The UoIBD5K database is publicly available and it can be used for experimental purposes with the request to cite the following paper:

***/paper/**

Description of Images

The dataset consists of 4866 images, collected manually from Google Images. Each image depicts one or more people wearing or not a face mask. The image resolution range between 177x300 and 8516x4790. In order to have a variety in our dataset, the images include people from different tribes and nations, different age groups and different environments. Every image is person unidentified.

For the annotation process we used the LabelImg tool for YOLO(You Only Look Once) format. There are two classes, the class Mask and No_Mask class. The Mask class contains images of people wearing a face mask correctly, covering their nose and mouth, as well as people leaving their nose uncovered. The No_Mask class contains people not wearing a face mask at all or wearing a mask incorrectly, leaving both their nose and mouth uncovered. Moreover, during the annotation process we considered as face mask the following types:

- The surgical mask
- Neck gaiters
- Clothing such as scarfs and bandanas
- Muslim scarfs such as niqab

The Dataset is divided into three folders: the training folder with 2866 images, the training folder with 1000 images and the test folder with 1000 images. All three folders contain the annotation files. The following table shows the number of people that were annotated in the two classes.

Class	Training dataset	Validation dataset	Test Dataset
Mask	9438	3824	2275
No_Mask	8321	1586	2509
Total	**17759**	**5410**	**4784**

Description of Extracted Features

For the training process we used Darknet neural network and YOLO algorithms for real time object detection. More specific, we used the YOLOv3, YOLOv4 and YOLOv4-tiny versions. After training with training folder and evaluating our model with the validation folder, the extracted features are stored in weight files for every 1000 iterations. There is also stored a file with the best weights, which includes the weights that give the best results for our face-mask detector. The best results for the mean Average Precision, Average IoU and Mask/No_Mask Average Precision performance metrics are presented in the following table:

YOLO version	mAP	Average IoU	Mask AP	No_Mask AP
YOLOv3	85.85	73.07	85.16	86.54
YOLOv4	90.73	69.67	90.9	90.56
YOLOv4-tiny	83.08	65.91	82.36	83.8

According to documentation the performance metric that shows the accuracy of our Mask Detector is mAP.

The Extracted Features section includes the weight files for the best network performance after the training process.

Description of Cross Validation

This section includes 5 folders, that correspond to 5-fold cross validation process, as well as the weight files.