

Homework 4

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Emotion Detection From Facial Expressions

Identify the emotion associated with the facial expression in a set of images

22 teams · 2 years ago

Objective

Facial detection, landmark detection, gender classification and emotion recognition, based on visual appearance have great potential for real-world applications such as automatic cosmetics, entertainment, human-app interaction, advertisement promotion etc. In this homework, we focus on building a CNN model for **emotion classification** from image inputs.

Goals

The goal of this project is to familiarize yourself with CNN pipeline and get your hands wet on formal data analytics competition. You are expected to finish the following tasks:

1. Develop your deep learning models for emotion classification using Keras.
 2. Gain experience in network design, loss design, loss plotting, performance evaluation and other hyper-parameter tunings.
 3. Follow instructions posted on Piazza for submitting your model to the Autolab website.
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DESCRIPTION

Training

Train your model with dataset as specified on Piazza. Specifically, you'll use two directories. One is **images** directory, which contains files specific to training. Another is **data** directory, under which there is a **legend.csv**, which maps an image in the images directory with a facial expression.

Testing

With the trained model from the above dataset, you'll test it on images in the **test** directory. Note that you'll need to normalize the images (some template scripts will be provided).

Evaluation

Models are scored on classification accuracy. Since this is a multi-class problem, the score is simply the number of correct classifications divided by the total number of elements in the test set. Your accuracy on a test set will be provided by autograder, but your grade on this HW is not a strict function of this score.

Submission Format

The solution file contains two columns: Image and Emotion. Image is the name of the image file and acts as a key. The emotion class is Emotion and must in {anger, contempt, disgust, fear, happiness, neutral, sadness, surprise}. The file should contain a header and have the following format:

```
Image, Emotion
108a.jpg, happiness
110b.jpg, happiness
118a.jpg, fear
119a.jpg, surprise
11a.jpg, neutral
121a.jpg, fear
etc.
```
