

BUILDING HELPLINES AND CARING FOR MISSING CHILDREN USING DEEP LEARNING ALGORITHM

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Abstract:

Every 30 seconds, a child goes missing in India and majority of them are girls and from poor socio-economic background. Referring to government figures accepting that only 55 percent of them are fortunate to reach their homes, the Supreme Court observed that nobody seems to care about missing children. This is the irony. Many of these missing children tragically find themselves being trafficked to an unknown and dangerous world which is sometimes thousands of miles away from home and end up as child labour, begging, inmates of a shelter home, or forced into trade. It is possible to ensure child protection and address the problem of missing children with active support of the civil society unfortunately there is face detection using Haar classifier algorithm. The present paper described the processes utilized by a parents will post they missing children in web application with manual and automatic location with resources that missing children reunite with their families. Compared with normal deep learning applications, our algorithm uses convolution network only as a high level feature extractor and thus the kid recognition is completed by the trained SVM classifier. Choosing the foremost effective performing Haar

classifier algorithm model for face recognition, Face and proper training of it finally ends up during a very deep learning model invariant to noise, contrast, image pose and also the age of the children and earlier methods in face recognition based missing child identification and child dead police case also identification using deep learning.

Scope of project:

Some of the missing children spend long time in the shelter homes because of many factors- procedural requirements, budgetary limitations, language barriers, lack of motivation among the staff, etc. Most cases of missing children require a proactive approach and concern that is vital for resulted oriented interventions. Care and concern prove to be most powerful means in addressing the problem of missing child where institutional mechanisms are not effective at times. Student interns with Hope line and volunteering for a cause were on a visit to Mumbai and also visited a shelter home run by the government. There they met a girl who also speaks Telugu. "I am an illiterate and cannot speak Marathi or Hindi. I do not know how to explain and who to report. I could not provide any information to the people here. Can you please

help me reach my home,” she told the volunteers some of the missing children spend long time in the shelter homes because of many factors- procedural requirements, budgetary limitations, language barriers, lack of motivation among the staff.

Objective:

Missing children in search of their parents and family face several hardships and risks. Estranged from parents and home, one's childhood is lost, these children are deprived of protection and guidance that is critical to the growth of personality and identity. Policy measures need to ensure space for creativity and flexibility. Community sensitization and engagement of civil society requires more improvements and convergence and partnership with civil society and the state is paramount.

Introduction:

The main purpose of this design is to spot Missing Child Identification System using Deep Learning and Multiclass SVM. In India a in numerous numbers of youngsters are reported missing when. Among the missing child cases an oversized chance of youngsters remains untraced. the general public can upload photos of suspicious child into a standard gate with milestones and reflections. The print are automatically compared with the registered prints of the missing child from the depository. The Convolutional Neural Network (CNN), a largely effective deep literacy fashion for image grounded operations is espoused then for face recognition. The bracket performance achieved for child identification system is99.41. it had been estimated on 43 Child cases. Children are the topmost asset of every nation. the

longer term of any country depends upon the correct parenting of its children. India is that the alternate vibrant country within the world and youngsters represent a big chance of total population. But unfortunately, an outsized number of youngsters go missing when in India because of colorful reasons including hijacking, run-away children, traded children and lost children. the kids who missing could also be exploited and abused for colorful purposes. As per the National Crime Records Bureau (NCRB) report which was cited by the Ministry of Home Affairs (MHA) within the Parliament (LS Qno. 3928, 20-03-2018), further than one lakh children (in factual figures) were reported to possess gone missing till 2016, and of them remained untraced till the top of the time. Numerous NGOs claim that estimates of missing children are much advanced than reported

MOTIVATION OF THE PROJECT:

The missing children spend long time in the shelter homes because of many factors- procedural requirements, budgetary limitations, language barriers, lack of motivation among the staff, etc. Most cases of missing children require a proactive approach and concern that is vital for resulted oriented interventions. Care and concern prove to be most powerful means in addressing the problem of missing child where institutional mechanisms are not effective at times. Student interns with Hope line and volunteering for a cause were on a visit to Mumbai and also visited a shelter home run by the government. There they met a girl who also speaks Telugu. “I am an illiterate and cannot speak Marathi or Hindi. I do not know how to explain and who to report. I could not provide any information to the people here.

METHEDOLAGY:**Existing system:**

The Existing system tells about the face recognition by the computer vision features like LPB, HOG etc. The features which was extracted using convolutional neural network (ConvNet) gives us better facial expressions in an face recognition when compared to other methods. Each and every face photo corresponds to a child and the child face recognition is considered as a photo category classification issue. The problem of missing children is quite alarming in India. According to Central Investigation Department (CID), there was an alarming rise in the number of missing persons including children and children police case.

Disadvantages:

- The main disadvantages in missing child identification system in existing system , daily nearby 100+ children are missing some child are found and a few child aren't found.
- And there isn't any system available to spot the facial expressions of kid in a different environment like noises, lightning conditions with different facial attitudes and with different children.

PROPOSED SYSTEM:

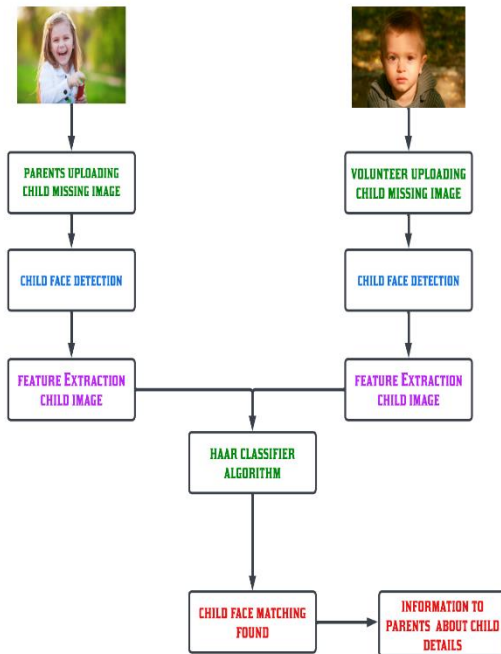
The proposed system for a missing child identification combined with both the facial feature extraction concepts using in deep learning and matching concepts using Haar

classifier algorithm. This system utilizes face recognition for the missing child identification and therefore dead case of children also identification using deep learning algorithm in the system is incredibly easy, inexpensive and reliable method while compared to other biometrics systems like face detection recognition systems. This method executed using features extracted employing a Haar classifier algorithm network for getting facial representations which gives better in face recognition than other features. On tracing the child/parent, organize a dialogue between child and parents over location in facilitated to confirm the right tracking of the child or missing child. Children are produced before the Child Welfare Committee for orders. The committee is a bench of magistrates to deal with the issues related to the Enlisting volunteers to create awareness among children and community on the procedures and whom to approach when a child goes missing in India.

Advantages:

- Publicize details of the missing child through media. Volunteers are also alerted to trace the parents/child.
- Field visits to the locations to meet the child or parents and seek support of local officials and the community. Documentation of the procedures and reporting to he concerned officers.
- children for rough clues to reach the parents and keep the volunteers updated
- Use of internet is very helpful to identify the places and stakeholder

BLOCK DIAGRAM:



MODULE DESCRIPTION

MODULES LIST:

- PREPROCESSING
- UPLOAD PHOTO
- SEARCH
- CNNs

1.PREPROCESSING:

Preprocessing input raw photo within the context of face identification involves acquiring the face region and standardizing images during a format compatible with the CNN architecture employed. Each CNN © June 2022 | IJIRT | Volume 9 Issue 1 | ISSN: 2349-6002 IJIRT 155314 INTERNATIONAL JOURNAL OF

INNOVATIVE RESEARCH IN TECHNOLOGY 573 incorporates a different input size requirement. the pictures of missing child acquired by a photographic camera or transportable are taken and categorized into separate cases for creating the database of face recognition system. The face region in each photo is recognized and cropped for getting the input face pictures.

2.UPLOAD PHOTO:

It consists of a public gate for storing details of missing child along with the print. Whenever a child missing is reported, along with the FIR, the worried officer uploads the print of the missing child into the gate. The public can upload print of any doubtful child at any time into the portal with details like place, time, milestones and reflections. The image uploaded by the druggies will be automatically related with prints of the registered missing children and if a matching print with satisfactory score is plant, also an alert announcement will be transferred to the concerned officer. The announcement will also be visible in the communication box of the concerned officer login screen.

3.SEARCH:

Whenever druggies uploads print of a suspected child, the system generates template vector of the facial features from the uploaded photo . However, the system displays the most betrothed print and pushes a communication to the concerned Officer gate or Telegraph the alert communication of matching child, If a matching is plant in the depository. Also the Officer can check for any matching with the database at any time using the proposed system.

4.CNNs

Convolutional Neural Networks specialized for applications in image & video recognition. CNN is mainly used in image analysis tasks like Image recognition, Object detection & Segmentation. Convolutional Layer in a typical neural network each input neuron is connected to the next hidden layer. Only small region of the input layer neurons connect to the neuron hidden layer. Pooling Layer is used to reduce the dimensionality of the feature map. There will be multiple activation & pooling layers inside the hidden layer of the CNN. Fully Connected Layers form the last few layers in the network. The input to the fully connected layer is the output from the final Pooling or Convolutional Layer, which is flattened and then fed into the fully connected layer.

ALGORITHMS ::

CONVOLUTIONAL NEURAL NETWORKS (CNN):

- Convolutional Neural Networks (CNNs) are essential tools for deep learning methods and are more appropriate for working with image data. CNNs or ConvNets are composed of series of interconnected layers and these layers consist of repeated blocks of convolutional, ReLU (rectified linear units), pooling layers and fully connected layers.
- Convolutional layer convolves the input face image data with different kernels to produce activation maps or feature maps representing low level features like edges or curves. This feature map is given to next convolutional layer producing activations which represent high level features indicating landmarks in face. The Convolutional layer basically defines a set

of filter weights which are updated during network training.

- This layer applies the function to the input data of the layer. The pooling layers merge similar features into one by down sampling with suitable size. The basic idea behind pooling layer is that the relative position to other feature is more important than the exact location of a specific feature. It reduces the dimensions of feature maps and network parameters.

PSEUDOCODE:

Regression S Given the bioactivity vectors for all targets, $x_1 \dots x_m \in R_n$, and the size of informer set n_A ;

Split the data into 5 folds, each fold with roughly the same number of targets;

for $K = 1, \dots, 5$ **do**

Take the K-th fold of the data as the test data, and the rest as the training set;

for $j = 1, \dots, n$;

do

Linearly scale the features such that $(x_i)_j$ for all i in the training set lie in the range $[0, 1]$;

end

for $k = 2, 3, \dots$ **do**

Cluster the training data to k categories using $k_{\text{means}}++$ with 100 repeats;

Select the informer set A with n_A features by the greedy heuristic based on the regularized logistic regression model ; Train a new logistic regression model (5) using the selected

coordinates A; Use the logistic regression model to predict on the test set through and evaluate the performance;

end

Rescale the whole data set just as in the cross validation procedure; Use the best k selected by cross validation to cluster the data; Use the greedy heuristic to select the informer set A with size n_A ; Train the logistic regression model on the whole informer set A with all targets.

IMPLEMENTATION :

As proposed earlier, this recognition method uses image processing. A face detection algorithm is introduced to find out the missing children. The technologies we have used are Python, OpenCV, Matplotlib, Haarcascade classifier, LBP Algorithm

A. Python

Python is our major programming language. It is used for creating our Neural Network model. It provides various tools and libraries that help in consistently creating our model.

B. OpenCV

OpenCV is another library of several programming functions that aims at real-time computer vision. We used this library to process images in real-time and access a camera and display the outcome to the person.

C. Matplotlib

Matplotlib. Pyplot is a collection of functions that make matplotlib work like MATLAB. Each pyplot function makes some change to a figure: e.g., creates a figure, creates a plotting area in a figure, plots some lines in a plotting area, decorates the plot with labels.

D. Haarcascade classifier

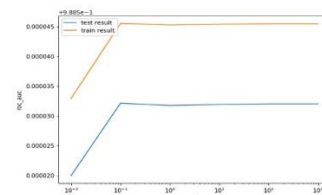
Haar Cascade is a machine learning object detection algorithm used to identify objects in an image or video and based on the concept of features proposed by Paul Viola and Michael Jones in their paper "Rapid Object Detection using a Boosted Cascade of Simple Features" in 2001.

E. LBPH Algorithm

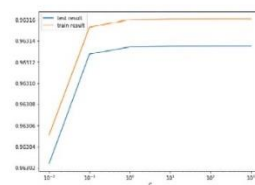
Local Binary Pattern (LBP) is a simple yet very efficient texture operator which labels the pixels of an image by thresholding the neighbourhood of each pixel and considers the result as a binary number. It was first described in 1994 (LBP) and has since been found to be a powerful feature for texture classification.

OUTPUT:

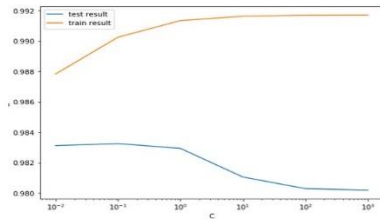
SCREEN SHOT 1:



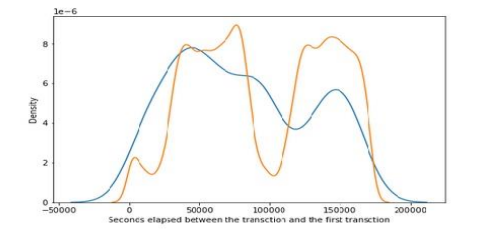
SCREEN SHOT 2:



SCREEN SHOT 3:



SCREEN SHOT 4:



Conclusion:

A missing child identification system is proposed, which combines the important Haar classifier algorithm grounded deep learning approach for point birth and classifier for bracket of different child orders. This system is estimated with the deep learning literacy model which is trained with point representations of children faces. By discarding the soft maximum of the Haar classifier algorithm Face model and rooting Haar classifier algorithm image features to train a multi class deep learning, it was possible to achieve superior

performance. Performance of the proposed system is tested using the photos of children with different lighting conditions, noises and also images at different periods of children. The bracket achieved a advanced delicacy of 99.41 which shows that the proposed methodology of face recognition could be used for dependable missing children identification

FUTURE ENHANCEMENTS:

Despite the many milestones achieved with deep generative networks, there are still open challenges to be addressed by future works. Therefore, the following subsections describe several promising research directions categorized as either data- or concept-based

DATA BASED CHALLENGES:

- The performance of deep neural networks is directly correlated with the quality and number of data samples available for training. Therefore, the development of task-specific cross-age datasets remains a crucial precondition to enable deep generative models to learn relevant ageing patterns.
- One major challenge is to collect face images from age groups that are typically underrepresented in existing public datasets, such as young children and elderly individuals. For example, most current child-based FAP methods are based on private datasets (see Table 5) which limits the reproducibility and comparability to other works. Therefore, the establishment of new public datasets focused on underrepresented age groups accelerates new research and improves existing FAP methods by enabling them to learn patterns from the whole lifetime age span.

- Since the human face ageing process also depends on external aspects, such as lifestyle, nutrition, or working conditions [138], the collection of face images labelled with these factors allows for conducting interesting experiments to establish a further understanding of the relationship between the human face ageing process and external factors.
- Modern FAP methods focus more and more on synthesizing images with higher resolutions. However, the most popular cross-age datasets (CACD [126], and MORPH-II [127]) only include images with a resolution of up to 400x480 pixels. Although FFHQ [29] contains 70,000 images with a resolution of 1024x1024, the collection of more data will leverage the generation capability of deep generative networks

REFERENCES

- [1] A check on facial recognition ways and questioned algorithms-S. Balaji, R. Saravanan, P. Pavadharani, J. Interdiscipline, 2020-jicrjournal.com
- [2] D. Heinsohn, E. Villalobos, L. Prieto, and D. Mery. 2019. Face Recognition in Low-Quality Images using Adaptive Sparse Representations. *Image and Vision Computing* (2019).
- [3] D. Mery, I. Mackenney, and E. Villalobos. 2019. Student Attendance System in Crowded Classrooms using a Smartphone Camera. In 2019 IEEE Winter Conference on Applications of Computer Vision (WACV2017)
- [4] Michalitsi-Psarrou, A. et al., 2019. "Complementing Amber Alert: Increasing the Social Sensors' Effectiveness through Focused Communication Channels." In *Institute of Electrical and Electronics Engineers (IEEE)*, 1–7
- Focused Communication Channels." In *Institute of Electrical and Electronics Engineers (IEEE)*, 1–7
- [5] J. Despois, F. Flament and M. Perrot, "AgingMapGAN (AMGAN): High-resolution controllable face aging with spatially-aware conditional GANs" in *arXiv:2008.10960*, 2020, [online] Available: <http://arxiv.org/abs/2008.10960>.
- [6] M. Zhang, R. Wang, X. Gao, J. Li and D. Tao, "Dual-transfer face sketch-photo synthesis", *IEEE Trans. Image Process.*, vol. 28, no. 2, pp. 642-657, Feb. 2019..
- [7] H. Wang, D. Gong, Z. Li and W. Liu, "Decorrelated adversarial learning for age-invariant face recognition", *CVPR*, 2019.
- [8] Advanced Parametrization of Graphomotor Difficulties in School-Aged Children ZOLTAN GALAZ 1 , JAN MUCHA 1 , VOJTECH ZVONCAK 1 , JIRI MEKYSKA 1 , ZDENEK SMEKAL 1 , (Senior Member, IEEE), 2021
- [9] *Visa Information System (VIS)*, Nov. 2020, [online] Available: https://ec.europa.eu/home-affairs/what-we-do/policies/borders-and-visas/visa-information-system_en.