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## CRIMINAL INVESTIGATION TRACKER USING SUSPECT PREDICTION

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**Abstract :** Suspicious activity to predict a body part or joint of a person from a photo or video. This project will involve the discovery of a suspicious person Work from real-time CCTV footage using neural networks. Suspicious human activity is one of the major problems in the computer industry studied for over 15 years. It is important because of the small value of applications that can benefit from Finding a Job. For example, human posture measurements are used in programs that include video surveillance, animal tracking and behavior comprehension, advanced sign language detection. Human computer interaction, and small motion capture. Low cost Deep sensors have limited limitations in home use, and their low adjustment and knowledge of sound depth make it difficult to measure a person's posture. From the depths of the images. Therefore, we plan to use neural networks to overcome these problems. Suspicious recognition of human activity from surveillance video is an effective research site for image processing and computer perspective. Through the visible observation, human activities can be recognized in a sensitive and public environment places like bus stations, train stations, airports, banks, shopping malls, schools and colleges, parking lots, roads, etc. prevention of terrorism, theft, accidents and illegal parking, vandalism, fighting, chain-taking, crime and other suspicious activities. It is very difficult to watch public places on an ongoing basis, so it requires a smart video surveillance that can be monitored human activities in real time and classify them as normal and unusual jobs; and can create a warning. In particular, in the research conducted opt-out is in photos and not videos. Also, there are no published papers attempting to use CNN for suspicious activity.

**IndexTerms – Predict, Human Posture, motion capture, image processing, computer perspective, warning.**

### 1. INTRODUCTION

#### 1.1. OVERVIEW

We plan to make a request for the discovery of suspicious human activity in public places in real time. Our application can be used for surveillance in areas such as supermarkets, airports, train stations, etc. where there is a risk of robbery or assault. We will use in-depth learning and neural networks to train our system. This model will then be used as a mobile and desktop application that will capture real-time CCTV video as installing and sending an alert to the controller device in case of suspicious status. Suspicious human activity is related to identifying parts of the human body and tracing their movements. Real-life experience varies from gaming to AR / VR, to health care and touch recognition. Compared to image data base, there is less work to use CNN in video sharing. This is because, video is much more complex than images as it has another dimension - temporarily. Untreated reading uses intermediate frames and has been effective in video analysis. Some suspicious methods use the CPU instead of the GPU so that suspicious activity can run on less expensive hardware such as embedded systems and cell phones. Low cost depth sensors are another new technology for computer visualization. They are available for game consoles like the Kinect for the Xbox 360. They are mobile sensors that allow the user to connect to the console without a game control, with the touch of a hand. These are RGB-D sensors that receive in-depth information on structured lighting technology. Organized light sensors reduce depth values by exposing the infrared light pattern to the square and analyzing the distortion of the designed light pattern. However, these sensors of their low clarity and deep knowledge make it difficult for deep images.

The plan is proposed to help organizations such as the CBI, CID and other bureaucracies to speed up the investigation process and track the status of multiple cases in a timely manner. The program maintains case logs that include summaries of cases, people involved, disputes, past criminal history of victims, items found at the scene and other details. The system recognizes the type of case, allows the administrator to review the status of the investigation, upload a large number of criminal images, items found on the scene etc. This allows authorized officials to monitor the status of the case and monitor its status online and update any important information as and when necessary. The program also contains a suspect prediction algorithm. Based on the type of case, location, land, love or other organizations involved in the system that investigates past cases, reads past criminal records of those involved and based on this data provides recommendations for suspected suspects in a reasonable way. The program is designed to assist investigative teams to co-operate in cases, coordinate and speed up the process by raising sensible suspects based on the data provided.

## 1.2. Objective

- Detect the suspicious activity
- Anyone can use this application easy
- To design an intelligent algorithm for automatic classification of videos of a single person to multiple people and hence detect strange and suspicious activities.
- To extend the approach by developing algorithms for detecting real time changes in the scene and to trigger an alarm in real time, if the identified activity is suspicious.

## 2. Literature Survey

In[1].... In this paper, we propose a method for real-time suspicious detection and localization in crowded scenes. Each video is defined as a set of non-overlapping cubic patches, and is described using two local and global descriptors. These descriptors capture the video properties from different aspects. By incorporating simple and cost-effective Gaussian classifiers, we can distinguish normal activities and anomalies in videos. The local and global features are based on structure similarity between adjacent patches and the features learned in an unsupervised way, using a sparse autoencoder. Experimental results show that our algorithm is comparable to a state-of-the-art procedure on UCSD ped2 and UMN benchmarks, but even more time-efficient. The experiments confirm that our system can reliably detect and localize anomalies as soon as they happen in a video.

In[2]....This paper presents an approach to incorporate structure knowledge into CNNs for articulated human pose estimation from a single still image. Recent research on pose estimation CNNs as base blocks to combine with other graphical models. Different from existing methods using features from CNNs to model the tree structure, they directly use the structure pose prior to guide the learning of CNN. First, they introduce a deep CNN with effective receptive fields which capture the holistic context of the whole image. Second, limb loss is used as intermediate supervision of CNN to learn the correlations of joints. Both parts and joints features are extract the middle of neural network and then are used to guide the following network learning.\

In[3]....This review is focused on the most significant contributions in Human Pose Estimation methods from a single two dimensional image. They start their study with the traditional pictorial structure, go through a discussion of the use of Deep Neural Networks that improved the human pose estimation significantly and then the most recent, more famous approach namely Stacked Hourglass. Starting from the first practical models for estimating human pose, they provide a comprehensive study of some of the most famous deep learning methods in order to provide a concise analytical review of these most influential methods.

In[4]....A lot of works have shown that Frobenious norm-based representation (FNR) is competitive to sparse representation and nuclear norm-based representation (NNR) in numerous tasks such as subspace clustering. Despite the success of FNR in experimental studies, less theoretical analysis is provided to understand its working mechanism. In this brief, we fill this gap by building the theoretical connections between FNR and NNR. More specially, we prove that: 1) when the dictionary can provide enough representative capacity, FNR is exactly NNR even though the data set contains the Gaussian noise, Laplacian noise, or sample-specified corruption and 2) otherwise, FNR and NNR are two solutions on the column space of the dictionary.

In [5]....Motivated by the capability of sparse coding based suspicious detection, we propose a Temporally-coherent Sparse Coding (TSC) where we enforce similar neighbouring frames be encoded with similar reconstruction coefficients. Then we map the TSC with a special type of stacked Recurrent Neural Network (sRNN). By taking advantage of sRNN in learning all parameters simultaneously, the nontrivial hyper-parameter selection to TSC can be avoided, meanwhile with a shallow sRNN, the reconstruction coefficients can be inferred within a forward pass, which reduces the computational cost for learning sparse coefficients. The contributions of this paper are two-fold: i) We propose a TSC, which can be mapped to a sRNN which facilitates the parameter optimization and accelerates the suspicious prediction. ii) We build a very large dataset which is even larger than the summation of all existing dataset for suspicious detection in terms of both the volume of data and the diversity of scenes. Extensive experiments on both a toy dataset and real datasets demonstrate that our TSCn based and sRNN based method consistently outperform existing methods, which validates the effectiveness of our method.

In [6]....A broad class of problems at the core of computational imaging, sensing, and low-level computer vision reduces to the inverse problem of extracting latent images that follow a prior distribution, from measurements taken under a known physical image formation model. Traditionally, handcrafted priors along with iterative optimization methods have been used to solve such problems. In this paper we present unrolled optimization with deep priors, a principled framework for infusing knowledge of the image formation into deep networks that solve inverse problems in imaging, inspired by classical iterative methods. We show that instances of the framework outperform the state-of-the-art by a substantial margin for a wide variety of imaging problems, such as denoising, deblurring, and compressed sensing magnetic resonance imaging (MRI). Moreover, we conduct experiments that explain how the framework is best used and why it outperforms previous methods.

## 3. Methodology

System and case and in another attribute i.e. the view feature here, the controller can view existing cases. In Police Login, we are responsible as Add new criminal where we have to add the name of the criminal, address, age, gender, type of crime, location, evidence, crime month, year of crime, time of day, suspect image by this criminal information is added to the system. Next level namely Add new fir, police add details of the case name i.e. what kind of crime happened, the name is victim, type of crime, location and evidence available found in the crime scene. Here, on this page we find predicting a suspect using a well-known algorithm as

a Decision Tree algorithm. Another feature is about a criminal investigation, in which the police can obtain information about the case and you can get advanced information about possibly a Suspect in the case. The next attribute is Final case, here in this case we have to choose the name of the case and we will find out case i.e. case. whether the case is complete or complete waiting. Then with the details of the case namely the suspect information we have option i.e. to add to this case investigation or not even when I add a case for investigation we get a prediction about crime who is bigger suspect in crime. The last and most important factor is this part of prediction, here are the three main attributes namely us you must include the type of crime, location and evidence of it case and when we click the search button the result will do designed for us .

#### 4. CONCLUSION

A system to process real-time CCTV footage to detect any suspicious activity will help to create better security and less human intervention. Great strides have been made in the field of human suspicious Activity, which enables us to better serve the myriad applications that are possible with it. Moreover, research in related fields such as Activity Tracking can greatly enhance its productive utilization in several fields.

#### 5. References

- [1] Eralda Nishani, Betim Cico : "Computer Vision Approaches based on Deep Learning and Neural Networks" Deep Neural Networks for Video Analysis of Human Pose Estimation- 2017 6th MEDITERRANEAN CONFERENCE ON EMBEDDED COMPUTING (MECO), 11-15 JUNE 2017, BAR, MONTENEGRO
- [2] Naimat Ullah Khan , Wanggen Wan : "A Review of Human Pose Estimation from SingleImage" - 978-1-5386-5195-7/18/ 2018 IEEE
- [3] Qihui Chen, Chongyang Zhang, Weiwei Liu, and Dan Wang, "Surveillance Human Pose Dataset And Performance Evaluation For Coarse-Grained Pose Estimation", Athens 2018.
- [4] Baole Ai, Yu Zhou, Yao Yu : "Human Pose Estimation using Deep Structure Guided Learning" - 978-1-5090-4822-9/17 2017 IEEE DOI 10.1109/WACV.2017.141
- [5] Zhe Cao, Tomas Simon, Shih-En Wei, Yaser Sheikh The Robotics Institute, Carnegie Mellon University "Real time Multiperson 2D Pose Estimation using part affinity fields" - 1063-6919/17 2017 IEEE DOI 10.1109/CVPR.2017.143
- [6] Hanguen Kim, Sangwon Lee, Dongsung Lee, Soonmin Choi, Jinsun Ju and Hyeon Myung "Real-Time Human Pose Estimation and Gesture Recognition from depth Images Using Superpixels and SVM classifier." - Sensors 2015, 15, 12410-12427; doi:10.3390/s150612410
- [7] Tripathi, Rajesh and Jalal, Anand and Agarwal, Subhash(2017). "Suspicious Human Activity Recognition: a Review". Artificial Intelligence Review. 50.10.1007/s10462- 017-9545-7.
- [8] E. Eksioğlu. Decoupled algorithm for MRI reconstruction using nonlocal block matching model: BM3DMRI. Journal of Mathematical Imaging and Vision, 56(3):430-440, 2016.
- [9] S. Wang, Z. Su, L. Ying, X. Peng, S. Zhu, F. Liang, D. Feng, and D. Liang. Accelerating magnetic resonance imaging via deep learning. In Proceedings of the IEEE International Symposium on Biomedical Imaging, pages 514-517, 2016.
- [10] L. Xu, J. Ren, C. Liu, and J. Jia. Deep convolutional neural network for image deconvolution. In Advances in Neural Information Processing Systems, pages 1790-1798, 2014.
- [11] Y. Yang, J. Sun, H. Li, and Z. Xu. Deep ADMM-Net for compressive sensing MRI. In Advances in Neural Information Processing Systems, pages 10-18, 2016.
- [12] Z. Zhan, J.-F. Cai, D. Guo, Y. Liu, Z. Chen, and X. Qu. Fast multiclass dictionaries learning with geometrical directions in MRI reconstruction. IEEE Transactions on Biomedical Engineering, 63(9):1850-1861, 2016.