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Final Project Proposal - $Medical\ Face\ Mask\ Detection$

1 Project Description

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

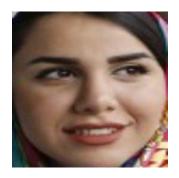


FIGURE 3: Second Image

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

Approach: 1.1

We are interested in labels

- face with mask
- face no mask

We want to train a binary classifier to predict mask truefalse for a given facial image.

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

We will train a classifier with three classes face _with _mask, face _no _mask and non-face, and apply it "efficiently" to a larger input image.

1.2Train:

• Pre-trained Face Detector:

Input: frame

Output: bounding box around human face

• Transfer Learning – fine tune on masked & non-masked faces (equally distributed)

1.3 Test:

- 1. Frame from camera/video
- 2. Run through Face detector model (inc. masked/non-masked)
- 3. Use model to classify Masked vs. Non-masked

2 Bibliography

References

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