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"Multi-People Detection Using Deep Learning"

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Abstract

The aim of this study is to count the number of a specific 3D item in an image. The object recognition process, which is frequently carried out using two planar photos of the same thing taken from different perspectives, is a crucial intermediate step in the solution of the item counting problem. Counting individuals in images is essential for controlling crowds, transportation, and environmental wildlife. Instead of developing an object-specific algorithm, we offer a complete deep learning approach for generic people counting. The problem of general people counts is difficult. The reason why modern counting algorithms add more annotations to the final multi person count may be due to how difficult the challenge is. This study's objective is to as certain

I. INTRODUCTION

The aim of this study is to count the number of a specific 3D item in an image. The object recognition process, which is frequently carried out using two planar photos of the same thing taken from different perspectives, is a crucial intermediate step in the solution of the item counting problem. Counting individuals in images is essential for controlling crowds, transportation, and environmental wildlife. Instead of developing an object-specific algorithm, we offer a complete deep learning approach for generic people count- ing. The problem of general people counts is difficult. The reason why modern counting algorithms add more annotations to the final multi person count may be due to how difficult the challenge is. This study's objective is to as certain

LITERATURE REVIEW

Paper Name: Deep Object Detection with Example Attribute Based Prediction Modulation Author: Zhihao Wu; Chengliang Liu; Chao Huang; Jie Wen; Yong Xu

Abstract :- Deep object detectors suffer from the gradient contribution imbalance during training. In this paper, we point out that such imbalance can be ascribed to the imbalance in example attributes, e.g., difficulty and shape variation degree. We further propose example

attribute based prediction modulation (EAPM) to address it. In EAPM, first, the attribute of an example is defined by the prediction and the corresponding ground truth.

Paper Name :- Attentive Layer Separation for Object Classification and Object Localization in Object Detection Author: Jung Uk Kim; Yong Man Ro

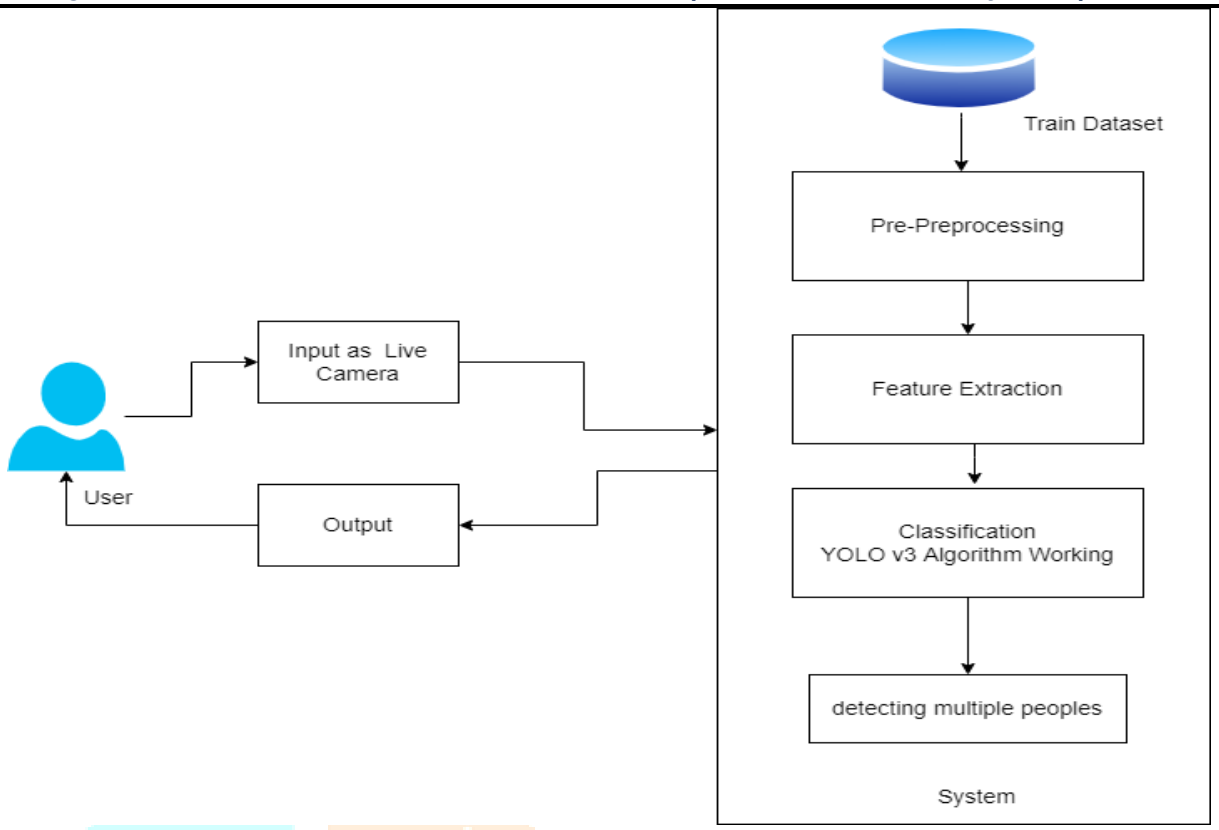
Abstract:- Object detection became one of the major fields in computer vision. In object detection, object classification and object localization tasks are conducted. Previous deep learning-based object detection networks perform with feature maps generated by completely shared networks. However, object classification focuses on the most discriminative object part of the feature map. Whereas, object localization requires a feature map that is focused on the entire area of the object. In this paper, we propose a novel object detection network by considering the difference between the two tasks

Paper Name:3-D Object Tracking in Panoramic Video and LiDAR for Radiolog- ical Source–Object Attribution and Improved Source Detection

Author name: M. R. Marshall; D. Hellfeld; T. H. Y. Joshi abstract : Networked detector systems can be deployed in urban environments to aid in the detection and localization of radiological and/or nuclear material. However, effectively responding to and interpreting a radiological alarm using spectroscopic data alone may be hampered by a lack of situational awareness, particularly in com- plex environments. This study investigates the use of Light Detection and Ranging (LiDAR) and streaming video to enable real-time object detection and tracking, and the fusion of this tracking information with radiological data for the purposes of enhanced situational awareness and increased detection sensitivity.

Paper Name:Object Detection Algorithms for Video Surveillance Applications Author::- Apoorva Raghunandan; Mohana; Pakala Raghav;

abstract : Object Detection algorithms find application in various fields such as de- fence, security, and healthcare. In this paper various Object Detection Algorithms such as face detection, skin detection, colour detection, shape detection, target detection are simulated and implemented using MATLAB 2017b to detect various types of objects for video surveillance applications with improved accuracy. Further, vari- ous challenges and applications of Object Detection methods are elaborated.



Admin

In this module, the admin has to log in by using valid user name and password. After login successful he can do some operations such as View All Users and Authorize, View All E-Commerce Website and Authorize, View All Products and Reviews, View All Products Early Reviews, View All Keyword Search Details, View All Products Search Ratio, View All Keyword Search Results, View All Product Review Rank Results.

View and Authorize Users

In this module, the admin can view the list of users who all registered. In this, the admin can view the user's details such as, user name, email, address and admin authorizes the users. View Charts Results

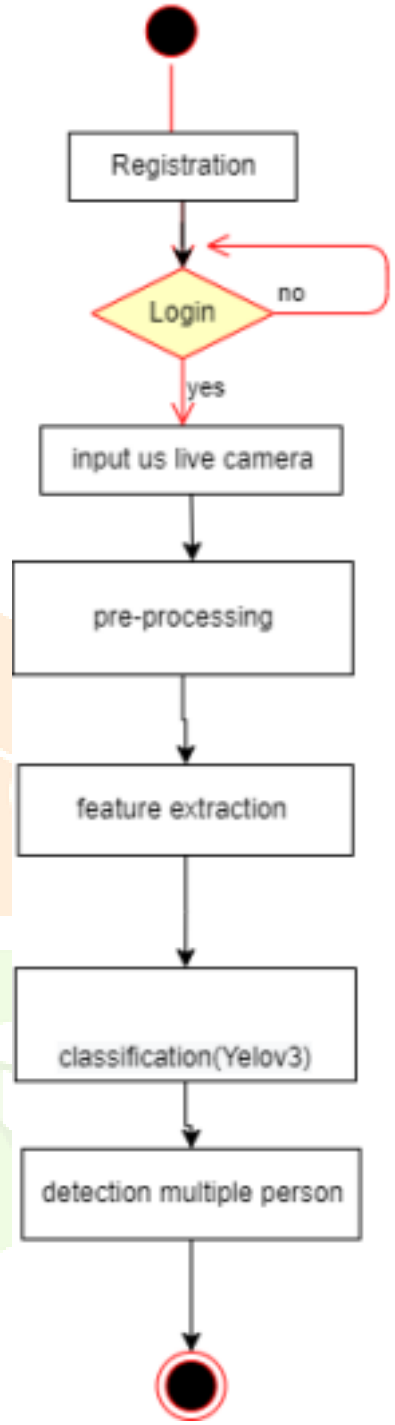
View All Products Search Ratio, View All Keyword Search Results, View All Product Review Rank Results.

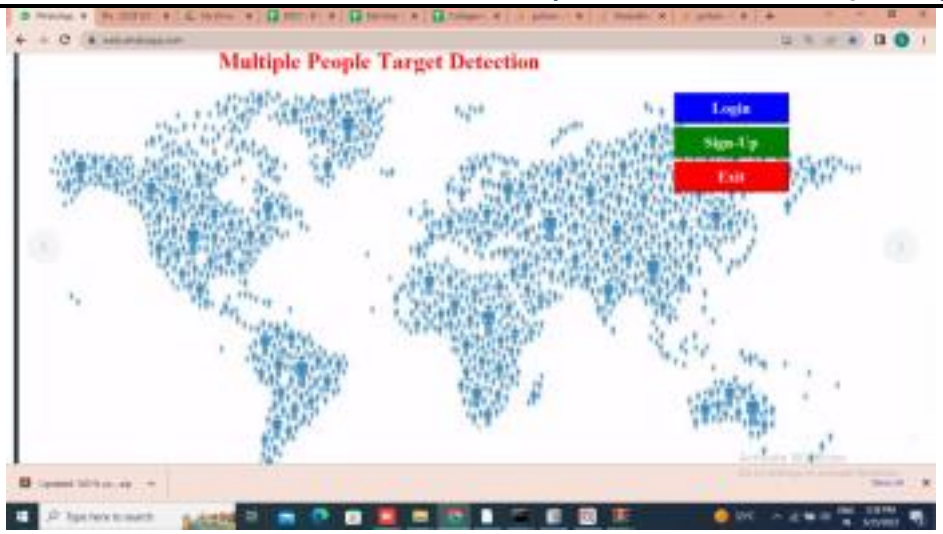
Ecommerce User

In this module, there are n numbers of users are present. User should register before doing any operations. Once user registers, their details will be stored to the database. After registration successful, he has to login by using authorized user name and password Once Login is successful user will do some operations like Add Products, View All Products with reviews, View All Early Product's reviews, View All Purchased Transactions.

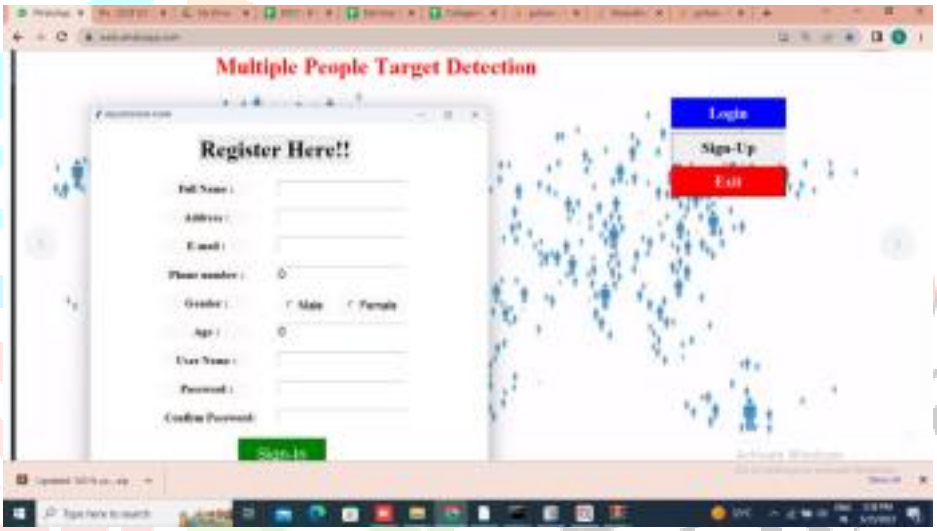
End User

In this module, there are n numbers of users are present. User should register before doing any operations. Once user registers, their details will best or to the database. After registration successful he has to login by using authorized user name and password. Once Login is successful user will do some operations like Manage Account, Search Products by keyword and Purchase, View Your Search Transactions, View.


Registration
Login
no
yes
input us live camera
pre-processing
feature extraction
classification(Yelov3)
detection multiple person



Output 1



Output 2

Output 3

Output 4

Output 5

II. CONCLUSION

In this paper, we investigated the real-time surveillance in smart IoT systems, and proposed a multi-target detection method to facilitate the lightweight training and multi-level feature learning with limited computing sources in environments. A multitarget detection algorithm was finally developed, which could improve the precision when dealing with multiple moving objects for real-time surveillance. Experiments were designed and conducted using two datasets: one public dataset and one homemade dataset in a real surveillance system.

III. References

[1] H. F. Nweke, Y. W. Teh, G. Mujtaba and M. A. Al-garadi, "Data fusion and multiple classifier systems for human activity detection and health monitoring: Review and open research directions," Information Fusion, vol. 46, pp. 147-170, 2019.

[2] S. Zafeiriou, C. Zhang and Z. Zhang, "A survey on face detection in the wild: Past, present and future," Computer vision and image understanding, vol. 138, pp. 1-24, 2015.

[3] P. Albano, A. Bruno, B. Carpentieri, A. Castiglione, A. Castiglione, F. Palmieri, R. Pizzolante, K. Yim and I. You, "Secure and distributed video surveillance via portable devices," Journal of Ambient Intelligence and Humanized Computing, vol. 5, pp. 205–213, 2014.

[4] X. Zhang, Y. Cao, L. Peng, J. Li, N. Ahmad and S. Yu, "Mobile Charging as a Service: A Reservation-Based Approach," IEEE Transactions on Automation Science and Engineering, vol. 17, no. 4, pp. 1976-1988, 2020.

[5] H. Zhang, K. F. Wang and F. Y. Wang, "Advances and Perspectives on Applications of Deep Learning in Visual Object Detection," Acta Automatica Sinica, vol. 43, no. 8, pp. 1289-1305, 2017.

[6] G. Antipov, M. Baccouche and J. Dugelay, "Face aging with conditional generative adversarial networks," 2017 IEEE International Conference on Image Processing (ICIP), Beijing, pp. 2089-2093, 2017.

[7] Y. Cao, X. Zhang, B. Zhou, X. Duan, D. Tian and X. Dai, "MEC Intelligence Driven Electro Mobility Management for Battery Switch Service," IEEE Transactions on Intelligent Transportation Systems, 2020. doi: 10.1109/TITS.2020.3004117

[8] J. Wang, J. Hu, G. Min, A. Y Zomaya and N. Georgalas, "Fast Adaptive Task Offloading in Edge Computing Based on Meta Reinforcement Learning," IEEE Transactions on Parallel and Distributed Systems, vol. 32, no. 1, pp. 242-253, 2021.

[9] Z. Chen, J. Hu, G. Min, A. Y. Zomaya and T. El-Ghazawi, "Towards Accurate Prediction for High Dimensional and Highly-Variable Cloud Workloads with Deep Learning," IEEE Transactions on Parallel and Distributed Systems, vol. 31, no. 4, pp. 923-934, 2020.

[10] G. Muhammad, M. F. Alhamid, M. Alsulaiman and B. Gupta, "Edge Computing with Cloud for Voice Disorder Assessment and Treatment," in IEEE Communications Magazine, vol. 56, no. 4, pp. 60-65, April 2018.

[11] A. Meslin, N. Rodriguez and M. Endler, "Scalable Mobile Sensing for Smart Cities: The MUSANet Experience," IEEE Internet of Things Journal, vol. 7, no. 6, pp. 5202-5209, June 2020, doi: 10.1109/JIOT.2020.2977298.

[12] Z. Sheng, S. Pfersich, A. Eldridge, J. Zhou, D. Tian and V. C. M. Leung, "Wireless acoustic sensor networks and edge computing for rapid acoustic monitoring," IEEE/CAA Journal of Automatica Sinica, vol. 6, no. 1, pp. 64-74, January 2019.

[13] G. Ananthanarayanan, P. Bahl, P. Bodík, K. Chintalapudi, M. Philipose, L. Ravindranath and S. Sinha, "Real-Time Video Analytics: The Killer App for Edge Computing," Computer, vol. 50, no. 10, pp. 58-67, 2017.

[14] Y. Xu and A. Helal, "Scalable Cloud–Sensor Architecture for the Internet of Things," IEEE Internet of Things Journal, vol. 3, no. 3, pp. 285-298, June 2016, doi: 10.1109/JIOT.2015.2455555.

[15] Y. Guo, B. Zou, J. Ren, Q. Liu, D. Zhang and Y. Zhang, "Distributed and Efficient Object Detection via Interactions Among Devices, Edge, and Cloud," IEEE Transactions on Multimedia, vol. 21, no. 11, pp. 2903- 2915, Nov. 2019.

[16] H. Sun, W. Shi, X. Liang and Y. Yu, "VU: Edge Computing-Enabled Video Usefulness Detection and its Application in Large-Scale Video Surveillance Systems," IEEE Internet of Things Journal, vol. 7, no. 2, pp. 800-817, Feb. 2020.

[17] J. Wang, J. Pan, F. Esposito, "Elastic urban video surveillance system using edge computing," Proceedings of the Workshop on Smart Internet of Things, 2017.

[18] Y. Zhang, H. Sheng, Y. Wu, S. Wang, W. Ke and Z. Xiong, "Multiplex Labeling Graph for NearOnline Tracking in Crowded Scenes," IEEE Internet of Things Journal, vol. 7, no. 9, pp. 7892-7902, 2020.

[19] S. E. Ebadi and E. Izquierdo, "Foreground Segmentation with TreeStructured Sparse RPCA," IEEE Transactions on Pattern Analysis and Machine Intelligence, vol. 40, no. 9, pp. 2273-2280, 2018.

[20] S. Ren, K. He, R. Girshick and J. Sun, "Faster R-CNN: Towards RealTime Object Detection with Region Proposal Networks," IEEE Transactions on Pattern Analysis and Machine Intelligence, vol. 39, no. 6, pp. 1137-1149, 2017.

[21] B. Peng, W. Wang, J. Dong and T. Tan, "Optimized 3D Lighting Environment Estimation for Image Forgery Detection," IEEE Transactions on Information Forensics and Security, vol. 12, no. 2, pp. 479-494, 2017.

[22] W. Liu, D. Anguelov, D. Erhan, C. Szegedy, S. Reed, C. Y. Fu, A. C. Berg, "Ssd: single shot multibox detector," Computer Vision - ECCV 2016, Lecture Notes in Computer Science, vol. 9905, pp. 21-37, 2016.

[23] G. Song, Y. Liu, Y. Zang, X. Wang, B. Leng, Q. Yuan, "Kpnet: towards minimal face detector", 34th AAAI Conference on Artificial Intelligence, vol. 34, no. 7, 2020.

[24] J. Hu, L. Shen, S. Albanie, G. Sun and E. Wu, "Squeeze-and-Excitation Networks," IEEE Transactions on Pattern Analysis and Machine Intelligence, vol. 42, no. 8, pp. 2011-2023, 2020. Authorized licensed use limited to: Syracuse University Libraries.

[25] I. Ahmed, S. Din, G. Jeon and F. Piccialli, "Exploring Deep Learning Models for Overhead View Multiple Object Detection," IEEE Internet of Things Journal, vol. 7, no. 7, pp. 5737-5744, 2020.