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# Facial Keypoint Detection and Real-time Filtering

审阅

## HISTORY

### Meets Specifications

To reply to your question about deadline it depends on your cohort. If you are July 2017 -> ultimate deadline (extension included) is 16 of April 2018. If you are August 2017 -> 23 of May 2018.

Final word, congratulations, you have done it. You can be proud of what you have achieved.

I suggest you to dig further with data augmentation and the sunglasses challenge. Those will put your project on top of the stack and give value added to your portfolio.

I hope you enjoyed the nanodegree and wish you the best.

See <https://blog.keras.io/building-powerful-image-classification-models-using-very-little-data.html> for data augmentation with keras.

### Files Submitted

<code>CV_project.ipynb</code>	--> all required python functions are completed in the main notebook.
<code>CV_project.ipynb</code>	TODO items should all be completed.

### Step 1: Add eye detections to the face detection setup

The submission returns proper code detecting and marking eyes in the given test image.

## Step 2: De-noise an image for better face detection

The submission completes de-noising of the given noisy test image with perfect face detections then performed on the cleaned image.

## Step 3: Blur and edge detect an image

The submission returns an edge-detected image that has first been blurred, then edge-detected, using the specified parameters.

## Step 4: Automatically hide the identity of a person

The submission should provide code to automatically detect the face of a person in a test image, then blur their face to mask their identity.

## Step 5: Specify the network architecture

The submission successfully provides code to build an appropriate convolutional network.

## Step 6: Compile and train the model

The submission successfully compiles and trains the CNN.

## Step 7: Answer a few questions and visualize the loss

The submission successfully discusses any potential issues with their training, and answers all of the provided questions.

To guide you a bit, you do have overfitting after epoch 10. Remember the scale it is  $10e-2$  to  $10e-3$ , so it is not much and maybe ok, this is up to you.

I suggest you to try dropout in the dense layer as well.

Nice work on your analysis, it is concise and structured. I liked the fact that you tested several optimizers as well.

## Step 8: Complete a facial keypoints detector

The submission successfully combines OpenCV's pre-processing techniques and face detection with a trained CNN keypoint detector.

I fixed `image_with_detections = np.copy(denoised_image)` to `image_with_detections = np.copy(image_copy)`. Otherwise, it works. Well done.

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