Microsoft
Imagine Community

Victoria Trinita Pardede's
Final Project

Final Project Theme:

AI for Good

Sub Theme:

- EARTH
- ACCESSIBILITY
- HEALTH
- HUMANITARIAN ACTION
- CULTURE

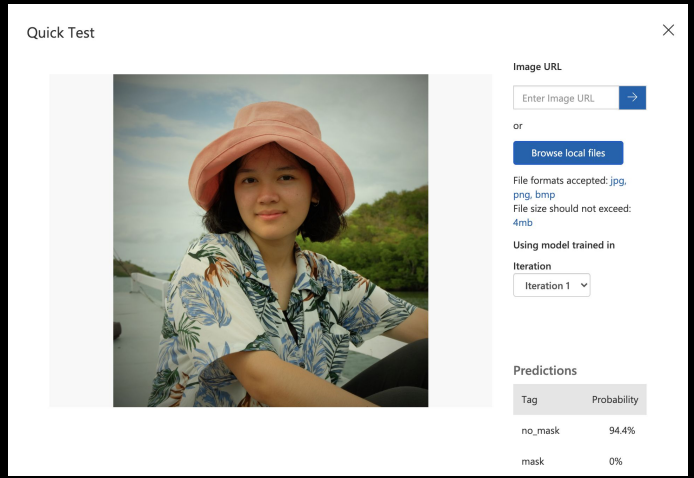
My Theme: Mask-Wearing Classifier

THE STORY BEHIND THE PROJECT

In this covid-19 pandemic period, it is mandatory for everyone to wear a mask when stepping out of the house to help stop the spread of coronavirus. However, some still do not follow. In order to track the ones that do not wear a mask inside a building, we can create a detector. When detected, we can further approach the person and remind them to wear one in order to keep everyone safe.

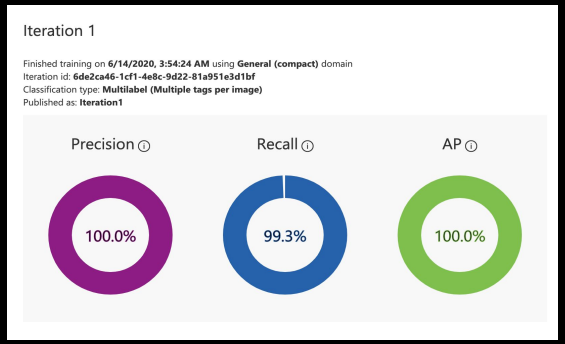
PREVIEW OF MY PRODUCT

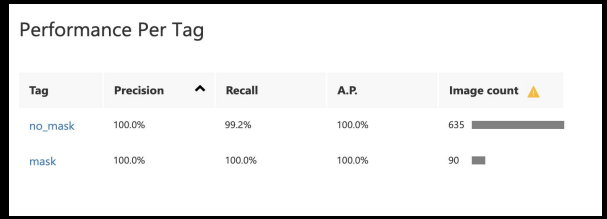
Below is a quick test from Azure Custom Vision service. The interface is already provided by the Azure website. It allows us to input an image URL or upload one from our computer, then shows the prediction at the bottom right, based on the model previously trained.



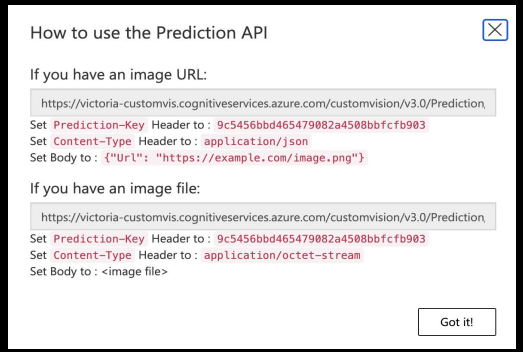
PREVIEW OF MY PRODUCT

The model trained on Azure Custom Vision has a performance as follows:





Azure automatically generates an API as well:



PREVIEW OF MY PRODUCT

I wanted to create a real-time ‘wearing or not wearing a mask’ detector from a device’s camera using the model at the beginning. Sadly, after looking for ways to do it for days, I still haven’t figured it out...

After training the model on Azure and exporting the tensorflow model, I firstly tried to implement it on a python script + opencv, which I expected to pop up the laptop webcam and show labels “mask” and “no_mask” real-time when being ran. After being stuck for a long time, I then tried to implement it on Android since Azure has an official tutorial for it. Yet, I was still unsuccessful.

Since it is close to the deadline, I am only submitting the progress that I was able to accomplish. The product presented here is far from what I wanted and imagined. However, the whole process gave me a lot of insight about how things related to custom vision works--which I believe will be useful for later use beyond this workshop.

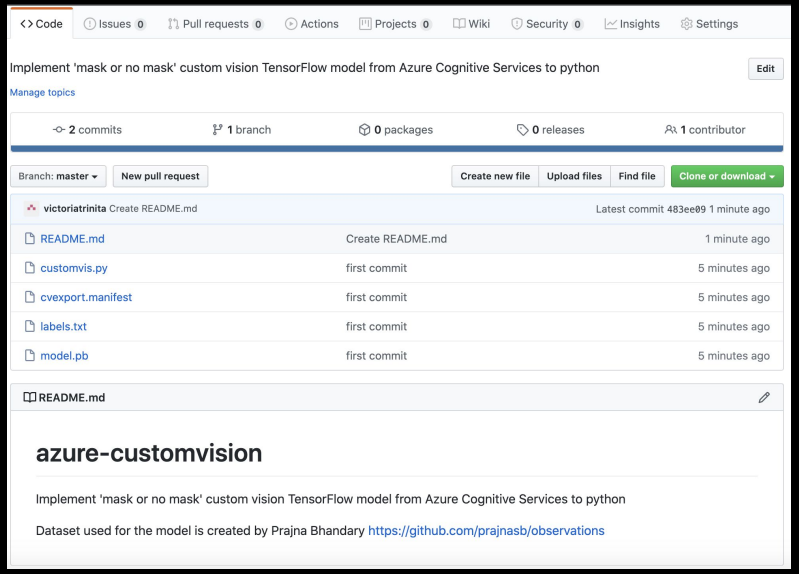
FRAMEWORK AND TOOLS

- Microsoft Azure Cognitive Service: Custom Vision
- Tensorflow
- PIL (Python Imaging Library)
- OpenCV2
- Numpy

I exported the Tensorflow model from Azure Custom Vision then implemented it in a python script in order for it to run offline.

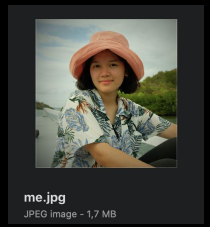
GITHUB LINK

https://github.com/victoriatrinita/azure-customvision



PRODUCT DEMO

Source image



A photo of a person without a mask

Run python script

output:

```
= RESTART: /Users/victoriatrinita/Downloads/6de2ca461cf14e8c9d2281a951e3d1bf.Ten
sorFlow/customvis.py
Input image path:
```

Instruction to input image path

Input image path ‘me.jpg’

output:

```
= RESTART: /Users/victoriatrinita/Downloads/6de2ca461cf14e8c9d2281a951e3d1bf.Ten
sorFlow/customvis.py
Input image path: me.jpg
Classified as: no_mask

mask 0.00010928999836323783
no_mask 0.9454394578933716
>>>
```

The result is:
no_mask with a probability of 99%
mask with a probability of 0%