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SUMMER PROJECT REPORT

2021

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ABSTRACT

We will be making an model, from which you can choose a video from your laptop. The model will be able to detect if there is any trigger with respect to phobias. The idea behind this application is that a lot of individuals can get triggered by videos that can cause panic attacks or anxiety. Therefore in order to prevent that, a model that will be trained on the different phobias so that it gives off a warning of potentially sensitive things present in the video.

The phobias we are including are:

1. Ailurophobia - Fear of Cats
2. Cynophobia- Fear of Dogs
3. Hippophobia - Fear of Horses

FINAL REPORT

We made a model for checking images for cat, dog and horse. After that we import the video from the user. Our model converts the video into a frame of images and then goes through each image. Makes a prediction for each image and finds the count.
If the count is more than 0 then the particular phobia is present

MODEL	ACCURACY	VALIDATION ACCURACY
Cat & Dog Model	85.9%	81.2%
Horse & Human	99.51%	74.22%

WHAT WE REJECTED

01 — Insect & Animal Phobia

Initially, we tried with Insect & Animal dataset and applied binary classification model on it. But then problem was that the dataset had too many categories(eg-lions, cats, bat etc.) so it wasn't able to properly distinguish between features which caused a poor accuracy of less than 5%.

Realising this, we moved on to categorical CNN which was giving around 40-50% accuracy. We tried improving accuracy by adding extra layers, changing optimisers & loss functions but which gave significant increase in accuracy(~70%) but not in validation accuracy.
The accuracy was high due to overfitting of the CNN model so we tried to rectify that by adding dropout layers which did not work out. We realised that the problem was due to the small dataset, so, we changed the phobias we considered.

WHAT WE REJECTED

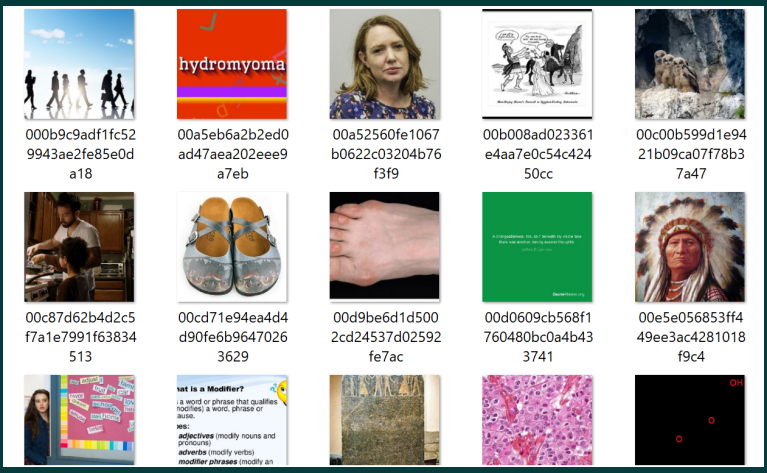
02 — Depth analysis for fear of heights

Initially we were looking at a fear of heights model but we realised it was not feasible as determining the orientation of the phone was not possible. This was why we rejected this idea.

03 — Trypophobia

The dataset we used consited of 2 categories- trypophobia & not trypophobia . The dataset was too generic for the not trypophobia part, because of which although the accuracy was good the predictions were coming out wrong.

Some images from the 'not-trypophobia' part of dataset



000b9c9adf1fc529943ae2fe85e0da18 00a5eb6a2b2ed0ad47aea202eee9a7eb 00a52560fe1067b0622c03204b76f3f9 00b008ad023361e4aa7e0c54c42450cc 00c00b599d1e9421b09ca07f78b37a47

00c87d62b4d2c5f7a1e7991f63834513 00cd71e94ea4d4d90fe6b96470263629 00d9be6d1d5002cd24537d02592fe7ac 00d0609cb568f1760480bc0a4b433741 00e5e056853ff449ee3ac4281018f9c4

WHAT WE REJECTED

04 — Human prediction

Human prediction was not giving accurate prediction even though it had a good accuracy, as the dataset for human prediction is extremely vast.

04 — Deploying on app

Our model requires someplace to store the video, convert it to images for the CNN model. We were struggling with the part of how to store the video, give it to the model, and again store the images given as output from the model and give those images to the model again on the cloud.

Since this was getting complicated , we decided not to deploy the model on an app and focus mainly on the ML aspect as suggested by senior.

FURTHER POTENTIAL IMPROVEMENTS

- We can use open cv for human prediction
- We can incorporate more phobias in the model
- We can deploy the model in an app and use it in real life