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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,

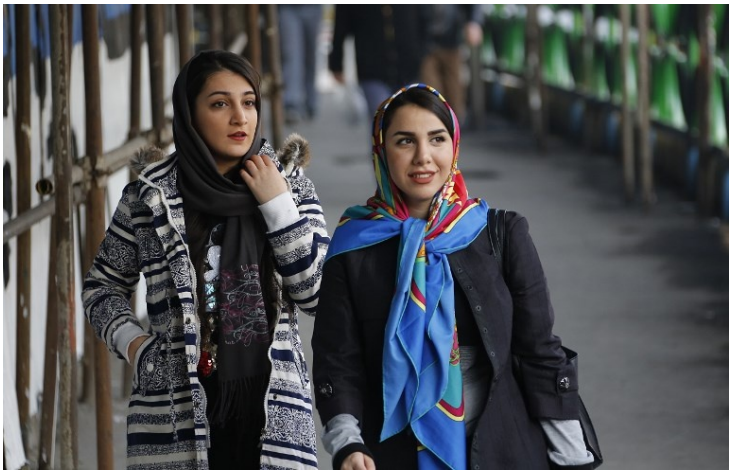

FIGURE 1: Original Image

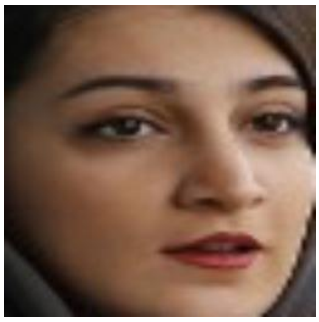

FIGURE 2: First Image

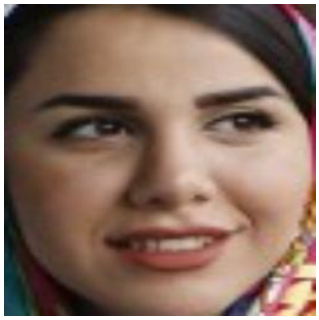

FIGURE 3: Second Image

We'll need to classify determine if these women are wearing medical masks.

1.1 Approach:

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.

1.2 Train:

- 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 Mask Detection Dataset, 20 Categories of Masks *https://www.kaggle.com/wobotintelligence/face-mask-detection-dataset/*