B-CV3

CV - Unet - Project

Part 1

1. Import the dataset.
   You can use numpy.load command to load the .npy file and set the pickle to be True.

2. Create features (images) and labels (mask) using that data.
   - Set image height and width as required for the model
   - Create masks and features with zero values and shape for that will be (loaded image, image height, image width and channels)
   - Write a loop and map each image to a feature with all the necessary pre-processing steps. Masks are extracted by using the points of 'x' and 'y' multiplied with the corresponding image height and width.
   - Split the obtained features and masks to train and test variables.
   - Display the images along with its mask to check whether the previous step is properly done.

3. Mask detection model:
   - Design a face mask detection model. Hint: Use U-net along with pre-trained transfer learning models
     - You can use this link as a reference for implementing the U-net model, **https://stackoverflow.com/questions/59154560/how-can-i-feed-the-output-from-last-layer-of-mobilenet-to-a-unet-model**
   - Design your own Dice Coefficient and Loss function.
   - Train, tune and test the model.
   - Evaluate the model using testing data.

4. Use the "Prediction_image.jpeg" as an input to your designed model and display the output of the image.

Part 2

1. Import images:
   - Create an empty array,
   - Read each image and append it through a loop

2. Curate coordinates/annotations:
   - Create an empty array for all the Bounding Box coordinates
   - Use Cascade Classifier to detect the coordinates from the image
   - Create a data frame with the obtained coordinates

3. Export coordinates/annotations to excel, csv and json file formats: [DP: 2 points]
4. Comment on the challenges faced during this task: [GP : 1 point]