Google Colab Cheat Sheet

Overview

This file supplements the topics touched on in the video showing how to access OpenCV directly from Google Colab. This course was not designed for learners using Google Colab, but using the tips and translations in this document, you will be able to still follow along with most of the videos.

Some modules that require interactive interface drawing or real-time webcam or movie playback cannot be done with Google Colab and are better suited for use with a local OpenCV install.

Using Google Colab

Quick reference on how to use Colab

- Upload files through the file browser on the left-hand side
- Press the refresh button if you want to see your files
- Manually download files you generated and/or modified if you want to keep them; otherwise they will be lost when Colab shuts down the runtime
- Shift + enter: Run/rerun current cell, and start editing a new one
- Command (Mac) or control (Windows) + enter: Run/rerun current cell
- Unfortunately, for videos that require interactive UI (such as a video webcam feed or drawing application), you will not be able to use Google Colab. This is because Colab can only output inline content in or after a cell

You may find it convenient to start each notebook off with the following consistent code block:

```
import cv2
import numpy as np
from google.colab.patches import cv2_imshow
```

Other important details

- Runtimes are temporary: all files (both uploaded and generated) in the virtual directory will be lost once you close the session. But any files displayed directly in the notebook itself will be saved
- You can run individual cells one at a time and the environment will remember what cells have already run. Use this to your advantage while building scripts, but make sure you write your cells in order so you don't accidentally try to reference a variable first defined in a later cell you already ran

Command Translation

If you encounter any of the commands referenced in this course, be sure to replace them as suggested below when using Google Colab.

Commands to skip with no replacement

- `cv2.waitkey()` → You inherently wait after each cell executes anyways
- `cv2.moveWindow()` → There are no windows to move in Colab!
- `cv2.destroyAllWindows()` → There are no windows—it's all in Colab!

Commands to translate

- Displaying an image using imshow (notice how there is no label input now)
  `cv2.imshow("Original", img)` → `cv2_imshow(img)`

… being mindful, you must first import:

```
from google.colab.patches import cv2_imshow
```

Alternate approach to display images using matplotlib

```
from matplotlib import pyplot as plt
# "Magic function" to store image in notebook / render inline
%matplotlib inline

# Default way to just show an image
plt.imshow(img)

# Change the size of this figure in the notebook
plt.figure(figsize=[18, 4])
# Turn off the pixel axes.
plt.axis('off')
```

You can also use "subplots" to easily draw multiple images into a single figure, which can be more convenient if you want to display a number of images side by side.