

Title: A light-weight and generalizable deep learning model for the prediction of COVID-19 from chest X-ray images

Author Names: Md Jakaria Zobair, Refat Tasfia Orpa, Mahir Ashef, Shah Md Tanvir Siddiquee, Narayan Ranjan Chakraborty, Ahsan Habib

Abstract: The detection of coronavirus disease (COVID-19) using standard laboratory tests, such as reverse transcription polymerase chain reaction (RT-PCR), is time-consuming. Complex medical imaging problems are currently being solved using machine learning and deep learning techniques. Our proposed solution utilizes chest radiography imaging techniques, which have shown to be a faster alternative for detecting COVID-19. We present an efficient and lightweight deep learning architecture for identifying COVID-19 using chest X-ray images which achieve 99.81% accuracy in intra-database testing and 100% accuracy in cross-validation testing on a separate data set. The results demonstrate the potential of our proposed model as a reliable tool for COVID-19 diagnosis using chest X-ray images, which can have a significant impact on improving the efficiency of COVID-19 diagnosis and treatment.

Keywords: Chest X-ray images; COVID-19; COVID-19 detection; Neural network; Transfer learning

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