PANTECH SOLUTIONS®
Technology Beyond the Dreams

WARRIORS WAY

Day – 7/30

AI Master Class Series – தமிழ்

Face Recognition using OpenCV

Face recognition.

01

Installing Libraries

Opencv-contrib: pip install opencv-contrib-python

```
C:\Windows\system32>pip install opencv-contrib-python
Collecting opencv-contrib-python
  Using cached opencv_contrib_python-4.4.0.44-cp37-cp37m-win_amd64.whl (40.1 MB)
Requirement already satisfied: numpy>=1.14.5 in c:\program files (x86)\microsoft visual studio\shared\pyth
te-packages (from opencv-contrib-python) (1.19.2)
Installing collected packages: opencv-contrib-python
Successfully installed opencv-contrib-python-4.4.0.44
```

Face recognition.

- Face recognition is a method of identifying or verifying the identity of an individual using their face. Face recognition systems can be used to identify people in photos, video, or in real-time.

- Preventing crime
- Unlock device
- Blind assistance
- Attendance system
- Payments

Fisher face Recognizer

- Fisherfaces algorithm extracts principle components that separates one individual from another. So , now an individual's features can't dominate another person's features.

- Fisherface method will be applied to generate feature vector of facial image data used by system and then to match vector of traits of training image with vector characteristic of test image using euclidean distance formula
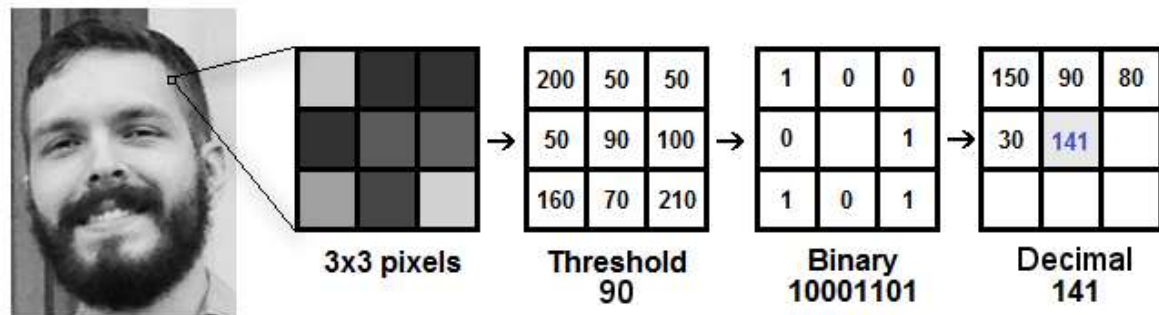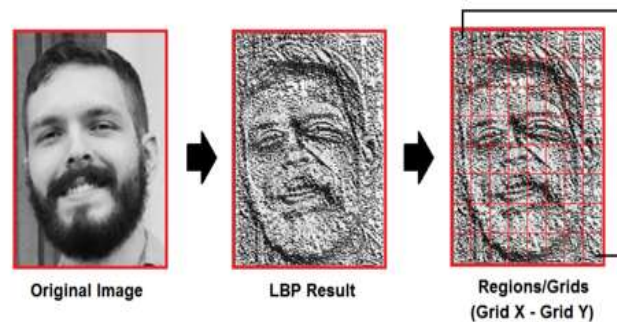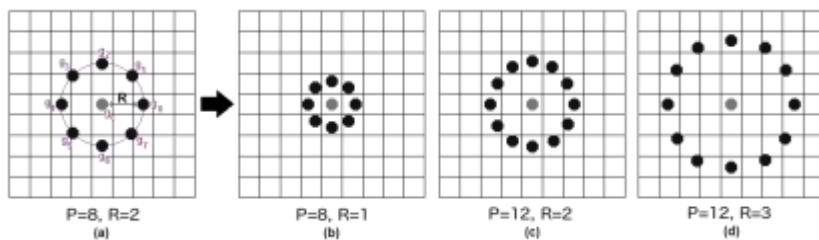
LBPH Face Recognizer

- Local Binary Pattern (LBP) is a simple yet very efficient texture operator which labels the pixels of an image by thresholding the neighborhood of each pixel and considers the result as a binary number.
- It doesn't look at image as a whole, but instead tries to find its local structure by comparing each pixel to its neighboring pixels.
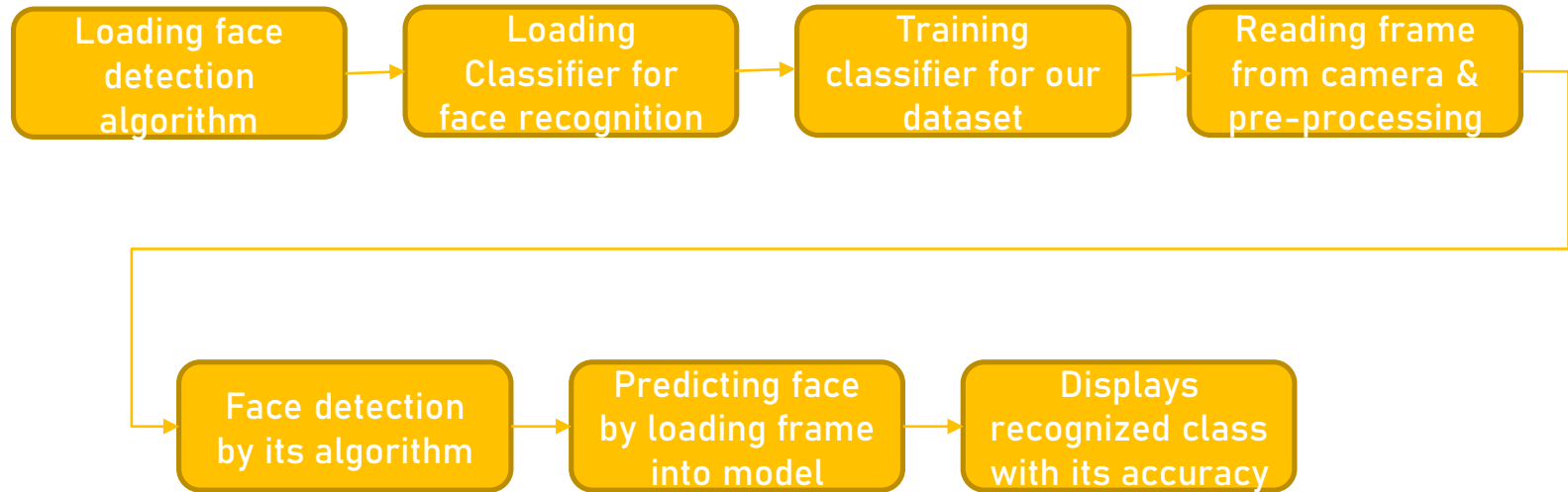
LBPH uses 4 parameters

- Radius - to build the circular local binary pattern and represents the radius around the central pixel. It is usually set to 1.
- Neighbors - : The more sample points you include, the higher the computational cost. It is usually set to 8
- X Grid - the number of cells in the horizontal direction.
- Y Grid - the number of cells in the vertical direction.

3x3 pixels

Threshold
90

Binary
10001101

Decimal
141

Circular LBP

P=8, R=2
(a)

P=8, R=1
(b)

P=12, R=2
(c)

P=12, R=3
(d)

Original Image

LBP Result

Regions/Grids
(Grid X - Grid Y)

Block Diagram–Workflow of Face Recognition

Loading face detection algorithm → Loading Classifier for face recognition → Training classifier for our dataset → Reading frame from camera & pre-processing

Face detection by its algorithm → Predicting face by loading frame into model → Displays recognized class with its accuracy

Hands-on

Creating dataset

02

Face recognition

03

Mindset Task of the Day 💡

Practical Task – Write down you list of

Bad Habits and tear the paper and burn it !

NO GLYPH

Thanks

Do you have
Course related questions?

+91 9363083283
Pantechsolutions.net

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Sanjay Kumar A P · 1st

Product Manager at Pantech Solutions Pvt Ltd (Pantech ProLabs India)

Talks about #robotics, #datascience, #embeddedsystems, #artificialintelligence, and #braincomputerinterface

Tamil Nadu, India · Contact info

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