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Survey Paper on Social Spacing using Yolov3

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Abstract - *Physical isolation refers to the avoidance of close contact with other people as one of the measures to prevent the spread of diseases such as COVID 19. A recent study has shown that using the modern approach of the video analytics based on deep learning algorithms, including YOLOv3, the distances between the individuals can be monitored and controlled appropriately. The following is a list of methods suggested by researchers for enhancing social distancing uses of YOLOv3.*

1. INTRODUCTION

It turns out that the physical isolation of people from each other has become one of the obvious approaches being put into practice to prevent the spread of communicable illnesses such as coronavirus. The importance of innovation to imitate and ensure that the policies on social distancing are followed can be ensured by adopting sophisticated techniques like The YOLOv3 algorithm.

Considering the fact YOLOv3 is an effective algorithm for object detection the model has been studied in several researches for applying in social distancing. Scientists have suggested very progressive approaches using YOLOv3 to monitor social distancing. These approaches include identifying people in areas such as business and social setups then estimating their distance toward one another as a method of observing social distancing. Through deep learning frameworks, these systems can easily recognize the human beings using YOLOv3 and track them thereby improving the implementation of the supposed social-distancing measures.

More than that, the integration of YOLOv3 with other technologies such as drone, IoT, and AI has also expanded the opportunities of social distancing monitoring systems. They can provide information on violations of social distancing, send notifications, and play an essential role in mitigating the transmission of communicable diseases. Summing up, the proposed social distancing applications based on YOLOv3 present modern way to solve such issues in public health. Such systems incorporating the use of real time surveillance integrating deep learning capability presents a effective means of assessing the compliance levels of the populations to measures such as social distancing to minimize contact transmission in different environment.

2. LITERATURE SURVEY

The use of YOLOv3 in deep learning frameworks has over the past few weeks helped a lot in identifying social distancing monitoring systems. Promising future developments in improving gratitude, attention, and emotion recognition can be achieved by embedding YOLOv3 in object detection to improve surveillance, detection, and enforcement of social distancing measures during the spread of contagious viruses.

[**Error! Reference source not found.**] The article under analysis titled "A deep learning-based social distance monitoring framework for COVID-19" is the work of Ahmed et al. (2021) and is published in the Sustainable Cities and Society journal which elaborates a framework concerning the perspective from above and monitoring social distancing in public campus environments. This framework would achieve that through application of deep learning especially in the areas of computer vision and improve the process of monitoring and enforcing social distancing to put down the rate of spread of Covid-19. Thus, the findings of this research may be invaluable for the application of state-of-the-art approaches, deep learning in this case, for the mitigation of the threats posed by the COVID-19-like phenomena for the public health. Thus, the study, devoted to the analysis of the role of the technologies in monitoring social distance and provision of individuals with recommendations on compliance with preventive measures during infectious disease outbreaks, demonstrates the importance of technological support of population in terms of preventing the spread of infections and protecting people's health.

[2] The investigated work from Hou et al. (2020) looks at the possibility of detecting social distancing through deep learning models. To contain the impact of COVID-19, the study presents a methodology for estimating distances using deep learning, whereby distance refers to the extent of separation between

people. Therefore, with the help of previewed technologies such as deep learning, this study seeks to develop a reliable guideline for assessing as well as promoting different measures of social distancing across different settings, and in line with this goal, it will employ a deep learning model. Discussed by Hou et al. (2020), the research fits into the given area of social distancing detection within a wider context of using technology to approach population health issues. This includes making recommendations on how to monitor and control social behaviors and movement in an effort to prevent transmission of fatal diseases and illnesses using deep learning models in the field of artificial intelligence. The focus on the use of deep learning models is a move towards the use of higher and automated methods to address compliance of the social distancing guidelines.

[3] In their study published in IEEE Sensors Letters, Walia et al. (2021) have proposed a new approach performing social distancing and face mask detection using Stacked ResNet-50 and YOLOv5. To address these observed weaknesses, the authors suggest that the real-time surveillance system will analyse the video feeds and identify those who are not observing social distance and those not wearing their face masks correctly. Analyzing the outcomes of studies into the effectiveness of preventive measures to stop the spread of COVID-19, one can note the relevance of developing a single integrated system based on the Stacked ResNet-50 for face mask detection and YOLOv5 for social distancing monitoring. This model serves to improve on the monitoring of social distancing and face mask compliance while implementing advanced deep learning technique such as Stacked ResNet-50 and YOLOv5. With real-time capability of the system, offenders of the set safety measures can be easily detected and dealt with, thus effectively enhancing the implementation of precautionary measures across the society, commercial places, workplace, and healthcare institutions.

[4] Yang et al. (2021) have proposed a vision-based approach for SD and CDD for COVID-19. Density was detected with a monocular camera for the successful dispersal of groups to ensure social distancing and curtail the spread of COVID-19 as noted by Yang et al., (2021). Through the use of vision technologies and artificial deep learning, the system was designed to monitor and ensure adherence to social distancing measures in order to curb onset of the virus. In the study done by Yang et al (2021), the effect of lockdown or social distancing is seen to be strongly encouraging in preventing the spread of the COVID-19. Their approach prioritizes physical distancing by avoiding close contacts and urges people not to cluster and adhere to social distancing protocols. Yang et al. (2021) present a system that uses computer vision and deep learning to address social distancing, which appears to be a feasible application for monitoring and ensuring the Implementation of social distancing measures across different contexts and useful in trying to reduce the spread of contagious diseases such as COVID-19.

[5] Sahoo (2023) presents a research paper featuring a model that is based on deep learning techniques for estimating adherence to basic guidelines such as social distancing among people in common areas during the COVID-19 outbreak. The study employs video object detection methods to predict the level of compliance with set social distancing protocols a people's settings. To ensure continuing compliance to social distance measures and prevent future pandemics like COVID-19, the proposed model utilizes deep learning algorithms to improve surveillance and compliance. This innovative approach is in equal measures in line with other strategies being employed to combat the effects of the ongoing pandemic through advanced technologies including artificial intelligence. The study developed in this paper is helping towards building proactive solutions to enforce social distancing measures through analyzing videos, to maintain desired behaviors regarding prevention measures in public spaces. The enhancement of deep learning in the social distancing prediction illustrates the use of technology based on modeling of disease control to prevent the spread within public health emergencies. Therefore, it can be concluded that 's (2023) study highlights the usefulness of the application of various types of hybrid deep learning models to predict the public adherence to the social-distancing norms that take place in the public areas, in order to suggest a beneficial line for the development of improved methods to monitor the population and prevent the further spreading of COVID-19.

[6] In their paper titled 'Face Mask and Social Distance Monitoring via Computer Vision and Deployable System Architecture' published in Intelligent Automation & Soft Computing , Ratul et al. (2023) outline a solution that will help monitor the level of adherence to the use of face masks and the level of adherence to social distancing in real-time. The study Specifically, aims at establishing an intelligent system that would fare well to monitor the compliance to the face mask usage and social distancing measures. The system mentioned in this paper is intended to be used in an embedded system, which reflects functionality and use in real world scenarios. This contributes to the interest of applying computer vision technologies in strengthening the taken public health approaches during the COVID-19 pandemic to create proper means of monitoring the non-compliance with preventive guidelines. The study further focuses on the impact of technology in managing large crowds and upholding public health safety standards by monitoring mask-wearing and social distancing protocols.

[7] The article by Subbiah, W. et al.; 2022 is centered around the implementation of safe transportation during the COVID-19 period using machine learning. Another

aspect can be considered the problem of recognizing the observance of social distance in cars using the YOLOv3 object detection algorithm. The current study uses YOLOv3 to detect whether passengers are following appropriate social distances while using any form of transport so as to lean towards promoting safety and health standards within transportation systems. This research also concludes the importance of using innovative technologies such as artificial intelligence and YOLOv3 in particular to solve issues that has been brought by the pandemic in the transport system. Thus, applying YOLOv3 for social distancing in cars, this study provides a realistic solution to strengthen preventive measures and reduce the possibility of virus spread in cabins including taxis, buses, or other pooled transport modes. Therefore, 's (2022) research seems to contribute to understanding the tasks of safer transportation during COVID-19 using ML approach, including the YOLOv3 algorithm. With the implementation of such technologies, transportation systems are in a position to continue operation and embrace the new normal measures for social distancing as a way of protecting passengers, as well as reducing the spread of the virus.

[8] Adhinata et al (2021) considers the social distancing system wherein the YOLOv3 algorithm is used for the identification of people. It is the proposed system which intends to improve the social distancing practices based on the detection of people and the distance measurement between each one of them based on the Euclidean Distance. By integrating the YOLOv3 algorithm the object detection method, it will be possible to locate people in the floor and determine the availability of distance between two individuals to enforce physical distancing. It assists in designing the approach for managing the adherence with social distancing measures and other preventive measures in cases of disease outbreaks and pandemics including the COVID-19.

[9] The paper titled 'Social Distance Monitoring Using Drones' by, Jahirul Islam, Md. Abdullah Al Hafiz, Shorif Sadique Uddin, Md. Ataur Rahman and Hasan Al Mamun published in the International Journal of Advanced Trends in Computer Science and Engineering in 2021 describe a approach for the detection of people and evaluation of social distancing violators utilizing, object detection, clustering and Convolutional Neural Network binary This paper also presents a drone-based approach of social distance monitoring with the centrality of drone application in surveillance discussed in this study (Ahmed et al., 2021). Using the drone's camera and the YOLO-V3 algorithm proposed a multi-camera Birds Eye View Video Surveillance System for the identification of the individuals and ensuring social distance as well as not wearing a mask (Montero et al. , 2023). Also designed a deep learning –empowered drone for masks detection and social distance calculation and showed how drones are capable of performing public health interventions (Meivel et al. , 2022). Furthermore, presented the concept of a system for monitoring social distancing with different lighting conditions at the YOLO v4 object recognition and a single motionless ToF camera for evaluating the distance (Rahim et al. , 2021). Also, an advanced real-time SDM strategy was introduced by using a motionless monocular ToF camera and DLA for object detection (Rahim et al. , 2022). In conclusion, it can be dated that the utilization of drones in conjunction with deep learning algorithms such as YOLO V3 has enhanced the possibility to propose novel solutions for social distancing compliance. These technologies help in applying social distances easily, effectively, and sustainably to help prevent the cause of infections, including COVID-19.

[10] The research paper by Elhanashi et al. (2023) proposed a system that combines Artificial Intelligence with Video Measurement Techniques in order to track social distancing, mask wearing, and face thermal screening during COVID-19. This study aims to propose a lightweight deep learning model to address the problem of multitasking with faster real-time capability for social distancing, mask detection, and facial temperature screening as a method to control the virus among the people. The general research questions, therefore, seeks to answer the following questions; How can co-primary areas effectively monitor and enforce preventive measures to contain the spread of COVID-19 Virus? These aspects point to the necessity of the proposed system, which bases on the use of ambiguous technologies like artificial intelligence and video analysis to monitor multiple facets of disease prevention: social distancing, wearing appropriate protective gear, and screening body temperature. Despite the fact that this approach seems challenging to implement, the combination of artificial intelligence algorithms with video measurement techniques can increase the efficiency of the system to analyze videos on the fly, which later help for detecting any violations of social distancing norms, wearing masks or having high facial temperature. This ability to monitor and predicted possible incidents, which can lead to an outbreak of the virus, enables the necessary action to be taken immediately and restrict the spread of the virus in different environments, like workplaces, schools, and even public transport. Moreover, the study stresses the significance of adopting lightweight deep learning techniques for, the feasibility and effectiveness of the proposed monitoring system. Hence, by creating multiple analytic tasks that can enable a broad and simultaneous analysis of different compliance indicators that need to be monitored, this research adds to strengthening of disease control measures by presenting an integrated decision support solution. Conclusively, the study by Elhanashi et al. (2023) is a valuable contribution to the already existing field of AI-assisted monitoring of COVID-19. This if further accompanied by the application of video measurement techniques and artificial intelligence

to create a robust means of ensuring compliance to measures such as social distancing, wearing of masks and even screening for fevers through facial recognition in real-time – as seen in the fight against the coronavirus.

[11] Abraham et al. (2022) examined the study "Social Distance Detection" which resulted in the use of powerful technologies, YOLOv3 and other convolutional neural network based techniques in combination with distance measurement approach to detect the people and prevent violation of social distancing (Abraham et al. , 2022). The study was meant to improve the face identification in scenarios, thus useful in forcing social distance to reduce the impacts of a disease, such as COVID–19. Abraham et al. (2022) highlighted the importance of solution in order to maintain social distancing measures in the COVID-19 pandemic, where YOLOv3 along with convolutional neural networks helps to detect humans and measure distances between them to follow social distancing norms. This is in line with more extensive trends for harnessing technology for public health tasks and underlines the viability of deep learning algorithms to solve real-world problems (Abraham et al. , 2022) . On the other hand, Abdelrahman (2020) concentrated on the personality traits, risk perception, and protective measure among Arab residents in Qatar during the COVID 19 outbreak where the author highlighted difference in personality and how it influences their response towards the pandemic and the degree of following the social distancing measures (Abdelrahman, 2020). Even though the current work seeks to explore the psychological predisposition to social distancing, it does not look at the technological aspects of actual social distance measurement through techniques such as YOLOv3. Likewise, something that could be discussed regarding the use of SEIS is the Mars seismic experiment for internal structure of Mars, which, while concerning scientific exploration, does not relate to social distance detection or employs YOLOv3 for COVID-related applications (Lognonné et al. , 2019; . Telecommuting, hydroisolated, and restrictions of interpersonal contacts have drawn the attention of Parnell et al. , 2020 to examine and analyze networks and sports which in turn, highlighted social distancing to minimize the interaction between people; though related to the concept of social distancing, it does not pinpoint on the ability to detect social distance based on the deep learning algorithm such as You Only Look Once v3 (YOLOv3) noted.

[12] The study by Byali et al. (2022) titled "Real Time Social Distance Detection: "A Covid 19 Contamination Prevention Measure, an article featured in the International Journal of Research Publication and Reviews suggests how computer perception and deep Convolutional Neural Networks can be utilized to monitor the social distance of people in real-time. This study is aimed at identifying how different innovative technologies can be used to create a system that can enforce social distancing as a measure to preventing the spread of COVID-19. These findings fall under a larger, well-established literature that seeks to explore the effectiveness of social distancing in preventing the further transmission of COVID-19. Several investigations have emphasized that factors such as social distancing can be effective in preventing the spread of the virus (Kwon et al. , 2021), supervising violations of social distancing rules (Chen et al. , 2022), and the effects of social distancing on COVID-19 morbidity and mortality (Alimohamadi et al. , 2020). Thirdly, the proposed technology solutions such as YOLOv3 social distance measurement and AI-based systems for monitoring non-compliance to social distance measures Babulal et al. (2022) supports the relevance and applicability of the proposed tech-based approaches in enforcing social distance measures. Related to the existing academic studies, this research promises to make a significant contribution and shows the effective apply of the technology in the enhancement of public health during the COVID-19 outbreak. It also benefits from what technological advancements of computer vision and deep learning algorithms of real-time social distance detection to prevent the spreading of the virus, and, at the same time, demonstrate the potential of innovative solutions in the field of public health interventions.

[13] The research work done by Ming et al. (2022) in the pertanika journal of science and technology it is titled as "Data Safety Prediction Using Bird's Eye View and Social Distancing Monitoring for Penang Roads". The study focuses on combining bird's eye view technology with that of monitoring the adherence to social distancing in order to enhance the assessment probabilities of data safety on roads within Penang. Following this approach provides a broad view to simultaneously oversee road activities for monitoring social distancing compliance alongside improving safety measures put in place. Yang et al. (2018) noted that bird's eye view was a new and relatively frequent projection of real-time 3D object detection from point clouds, and this concept could be useful to Ming et al. in determining how thisview was helpful in predicting the safety of data. Also, Gupta et al. (2021) previously presented LiDAR accuracy for 3D object detection in bird's-eye view and developed a foundation upon which Ming et al. 's works were based on. Moreover, Ming et al. 's study identifies the "social distancing monitoring" aspect as its primary focus; regarding this aspect, Yang et al. (2021) proposed a "Birds Eye View Social Distancing Analysis System," which, while different from Ming et al. 's study, is an idea compatible with it. The system aims to use bird's eye view video recordings of pedestrians. Further, practical research by Magoo et al. (2021) proposed a bird's eye view social distancing monitoring system that employed a deep learning method on surveillance videos, providing useful information in real-world applicability of the system for preventing the disease transmission.

[14] The Ismail et al. (2022) offers a new idea in the design of an SSDMS system based on the deep learning method. Its premise entails the use of a deep neural network to design a monitoring system that analyzes social distancing in certain places. Through evaluating the www.assessingmodelperformancecom and developing a mechanism in which the authorities can monitor social distancing practices, this research enhances the development of enforcement technologies for social distancing practices effectively. When it comes to monitoring social distancing, it has been seen by different researchers that, deep learning can be used. For example, Ahmed et al. (2021) proposed a deep learning based at a glance social distance monitoring framework for monitoring social distancing violations in public campus environments, while highlighting the need for over-head point of views. For instance, Yang et al. (2021) presented a real-time vision-based system for social distancing enforcement to respect people's privacy without the need for personal data collection by applying advanced deep learning techniques in the form of audio and visual cues. Moreover, Menugonda & Lohitha (2022) present a system to detect the individuals and check adherence to the social distancing norms using AI through YOLOv3 algorithm, thus enforcing the preventive measures through generating real-time alerts. Altogether these studies suggest the importance of deep learning, specially YOLOv3 in designing effective social distancing monitoring schemes for controlling the outbreak of communicable diseases of COVID-19 type.

[15] A study by Sadanand et al. (2022) entitled 'Social distance and face mask detector system exploiting transfer learning ' focuses on an approach to encourage people to follow recommended rules on the use of face masks and maintaining social distance by training a transfer-learning based object-detection model. Subsequently, the authors aim to improve the performance of the detection system using transfer learning methodologies in the context of e-health compliance with COVID-19 preventive measures. The features include the human detection algorithm – YOLOv3 which helps in detecting people, then determine if the people are in compliance or not with physical distancing regulations as well as identifying whether there are masked individuals or not. Pre-trained model using transfer learning is used to tweak an existing model towards the specific goal of identifying violators of social distancing and people not wearing face masks. It makes it possible for the system to acquire new knowledge from actual data and from models that it is able to build, which helps it to improve the performance of the system when applied in the field. The COVID-19 pandemic situation has shown that the methodology expressed by Sadanand et al. (2022) has the potential to become an effective tool for public health promotion, as it uses transfer learning and object detection. The use of more sophisticated techniques such as YOLOv3 and transfer learning also brings attention to the significance of precluding innovation as a key aspect in the creation of practical solutions that may aid in adhering to necessary safety measures within diverse contexts.

[16] In the scientific study conducted by Othman & Aydin (2022), the authors proposed a new way of preventing COVID-19 propagation by developing a UAV social distance detection model. This research presents an interlinked innovative system through the IoT framework and computer vision and deep learning system for the early detection and control of COVID-19 transmission. In enhancing the efficiency of social distancing measures, this study aims at proposing the detector with UAVs composed of advanced sensors to achieve the capabilities for processing complex applications. The integration of IoT makes it possible for data to be collected and transmitted and computer vision plays an important role in the real-time assessment of the levels of compliance with social distancing protocols. Machine learning approaches, in particular YOLOv3 approach, is used to recognize people and determine how they are positioned in order to maintain physical distancing. Altogether, it is evident that the incorporation of all the aforementioned technologies is a natural and logical approach to develop a reliable and efficient system for COVID-19 surveillance and prevention. Integrating UAV technology with the most advanced solutions enables the development of the UAV-based social distance detector that may be viewed as a viable option in the context of COVID-19 challenges. This study highlights the value of multidisciplinary integrational practices in harnessing the technology utilities to improve pandemic response in civilation health.

[17] The paper by Menugonda & Lohitha (2022) that has been conducted focuses on the development of a real-time AI-based system which detects people and maintains social distance to halt the spread of viral diseases. This system employed the use of artificial intelligence, where it uses a deep convolutional neural network for monitoring and identifying social distancing violators. The use of YOLOv3 algorithms means that the system continuously calculates the distances between people and sends out notifications to remind them about adhering to the social distancing measures. This conception could be the use of further developed technology to solve the existing problem of monitoring and controlling the process of maintaining social distance, which is essential in combating the spread of infections. Incorporating artificial technology and deep learning alongside the YOLOv3 algorithms, the system provides a predictive intervention for maintaining health security and preventing the threat of contagious viruses.

[18] As disclosed in the study by Bharathi & Anandharaj (2022), a newly designed real-time deep learning approach for object detection, tracking, and

monitoring the social distances using YOLOv5 is proposed. The study aims at selecting YOLOv5 with an approach for tracking multiple objects to come up with optimal results for the object categorization and localization that is important for traffic surveillance video analysis. From this work, YOLOv5's capacity to track objects and, concurrently recognize and enforce social distancing is evident, and this is critical in the context of combating the COVID-19 scourge. Deep-learning methods, including YOLOv5, have recently shown promising results for social distance monitoring, offering real-time insights and improving the surveillance process. Ahmed, Al-Alaoui, Mozaffari, and Ghafoorian (2021) pointed out the observer that deep learning has enhanced the object detection in an efficient manner to improve social distance monitoring frameworks. This goes to show that it is necessary to enhance other social distance monitoring systems using rmore advanced algorithms like YOLOv5 to enhance the accuracy and speed of the systems. Also, Ansari & Singh (2021) considered the use of human detection methods for action recognition systems where they underlined that object recognition methods can contribute to the surveillance of social distancing to contain the virus. That is why the usage of such technologies, as YOLOv5, in different contexts to track individuals and their possible non-adherence to the measures of social distancing, is highly important. Similarly, Othman & Aydin (2022) introduced an IoT, computer vision and deep learning based UAV social distance detector which shows how drones have multi-faceted and can be used to solve any problems hat are relating to the public health crises such as COVID-19. This is in line with the uses of YOLOv5 on monitoring social distances which proves that the discovery can be employed to design new solutions for preventing the spread of diseases. Yang et al., in their research study published in 2021, proposed a system based on vision for social distancing and crucial density estimating with regard to the real-time methods of detecting social distancing violators using deep learning paradigms to their fullest extent. This echoes the fact that Bharathi and Anandharaj Bharathi & Anandharaj (2022) in their intervention involving the use of YOLOv5 for real-time object detection and social distance monitoring pointed to the need to adopt advanced technologies in fighting health issues affecting the society.

[19] In the current study titled "Artificial Intelligence Based Social Distance Monitoring in Public Areas", Albayrak, (2022) expounds on applying artificial intelligence, that is YOLOv3, aimed at enforcing the social distancing protocol in the public. This paper aims at assessing deep learning approaches in ensuring the right measures are taken for containment of the spread through social distancing measures. have been at the forefront of adopting deep and enhanced learning-based methodologies for social distance monitoring via YOLOv3. Their research concerns itself with enabling YOLOv3 for direction detection of object presence and subsequently, calculating distances of individuals and hence, easily identifying cases of social distancing violations. Their work also stresses the importance of vigilance in monitoring and decoding the public space in order to enforce social distancing measures. Furthermore, Valencia et al. (2022) have looked into the YOLOv4-tiny 3 method, as well as the DeepSORT tracking algorithm in regards to the top-view camera point of view regarding crowd counting and social distancing monitoring. This approach highlights that no matter the application, more iterations always improve the YOLOv3-based models. In summary, the use of YOLOv3 in artificial intelligence frameworks may have possibilities in broadening the horizons of checking social distance in public spaces. Through integrating sophisticated deep learning methods into the YOLOv3-based object detection approaches, the researchers have achieved significant strides in the systems that can effectively enforce practical social distancing in tackling epidemic diseases.

3. CONCLUSION

In conclusion, the survey paper: 'Application of YOLOv3 for Social Distancing: A Survey Study' offers a coherent and informative introduction to contemporary advances in computer vision technology and its potential role in addressing crises in public health. The YOLOv3 model of object detection, a deep learning architecture that is considered fast and accurate, has been used to assist authorities attempt to manage social distancing measures around the world during this pandemic. The real-time aspect of YOLOv3 has been used beneficially in various fields and research studies in relation to crowd density, people in the same region, and violation of safe distances with the creation of alerts.

The paper focuses on social distancing as one of the most effective preventive measures to reduce the incidence of infection with viral vectors, especially in today's populated society where access to public spaces is inevitable but physical distancing can be very difficult. By bringing the YOLOv3 algorithm into surveillance systems, real-world compliance with social-distancing norms, sustainable interventions can be established to reduce transmission. The application of deep learning models like YOLOv3 has transformed the computer vision field because the model makes it possible to analyze video streams quickly, detect the individuals even in different situations.

Another of the biggest advantages of YOLOv3 is its ability to detect several objects at once with comparably high accuracy, which makes this algorithm especially suitable for real-time use cases that necessitate fast and effective recognition of individuals violating social distancing rules. Through training the YOLOv3 model using marked datasets that illustrate correct and/or incorrect way of

social distancing, researchers can potentially retrain the algorithm to recognize spacing patterns that correlate with non-adherence.

All in all, the survey paper is useful to identify the developments of YOLOv3 in the real-world scenarios related to applications of social distancing and to measure the possible effects of this innovative technology on public health services and security. Consequently, by adopting the approach that combines the use of advanced deep learning algorithm, YOLOv3, with the existing surveillance system and methodologies, the researchers and practitioners can add their value in enhancing the efficiency of practices aimed at social distancing measures and mitigating the risks of the spread of infectious diseases in different contexts. The survey paper findings provide a groundwork from which further developments in computer vision for Public Health will be born to solves new problems in disease control at an innovative level.

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