Year
2022

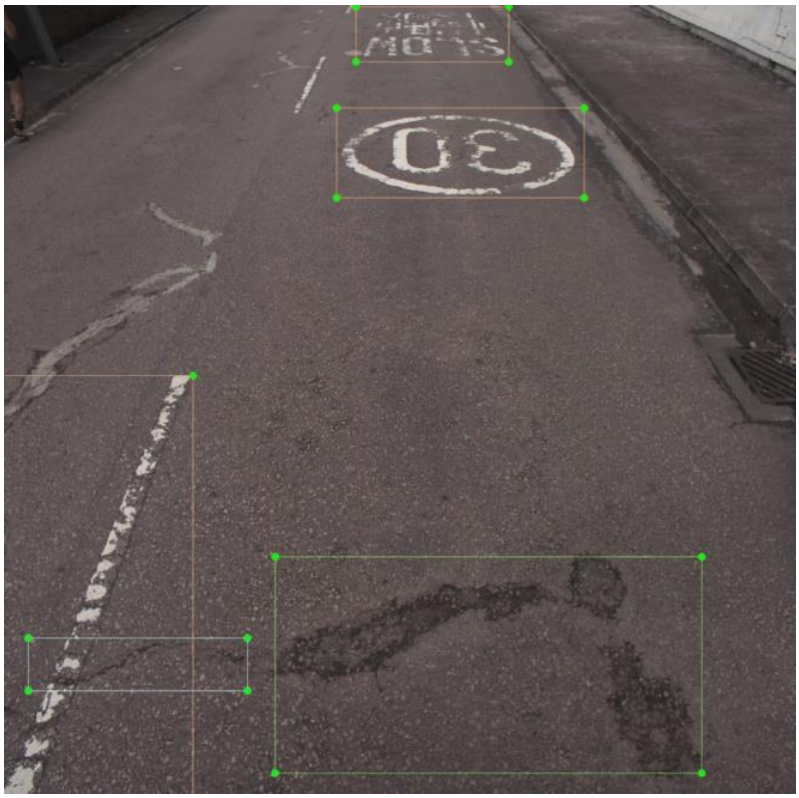
AI road surface defect detection workshop (L1)

YOUTH COLLEGE (INTERNATIONAL)

Reference Websites

Python Official	
https://www.python.org/	
Google Colab	
https://colab.research.google.com/	
Python Exercises	
https://www.w3resource.com/python-exercises/ https://www.w3schools.com/python/default.asp	
GitHub	
https://github.com/garyprojects/road_detect	

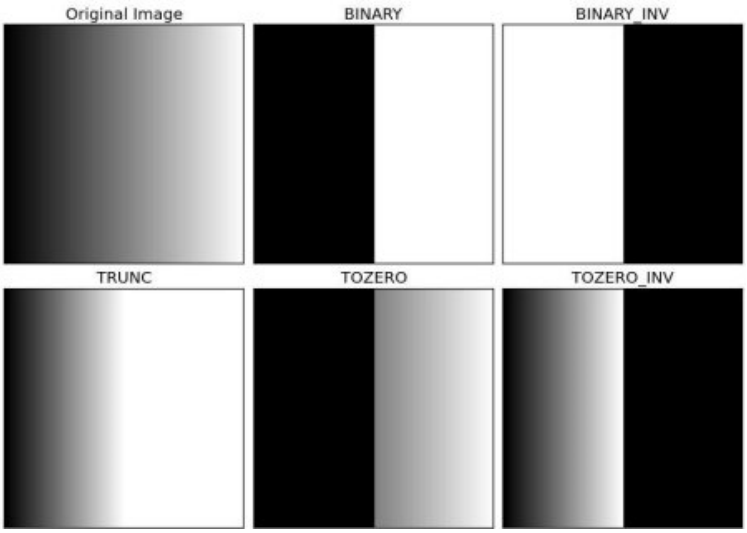
1. Introduction



2. Using Google Colab
3. Hello World program
4. Variables and datatypes
5. Decision (if/else)
6. Loop (for/ while)
7. Function and Library (Numpy and Mathplotlib)
8. Image and computer vision

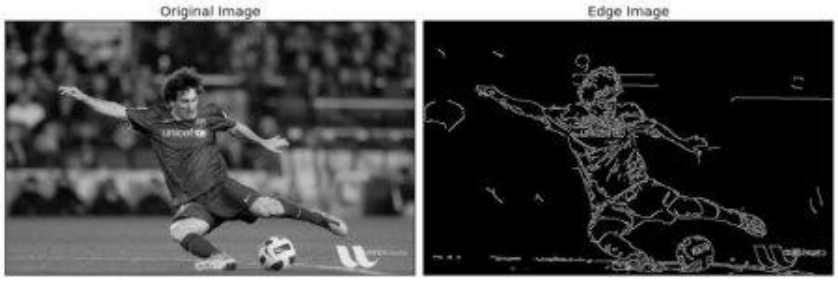
9. Feature extraction

Binary image



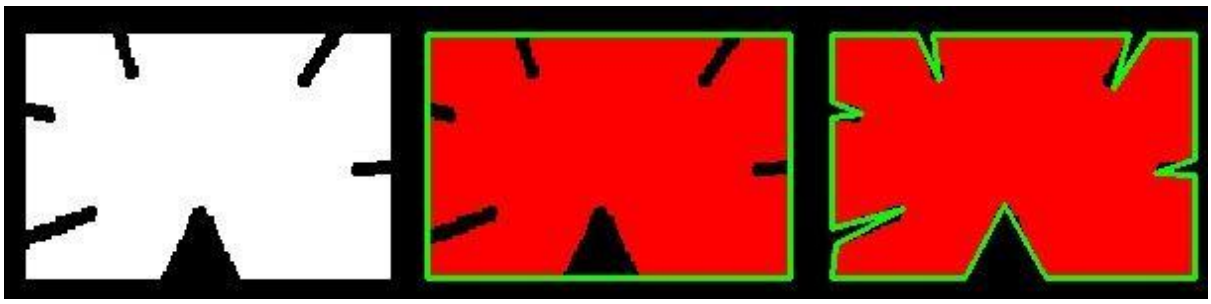
https://docs.opencv.org/3.4/d7/d4d/tutorial_py_thresholding.html

Canny Edge detection



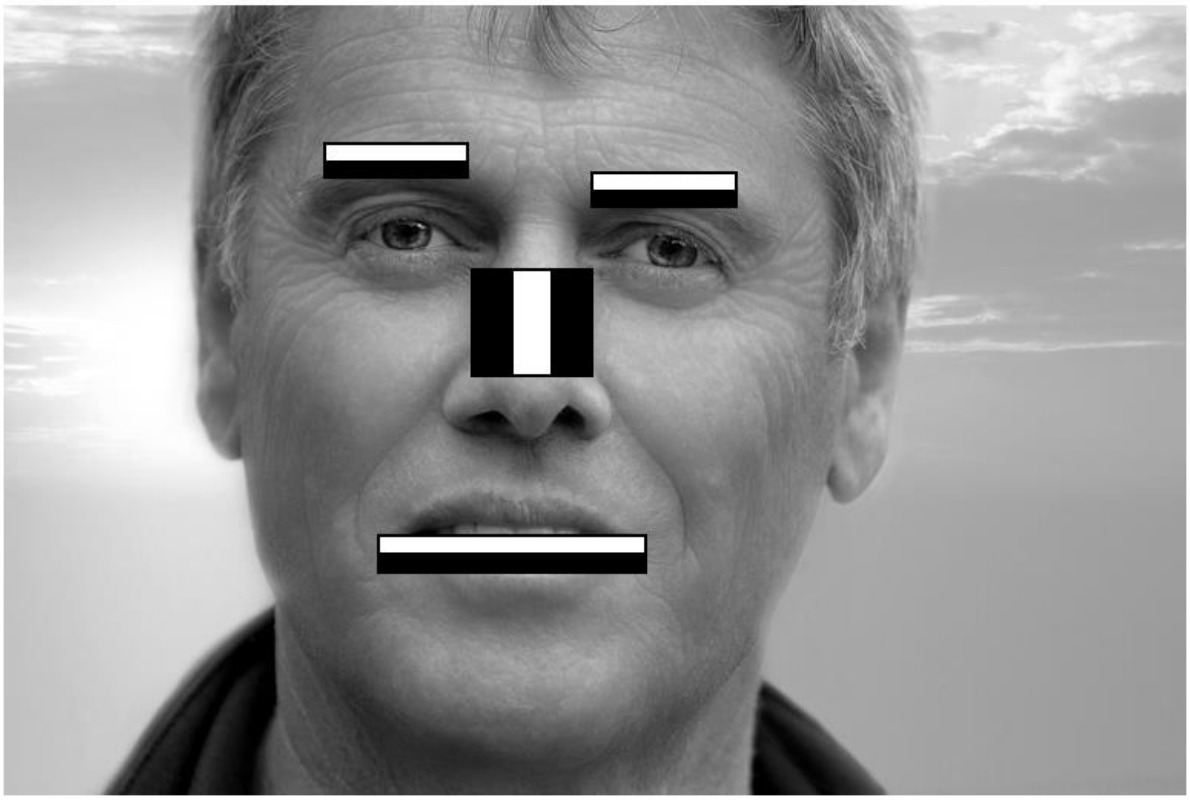
https://docs.opencv.org/3.4/da/d22/tutorial_py_canny.html

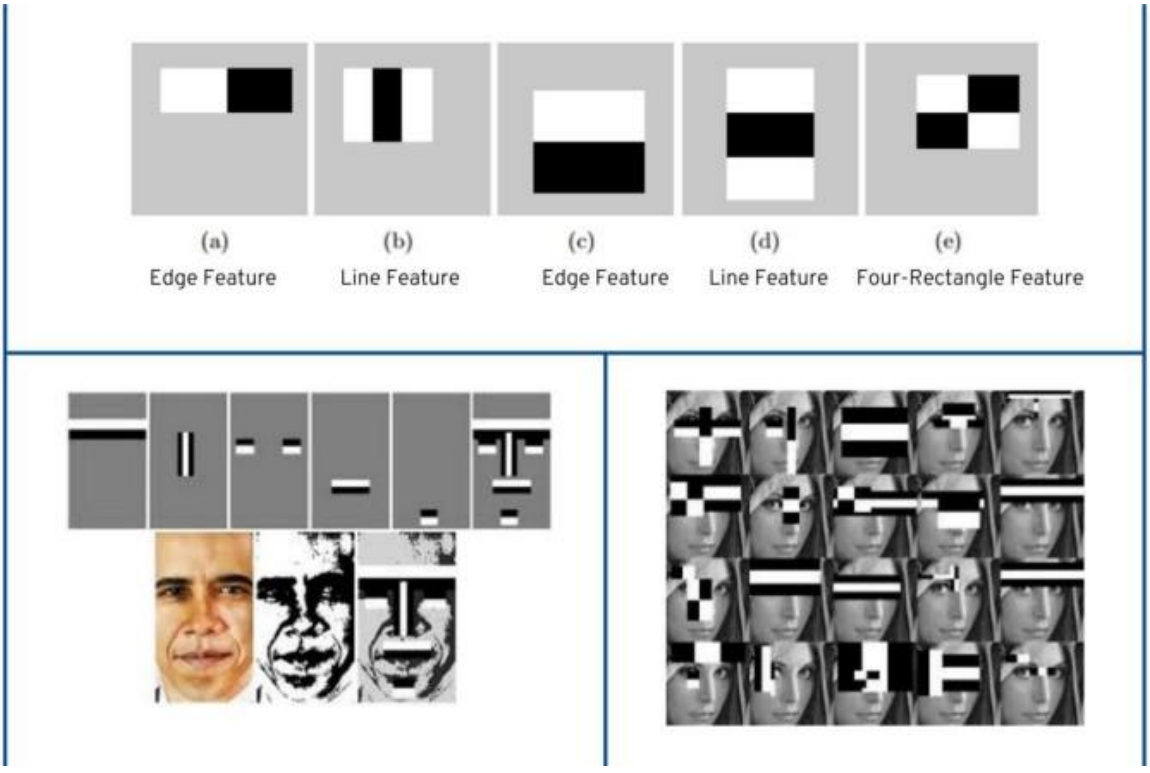
Contour



https://docs.opencv.org/4.x/dd/d49/tutorial_py_contour_features.html

Haar-Like Features





https://www.youtube.com/watch?v=RPoUdDGonWc

Exercise 0 – Warm up

A:

```
Your test mark:45.5
Pass!
>>>
```

```
Your test mark:37
Fail!
>>>
```

B:

```
Enter a number n:5
*
* *
* * *
* * * *
* * * * *
>>>
```

```
Enter a number n:5
* * * * *
* * * *
* * *
* *
*
>>>
```

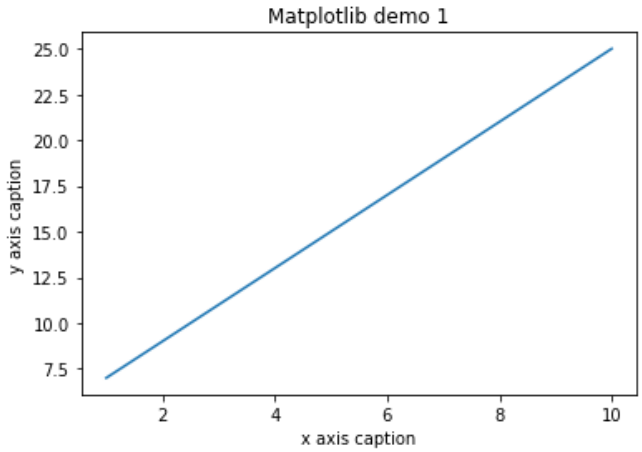
C:

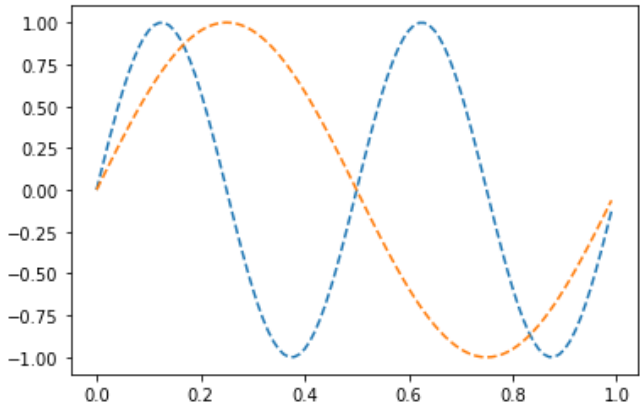
```
Please enter a number: 4
4 != 24
```

```
Please enter a number: 9
9 != 362880
>>>
```

Exercise 1 – Data visualization

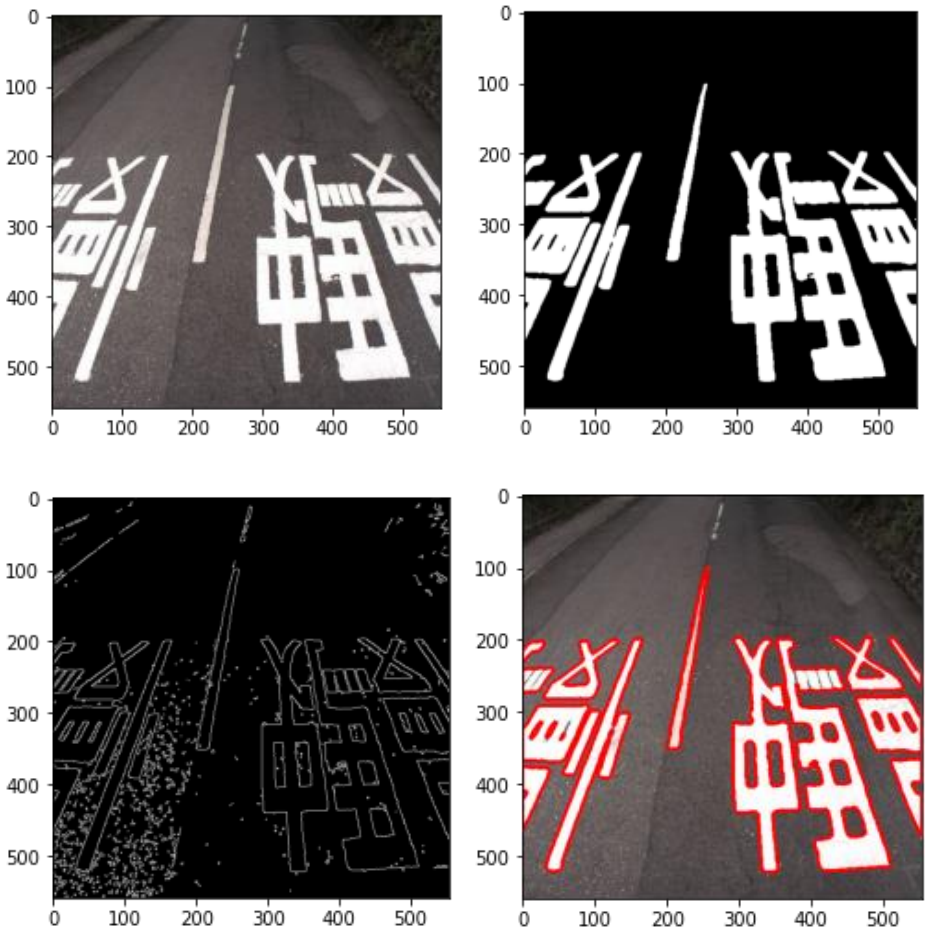
File: Data visualization.ipynb





Exercise 2a – Features extraction

File: openCV.ipynb



Exercise 2b – Face detection