



Oct 22, 2021

Multi-layer Hybrid Classification Model of COVID-19 Chest X-ray Images

Thanakorn Poomkur¹¹Data Science, College of Digital Science, Prince of Songkla University, Thailand

1

dx.doi.org/10.17504/protocols.io.by9kpz4w

Thanakorn Poomkur

Data Science, College of Digital Science, Prince of Songkla ...

DISCLAIMER – FOR INFORMATIONAL PURPOSES ONLY; USE AT YOUR OWN RISK

The protocol content here is for informational purposes only and does not constitute legal, medical, clinical, or safety advice, or otherwise; content added to protocols.io is not peer reviewed and may not have undergone a formal approval of any kind. Information presented in this protocol should not substitute for independent professional judgment, advice, diagnosis, or treatment. Any action you take or refrain from taking using or relying upon the information presented here is strictly at your own risk. You agree that neither the Company nor any of the authors, contributors, administrators, or anyone else associated with protocols.io, can be held responsible for your use of the information contained in or linked to this protocol or any of our Sites/Apps and Services.

The coronavirus disease of 2019 (COVID-19) has been declared a pandemic and has raised worldwide concern. Lung inflammation and respiratory failure are commonly observed in moderate-to-severe cases. Radiography or chest X-ray imaging is compulsory for diagnosis, and interpretation is commonly performed by skilled medical specialists. In this study, we propose a new computer-aided diagnosis (CADx) tool for identifying chest X-ray images of COVID-19 infection using a multi-layer hybrid classification model (MLHC). The MLHC-COVID-19 consists of two layers, Layer I: Healthy and non-Healthy; Layer II: COVID-19 and non-COVID-19. The MLHC-COVID-19 was evaluated in real COVID-19 cases. The classification results showed promising performance comparable with other existing techniques considering the accuracy, sensitivity, and specificity of 96.20%, 96.20%, and 0.971%, respectively. This demonstrates the effectiveness of the MLHC-COVID-19 in classifying chest X-ray images, enhancing the accuracy of chest X-ray image interpretation with a reduction in the interpretation time. Furthermore, a detailed comparison of the MLHC-COVID-19 with other techniques has been presented.

DOI

dx.doi.org/10.17504/protocols.io.by9kpz4w

Thanakorn Poomkur 2021. Multi-layer Hybrid Classification Model of COVID-19 Chest X-ray Images. **protocols.io**
<https://dx.doi.org/10.17504/protocols.io.by9kpz4w>



Artificial Intelligence, computer-aided diagnosis, Machine Learning, COVID-19

_____ protocol ,

Oct 20, 2021

Oct 22, 2021

54284

:

DISCLAIMER – FOR INFORMATIONAL PURPOSES ONLY; USE AT YOUR OWN RISK

The protocol content here is for informational purposes only and does not constitute legal, medical, clinical, or safety advice, or otherwise; content added to [protocols.io](https://dx.doi.org/10.17504/protocols.io.by9kpz4w) is not peer reviewed and may not have undergone a formal approval of any kind. Information presented in this protocol should not substitute for independent professional judgment, advice, diagnosis, or treatment. Any action you take or refrain from taking using or relying upon the information presented here is strictly at your own risk. You agree that neither the Company nor any of the authors, contributors, administrators, or anyone else associated with [protocols.io](https://dx.doi.org/10.17504/protocols.io.by9kpz4w), can be held responsible for your use of the information contained in or linked to this protocol or any of our Sites/Apps and Services.

1

2

