably”), and n(means “no”, “must not be”)

For each attribute dimension in a given image, there can be one and only one "y" annotated digit, the other digits can be either "m" or "n".

All AttrKeys and corresponding AttrValues are specified in README.md.

Definition of the ambiguous border

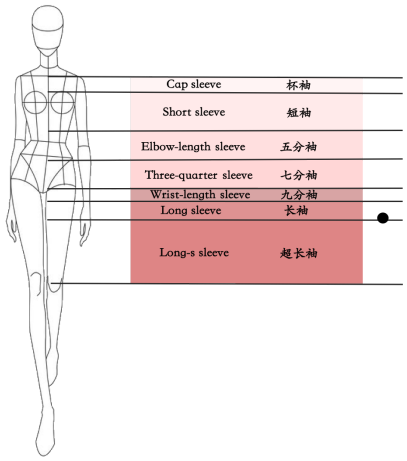

Figure 4. Demonstration of the ambiguous border

Ambiguity occurs in the above example figure. In particular, the sleeve length is in between "long sleeve" and "extra-long sleeve", but the former weighs slightly more than the later. In this case, the "long sleeve" digit is Annotated as “y”, and “extra-long sleeve” digit is annotated as “m”, and the remaining digit is “n”.

Such ambiguity occurs frequently and is unavoidable in real-world apparel attribute annotation.

Definition of occlusion

Figure 5. Demonstration of occlusion

Occlusion IS Also unavoidable in Apparel attribute Annotation.
The In The above Example Image, The hemline of The Dress IS cropped, and THUS IT IS Hard to Accurately Predict The Dress length. The In the this Case, The "Invisible" digit for Should BE Labeled AS "Y And the other digits labeled as “n”. Therefore, the “skirt_length_labels” is annotated as “ynnnnn”.

Submission instructions

Released test data

a) During the challenge, part of the test data will be released on a regular basis to facilitate contestants' evaluation of their algorithm. The file structure is as follows:

- o Images
- o Annotations
- o README.md

b) The "Images" folder has image data in JPEG format. For example, an image can be named as "0000001.jpg".
c) The "Annotations" folder has the attribute dimension information on which contestants are required to conduct a prediction The attribute value with the maximum probability will be replaced by a predicted result The attribution information. The attribute information files (.csv files) is in the following format:

ImageName	AttrKey	AttrValueProbs
0000001.jpg	sleeve_length_labels	?
0000001.jpg	pant_length_labels	?

d) README.md: a detailed introduction to the above data.

Data to be submitted
The results must be submitted in .csv format in a zip file. Please refer to the sample csv file in the “Annotations” folder:

ImageName	AttrKey	AttrValueProbs
0000001.jpg	sleeve_length_labels	0.140;0.017;0.125;0.222;0.289;0.025;0.007;0.170
0000001.jpg	pant_length_labels	0.009;0.169;0.219;0.275;0.250;0.074

Explanation of each item:
a) ImageName: names of image files in "Images" folder
b) AttrKey: attribute dimension, such as sleeve length (sleeve_length_labels)
c) AttrValueProbs: the measured probability of each attribute value. It will be used to compute Mean average precision (mAP) for algorithm evaluation.

Evaluation criteria

1. Read the csv file submitted by contestants, and find out the attribute value with maximum probability for each prediction. Record this attribute value and its corresponding probability to MaxAttrValue and MaxAttrValueProb, respectively.

2. For each attribute dimensions, initialize its counter:
BLOCK_COUNT = 0 (the number of blocked data)
PRED_COUNT = 0 (the number of predicted data)

PRED_CORRECT_COUNT = 0 (the number of correctly predicted data)

We assume GT_COUNT is the total number of Data related to this attribute dimension.

3. Given a ProbThreshold as the threshold of output, analyze each predicted result related to this attribute dimension:

When MaxAttrValueProb < ProbThreshold, there is no output: BLOCK_COUNT ++

When MaxAttrValueProb > = ProbThreshold:

If the digit corresponding to MaxAttrValue is annotated as “y” , the prediction is correct: PRED_COUNT++, PRED_CORRECT_COUNT ++;

If the digit corresponding to MaxAttrValue is annotated as “m”, nothing happens.

If the digit corresponding to MaxAttrValue is annotated as “n”, the prediction is wrong: PRED_COUNT++

4. Iterate over all possible thresholds which make BLOCK_COUNT cover [0, GT_COUNT), and calculate:

Precision (P): PRED_CORRECT_COUNT / PRED_COUNT

Compute the mean of all Precision (P)s above, denoted d AP.

5. Compute the mean of APs of all attribute dimensions to obtain mAP. mAP is used as the ultimate ranking score for the apparel attribute recognition dataset.

It is the mean accuracy over all attribute dimensions when all predicted results of the test set are evaluated (ProbThreshold =0). BasicPrecision is a more straightforward estimation of accuracy, thus being a reasonable reference. Generally, when BasicPrecision = 0.7, the ranking score (mAP) is around 0.93.

Attention

a) Human annotation /revision of the submitted prediction file.

b) Registering multiple accounts for the sake of more submission/evaluation quota.