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YOLOv4–Based Monitoring Model for COVID–19 Social Distancing Control

| Conference paper | First Online: 04 September 2021

| pp 333–346 | [Cite this conference paper](#)



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 Part of the book series: [Smart Innovation, Systems and Technologies](#) ((SIST, volume 235))

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Abstract

The coronavirus disease 2019 (COVID–19) has appeared in December 2019 at Wuhan city, China. The virus started spreading over the world. Most of the governments have taken different measures to prevent the outbreak. Social distancing (SD) is one of the effective

solutions to prevent the spread of COVID-19, in which people should maintain a specific distance between each other. This paper aims to provide a YOLOv4-based model for monitoring social distancing. The model begins by taking a video/picture as input and generating warnings of SD violation. The YOLOv4 we used in this model detects pedestrian's people in public places such as streets, malls, train stations, and universities based on deep learning techniques. The model uses a predefined SD threshold (SDTH) and a violation index (VI) to determine when the violation occurs and trigger a warning sub-system to make an awareness action immediately. A comprehensive investigation and discussion on the existing literature of SD, object detection methods, and SD monitoring have also been provided in this paper. The model provided is supposed to operate continuously in the targeted places to monitor people, thus reducing the impact of COVID-19 spread.

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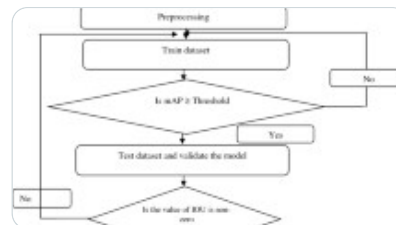
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Cite this paper

Shareef, A.A.A., Yannawar, P.L., Abdul-Qawy, A.S.H., Ahmed, Z.A.T. (2022). YOLOv4-Based Monitoring Model for COVID-19 Social Distancing Control. In: Somani, A.K., Mundra, A., Doss, R., Bhattacharya, S. (eds) Smart Systems: Innovations in Computing. Smart Innovation, Systems and Technologies, vol 235. Springer, Singapore. https://doi.org/10.1007/978-981-16-2877-1_31

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DOI
https://doi.org/10.1007/978-981-16-2877-1_31

Published
04 September 2021

Publisher Name
Springer, Singapore

Print ISBN
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Online ISBN
978-981-16-2877-1

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