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A novel deep learning tool for the diagnosis of COVID-19

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Background: A new challenge has been raised after the explosion of the infection of the Coronavirus. To facilitate treatment and diagnosis of the Coronavirus and support the medical opinion to define the future effects of Coronavirus especially in the case of cancer, a new Deep Learning (DL) model is designed and tested. Methods: The textual and image information of cases introduced by “Italian Society of Medical and Interventional Radiology” and some other resources were transformed into a complete database consisting of 120 cases, 28 attributes and four classes (COVID-19, H1N1, Pneumonia and Normal). The GoogleNet DL network is used to build the image model. Results: The designed tool got 95% accuracy for COVID-19 diagnosis and 72.43% for other-classes accuracy. Conclusions: Based on the textual and image models, a new tool is designed and used for the diagnosis of COVID-19 in order to support the medical decisions and minimize the required time to prove the presence of infection. The results of study can be used to analyse and predict future occurance of lung cancer for Covid-19 patients.

Keywords: Coronavirus, Deep Learning, Lung CT, Image processing, Lung Cancer.

Biography:

Ali Mahmoud Mayya have the degree of PhD of computer engineering with rate 94%, Tishreen Univ. Lattakia, 2017. I have the degree of MSc. of computer engineering with (93.33%), Tishreen Univ. Lattakia, 2013. Degree of b.sc. of electronic engineering, department of computer and automatic control engineering (83.52%), Tishreen Univ. Lattakia, 2010. Certificate from Sohaj University- EGYPT, faculty of Science, department of Math science, 2009 in C# programming, Image Processing, Matlab, Neural networks. Seven years as a teacher at department of computer engineering, Tishreen University, Syria, (2011-2018). Four years as teacher at faculty of Medical Engineering, Al-Andalus University at 2014-2015, 2015-2016, 2016-2017 and 2017-2018.