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Jan. 2022

Final Project Proposal - *Medical Face Mask Detection*

1 Project Overview

In this project, the goal is to label all faces in the given image as mask/no mask. For example:



FIGURE 1: Original Image



FIGURE 2: First Image



FIGURE 3: Second Image

We'll need to determine which of these women is wearing a medical mask.

1.1 Approach

We are interested in labels

- Face with mask
- Face without mask

We want to train a binary classifier to predict mask true or false for a given facial image.

The problem with this approach is that face detector might be less accurate on faces with masks on.

1.2 The Solution

We will train a model with three classes:

1. Face with mask
2. Face without mask
3. Not a face
4. Mask worn incorrectly (*will be hard to implement)

and apply it “efficiently” to a larger input image.

1.3 The Method

1.3.1 Train

We'll have two models:

1. Pre-trained Face Detector:
Input: frame
Output: Cropped human face
2. A model with three classes: masked, non-masked (equally distributed) & non-face

1.3.2 Test

- Take an image or a Frame from a camera/video
- Determine if the object/s in the picture are human (using second model)
- Crop the object/s one by one (using first model), & determine masked/non-masked (using second model)

2 Bibliography

References

- [1] Face Mask Detection Dataset, 20 Categories of Masks
<https://www.kaggle.com/wobotintelligence/face-mask-detection-dataset/>