Green Screen Car

April 26, 2018

1 Color Masking, Green Screen

1.0.1 Import resources

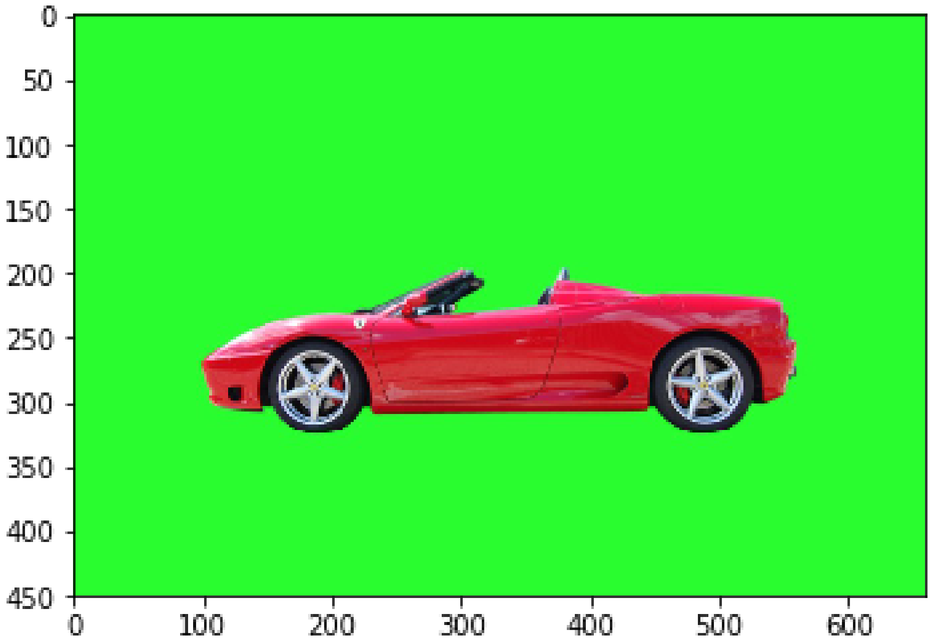
```
In [1]: import matplotlib.pyplot as plt
        import matplotlib.image as mpimg

        import numpy as np
        import cv2

        %matplotlib inline
```

1.0.2 Read in and display the image

```
In [2]: # Read in the image
        image = mpimg.imread('images/car_green_screen.jpg')

        # Print out the image dimensions (height, width, and depth (color))
        print('Image dimensions:', image.shape)

        # Display the image
        plt.imshow(image)
```

```
Image dimensions: (450, 660, 3)
```

```
Out[2]: <matplotlib.image.AxesImage at 0x7f418ee38390>
```

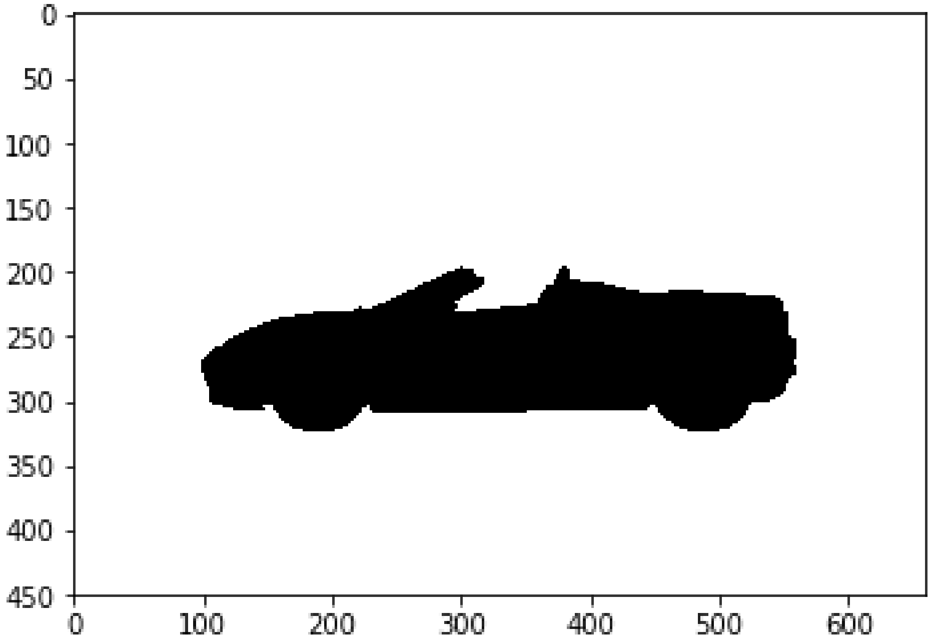


1.0.3 Define the color threshold

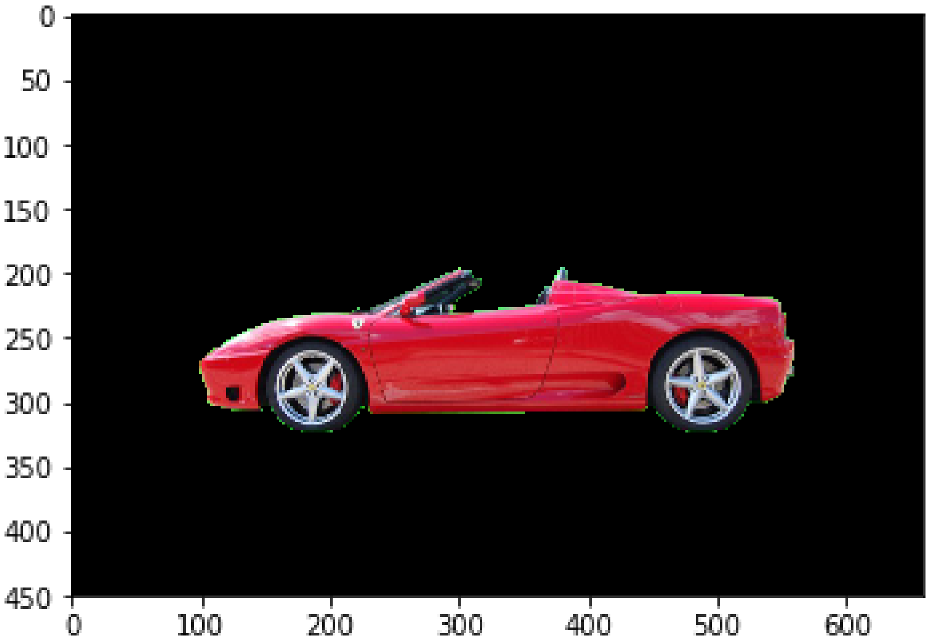
```
In [3]: # Define our color selection boundaries in RGB values
        lower_green = np.array([0,180,0])
        upper_green = np.array([100,255,100])
```

1.0.4 Create a mask

```
In [6]: # Define the masked area
        mask = cv2.inRange(image, lower_green, upper_green)
        # Vizualize the mask
        plt.imshow(mask, cmap='gray')

Out[6]: <matplotlib.image.AxesImage at 0x7f418ecacc50>
```

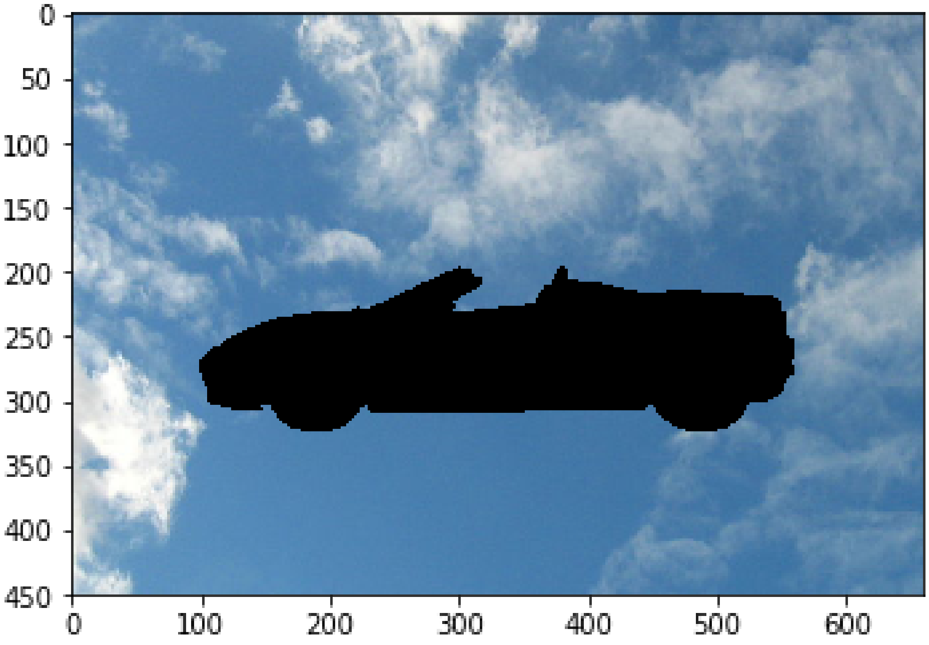


```
In [7]: # Mask the image to let the car show through
        masked_image = np.copy(image)

        masked_image[mask != 0] = [0, 0, 0]

        # Display it!
        plt.imshow(masked_image)

Out[7]: <matplotlib.image.AxesImage at 0x7f418ec18cc0>
```



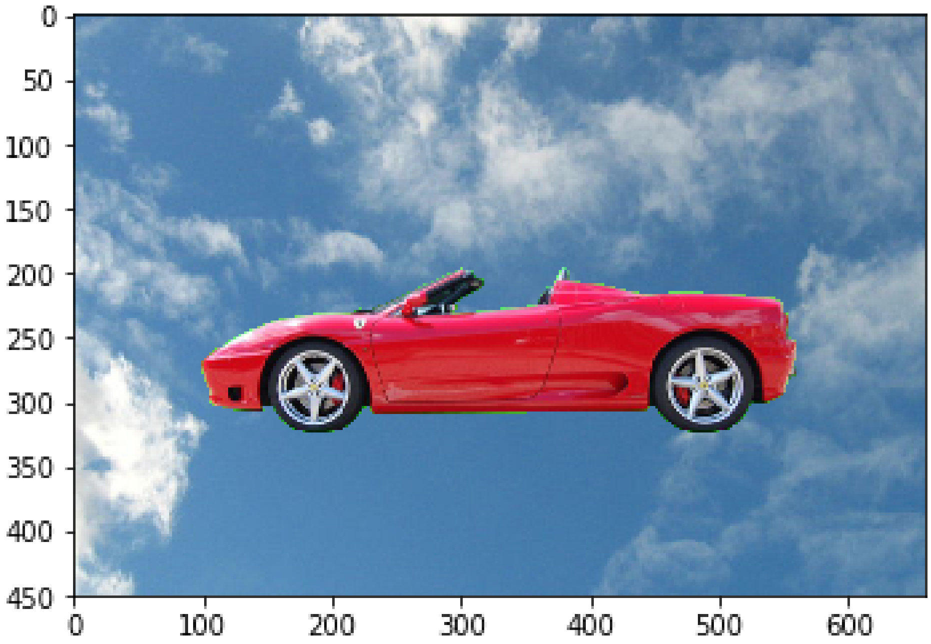
1.1 TODO: Mask and add a background image

```
In [12]: # Load in a background image, and convert it to RGB
         background_image = mpimg.imread('images/sky.jpg')
         ## TODO: Crop it or resize the background to be the right size (450x660)
         row_crop, col_crop = 100, 200
         crop_image = background_image[row_crop:-row_crop, col_crop:-col_crop]
         standard_image = cv2.resize(crop_image,(660, 450))

         ## TODO: Mask the cropped background so that the pizza area is blocked
         standard_image[mask == 0] = [0, 0, 0]
         # Hint mask the opposite area of the previous image
         plt.imshow(standard_image)
         ## TODO: Display the background and make sure

Out[12]: <matplotlib.image.AxesImage at 0x7f418d28fe10>
```



1.1.1 TODO: Create a complete image

```
In [13]: ## TODO: Add the two images together to create a complete image!
         # complete_image = masked_image + crop_background
         complete_image = standard_image + masked_image
         plt.imshow(complete_image)

Out[13]: <matplotlib.image.AxesImage at 0x7f418d1f6f28>
```


0
50
100
150
200
250
300
350
400
450
0
100
200
300
400
500
600