

OPPORTUNITIES OF THE OPENCV LIBRARY IN ENSURING THE COMPANY'S INFORMATION SECURITY

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Abstract. *OpenCV is a great tool for image processing and performing computer vision tasks. It is an open-source library that can be used to perform tasks like face detection, objection tracking, landmark detection, and much more. It supports multiple languages including python, java C++. Although, For this article, we will be limiting to python only.*

The library is equipped with hundreds of useful functions and algorithms, which are all freely available to us. Some of these functions are really common and are used in almost every computer vision task. Whereas many of the functions are still unexplored and haven't received much attention yet.

In this article, I will show you some of the most amazing functions of OpenCV that you can use for many amazing applications.

Keywords. *Computer Vision, machine learning, smartphone.*

Introduction. generally machine learning is used to train the data to predict stock prediction or disease prediction or something which can be predicted through past data. But using machine learning algorithm to predict the faces of humans by training with their images is really a big deal. This project aims to do so and later we will try to use third party to deliver some messages or giving missed call if possible. Currently we are working on this. Our main concern is to train our system in such a way that model first opts to click a pic of yours for training purpose, so generally it will be better if we try to click a picture using different facial expressions so that it could address you more easily. And after that, it will train itself with a pic of yours and recognize you every time when you open your web cam. However this is easy anyone can do this. The big deal is to recognize others as intruders or unknown persons from the known ones i.e., from those whose images were added in the dataset, unless you introduce others to the web cam. This is the first motto of our paper the rest will be revealed later. International Journal of Computer Trends and Technology (IJCTT) – Volume 67 Issue 5- May 2019 ISSN: 2231-2803 <http://www.ijcttjournal.org> Page 2 In this paperwork we will see how machine learning and computer vision works and how it works when implemented both one at a time. How we are able to capture picture through web cam using computer

vision and all these things we will discuss in detail. Surely you will love this project we can assure you this thing. Currently we are working with the web cam which is generally in laptops. This document is a template. An electronic copy can be downloaded from the conference website. For questions on paper guidelines, please contact the conference publications committee as indicated on the conference website. Information about final paper submission is available from the conference website.

Materials. The first basic thing we should do is to create an empty list of labels to gives labels to each and every image of different objects so that we could easily store them. But how does it start from the beginning. If one selects to add a different set of input then how anyone can do it? Actually, here we are giving the inputs of data which is in the form of images. For taking images from the web camera of the laptop, the very basic thing one should do is to import cv2 which helps to read and display a video stream. And after reading the image from the web camera, we have to give labels to the image with which we are going to train our machine or our computer so that they recognize it more easily. After that, web camera captures the image in different angles so that in any angle it can recognize the image and tells the name as given in the label.

Methods. However generally machine learning is used to train the data to predict stock prediction or disease prediction or something which can be predicted through past data. But using machine learning algorithm to predict the faces of humans by training with their images is really a big deal. This project aims to do so and later we will try to use third party to deliver some messages or giving missed call if possible. Currently we are working on this.

Results. This learning is different from supervised learning and however, there is no need to train or something supervision like that. Computer finds itself what to do and learns everything from the past experience. In this the computer or machine under which this algorithm is going to use decides how to reach to an output through experience and reward itself when it reaches to the output. Machine or computer chooses the best path from itself. There is a chance that computer chooses a wrong path or complex path which takes more time and learns from its own mistakes. This learning is not like the old one i.e., supervised learning where first computer o machine observes and train itself from the past data or input data then predict the output. Here, there is no need to do anything just give a sample of input data then computer decides all by itself which path it should chose to reach to the reward i.e., output in less amount of time. This is all the types of machine learning and through looking at the problems, we estimate that under which real life problem, we should choose which types of algorithms to produce best results with highest accuracy. The decision of which algorithms to use depends upon the user not on the machines or computers. Algorithm The biggest dilemma is to decide which algorithms should we use to train the pictures and let our computers or machines recognize the people all by its own. All of these come under the classification algorithm in supervised learning where we create labels according to the

same types of data input so that computer can easily recognize peoples or anything for which it is train. The first basic thing we should do is to create an empty list of labels to gives labels to each and every image of different objects so that we could easily store them. But how does it start from the beginning. If one selects to add a different set of input then how anyone can do it? Actually, here we are giving the inputs of data which is in the form of images. For taking images from the web camera of the laptop, the very basic thing one should do is to import cv2 which helps to read and display a video stream. And after reading the image from the web camera, we have to give labels to the image with which we are going to train our machine or our computer so that they recognize it more easily. After that, web camera captures the image in different angles so that in any angle it can recognize the image and tells the name as given in the label. Here, we have trained our computer to take up to 50 pictures of image in different angles. The user can add as many images he/she wants. Adding many images will increase the accuracy of this project. While capturing images, we have to destroy All Windows. After adding many images or a single image, user can now train the system. Adding images to train our computer or machine is an easy task. We just have to use cv2 library which helps one to access the web camera so that one could read the image. Adding labels to an image is like adding name to an image. Like we do in supervised learning, we give labels to the input where first computer observes all the input by taking some time and then learns from the input and then able to predict the real time things. Just like we do it to train with only 50 pictures per image. Anyone can use more than 50 pictures or less than 50 pictures to train a model. It all depends on the user choice who wants to train a model. After taking pictures the next thing is to train the model by one of the classification algorithm in machine learning. This is the biggest deal any user will face as the best part is to select which algorithm one should choose while using in a model, which will give best result or perfect result which accuracy will be the best, which result will match the result in the future if one is solving real time problem like stock prediction. All things should keep in one's mind before using the algorithm.

Conclusion. However this is a prototype for this system, but if we able to build the real model using night vision camera,human presence sensor to reduce power consumption, this will be the best thing for the security of our county's confidential things.

We are currently working on the training part with weapons dataset. This project is highly used for security reasons. Recognizing the image through one of the best algorithms i.e., classification under supervised learning. However this is a prototype for this system, but if we able to build the real model using night vision camera,human presence sensor to reduce power consumption, this will be the best thing for the security of our county's confidential things.

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