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Tracking and Find the Missing Children Using -Ai Face Recognition

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ABSTRACT: Face recognition is a biometric based technology that maps an individual's facial features mathematically and stores the data as a face print. It employs Machine Learning on the image and generates a feature vector which maps an object with array of numbers. This technology is used by organizations such as Google and Facebook to create a digital profile for its users. This project proposes to use this technology for identifying criminals who are on the run from their previous records. An NCRB (National Crime Records Bureau) report shows that 70% of crimes are repeatedly committed by the same criminals. The Convolutional Neural Network (CNN), a highly effective deep learning technique for image based applications is adopted here for face recognition. Face descriptors are extracted from the images using a pre-trained CNN model VGG-Face deep architecture. Compared with normal deep learning applications, our algorithm uses convolution network only as a high level feature extractor and the child recognition is done by the trained SVM classifier. Choosing the best performing CNN model for face recognition, VGG-Face and proper training of it results in a deep learning model invariant to noise, illumination, contrast, occlusion, image pose and age of the child and it outperforms earlier methods in face recognition based missing child identification. The classification performance achieved for child identification system is 99.41%. It was evaluated on 43 Child cases.

I. INTRODUCTION

Every year, countless numbers of missing children are reported in India It is really distressing to see that children and other people going missing is the norm in times like these, when crime rates are at record highs A society has to be created in such a way that, it has to be healthy and secure for the children. A system has to be developed to keep track and locate the missing children which will be helpful for anticrime authorities.

Logistic regression, when used for prediction purposes, is an example of supervised machine learning. In logistic regression, the values of a binary response variable (with values 0 or 1, say) as well as a number of predictor variables (covariates) are observed for a number of observation units. These are called training data in machine learning terminology. The main hypotheses are that the response variable follows a Bernoulli distribution (a class of probabilistic models), and the link between the response and predictor variables is the relation that the logarithm of the posterior odds of the response is a linear function of the predictors. The response variables of the units are assumed to be independent of each other, and the method of maximum likelihood is applied to their joint probability distribution to find the optimal values for the coefficients (these parameterize the aforementioned joint distribution) in this linear function.

Machine learning (ML) is the study of computer algorithms that can improve automatically through experience and by the use of data. It is seen as a part of artificial intelligence. Machine learning algorithms build a model based on sample data, known as training data, in order to make predictions or decisions without being explicitly programmed to do so. Machine learning algorithms are used in a wide variety of applications, such as in medicine, email filtering, speech recognition, and computer vision, where it is difficult or unfeasible to develop conventional algorithms to perform the needed tasks.

II. LITERATURE SURVEY

MobileFaceNets: Efficient CNNs for Accurate Real-Time Face Verification on Mobile Devices

Author- Sheng Chen, Yang Liu, Xiang Gao, Zhen Han

Year- 2018

We present a class of extremely efficient CNN models, MobileFaceNets, which use less than 1 million parameters and are specifically tailored for high-accuracy real-time face verification on mobile and embedded devices. We first make a simple analysis on the weakness of common mobile networks for face verification. The weakness has been well overcome by our specifically designed MobileFaceNets. Under the same experimental conditions, our MobileFaceNets

achieve significantly superior accuracy as well as more than 2 times actual speedup over MobileNetV2. After trained by Arc Face loss on the refined MS-Celeb-1M, our single MobileFaceNet of 4.0MB size achieves 99.55% accuracy on LFW and 92.59% TAR@FAR1e-6 on Mega Face, which is even comparable to state-of-the-art big CNN models of hundreds MB size. The fastest one of MobileFaceNets has an actual inference time of 18 milliseconds on a mobile phone.

Deep Face Recognition

Author-Omkar M parkhi, andreavedaldi,
Year-2019

Deep Face is an open source facial recognition library developed by Facebook. It is built on top of the popular open source library Tensor Flow and is used for a number of tasks including facial recognition, facial verification, facial classification, and facial clustering. Deep Face has become one of the most popular open source facial recognition libraries due to its high accuracy and ease of use. It is used in a number of applications including security, analytics, and marketing

Missing Child Identification Using Face Recognition System

Author -RohitSatle , Vishnu prasadPoojary
Year-2020

The use of face recognition technology to identify missing children can be extremely effective. This technology can be used to compare images of missing children to images of children in databases of known individuals, providing a quick and efficient way to identify a missing child. This technology can also be used to identify a child's face in a crowd, making it easier to locate a missing child. Additionally, facial recognition technology can be used to alert authorities when a missing child is spotted in a public setting.

Robust face recognition system for e-crime alert

Author-Sumeet Pate
Year-2020

Robust face recognition system for e-crime alert can be designed using deep learning algorithms. The system should be able to detect faces from surveillance videos and compare them with a database of known criminals. The system should be able to identify suspicious activity and alert the authorities in real-time.

Efficient Face Recognition System for Identifying Lost PeoplePeace

Author-Muyambo
Year- 2020

The most efficient face recognition system for identifying lost people is the facial recognition software developed by Amazon. This software uses an advanced neural network to analyze an individual's face and compare it to a database of over one million faces. The software is fast, accurate, and secure, making it the ideal tool for identifying lost people. It can be used to identify missing persons in real-time, as well as to match photos from missing person databases

III. SYSTEM ANALYSIS

EXISTING SYSTEM

- In existing system there is no tracking algorithm has been implemented in existing model.
- SWF-SIFT technique based algorithm has been implemented in existing system.
- PCA (principal component analysis) based scheme has been implemented.
- There is no proper maintained of database of user's details.

DISADVANTAGE

- Less prediction accuracy
- Face details not updated
- Location tracking not updated

PROPOSED SYSTEM

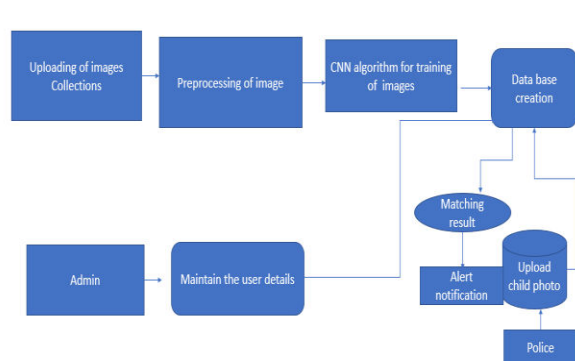
In this work, we compare the various types of images and the accuracy level of results is very satisfiable. It performs well with both images and videos. The results displayed are 90% accurate. This requires less memory space to implement and takes less time when compared with other approaches. By using this the criminals and missing children/person can be easily identifiable and it keeps on updating dynamically. The analysis process carried out with

real criminal images in the web and it provides good results. We believe that, this application will decrease the crimes in our environment.

ADVANTAGES

- Face recognition is a biometric based technology that maps an individual’s facial features mathematically and stores the data as a face print.
- It employs Machine Learning on the image and generates a feature vector which maps an object with array of numbers.
- This technology is used by organizations such as Google and Facebook to create a digital profile for its users. This project proposes to use this technology for identifying criminals who are on the run from their previous records.

SYSTEM ARCHITECTURE



IMPLEMENTATION

Data Set Collection

Given an input image the image is resized and the with the help of CNN algorithm the bounding boxes are identified and the overlapping boxes are removed with NMS. The face net Model trained on millions of images gives us a 128D vector which represents a face. Face images collection is draw from data base which is stored into database. Face images stored into data base collected image, dataset is collected from the database image.

Preprocessing Of Image

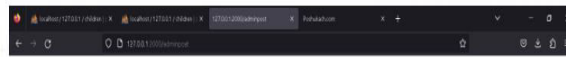
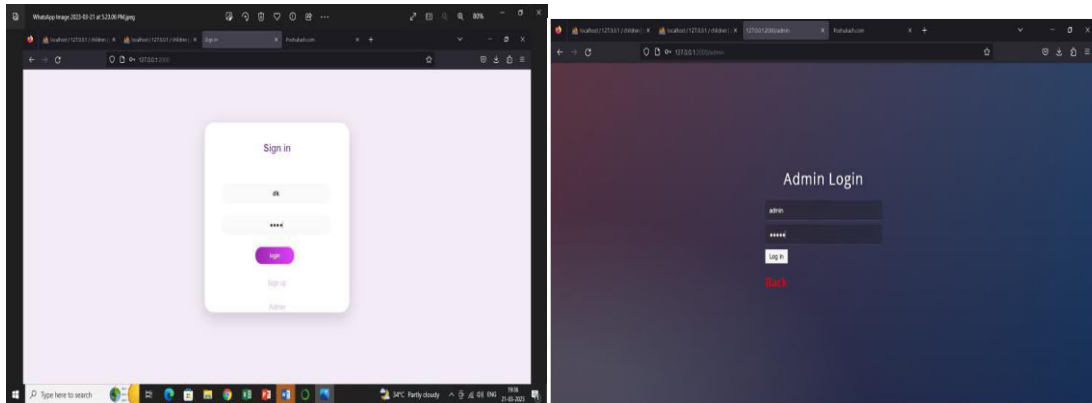
Normalization image, data augmentation an augmented image generator can be easily created using Image Data Generator API. Image Data Generator generates batches of image data with real-time data augmentation. The most basic codes to create and configure Image Data Generator and train deep neural network with augmented images are as follows. Grayscale conversion Normalization Data Augmentation Image standardization we start exploring preprocessing techniques, let’s first explore the RGB channels of our original image.

Police Section

The second topic covered in this section will be the kids' activities in this app. The police station cellphones must first have this app installed before users can log in using an email and password if the credentials match the database as shown the missing child window allows parents to report their missing child to the police.

Testing Of Data

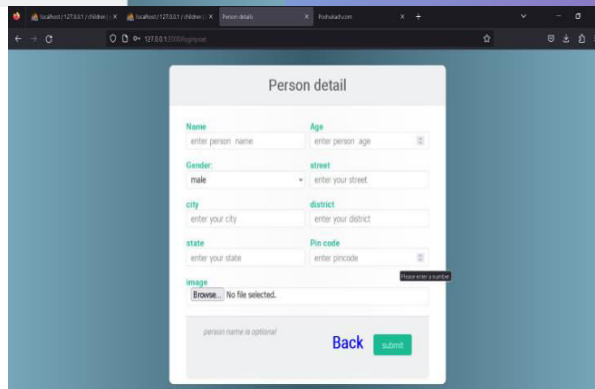
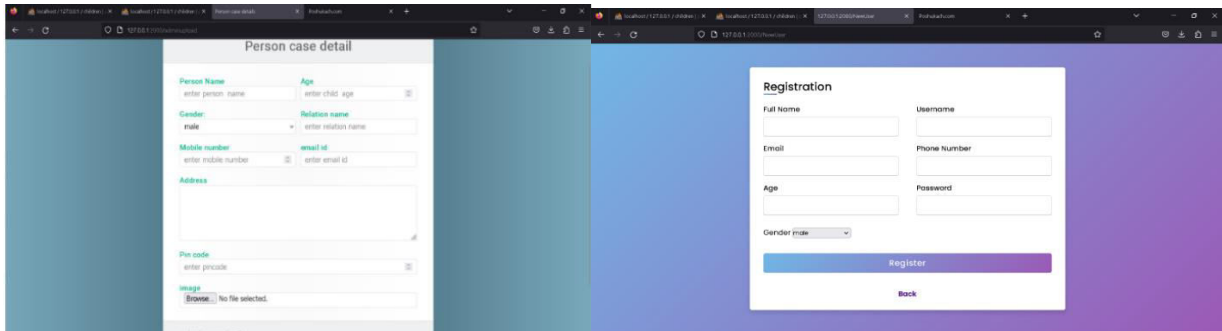
The missing of children given face trained face the missing of children compare with data base for face match provide the result with phone number give the email alert to parents.



User Details

Name	Gender	Age	Email	Mobile
tan	male	22	tan@gmail.com	8574962341
hala	male	15	halakumar987@gmail.com	987765432
Si	male	12	sielakumar&sielakumar&si@gmail.c	876543212
kali	male	12	sielakumar&sielakumar&si@gmail.c	9751068333
hala	male	21	halakumar987@gmail.com	878836147

upload
Case detail
Back



IV. CONCLUSION

In this work, we compare the various types of images and the accuracy level of results is very satisfiable. It performs well with both images and videos. The results displayed are 90% accurate. This requires less memory space to implement and takes less time when compared with other approaches. By using this the criminals and missing

children/person can be easily identifiable and it keeps on updating dynamically. The analysis process carried out with real criminal images in the web and it provides good results. We believe that, this application will decrease the crimes in our environment. The Convolutional Neural Network (CNN), a highly effective deep learning technique for image based applications is adopted here for face recognition. Face descriptors are extracted from the images using a pre-trained CNN model VGG-Face deep architecture. Compared with normal deep learning applications, our algorithm uses convolution network only as a high level feature extractor and the child recognition is done by the trained SVM classifier. Choosing the best performing CNN model for face recognition, VGG-Face and proper training of it results in a deep learning model invariant to noise, illumination, contrast, occlusion, image pose and age of the child and it outperforms earlier methods in face recognition based missing child identification. The classification performance achieved for child identification system is 99.41%. It was evaluated on 43 Child cases.

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