

# A Comparative and Extensive Study of Covid-19 Diagnosis Using Lung Ultrasound Images

Anjelin Genifer Edward Thomas\*

Department of Science and Technology, SRM University, Ramapuram, Chennai

\*Corresponding author: Anjelin Genifer Edward Thomas, Department of Science and Technology, SRM University, Ramapuram, Chennai, E-mail: anjelin\_genifer@yahoo.co.in

**Received date:** January 30, 2022, Manuscript No. IPMCR-22-12462; **Editor assigned date:** February 01, 2022, PreQC No. IPMCR-22-12462 (PQ); **Reviewed date:** February 15, 2022, QC No. IPMCR-22-12462; **Revised date:** February 20, 2022, Manuscript No. IPMCR-22-12462 (R); **Published date:** February 27, 2022, DOI: 10.36648/2349-3917.10.2.134

**Citation:** Thomas AGE (2022) A Comparative and Extensive Study of Covid-19 Diagnosis Using Lung Ultrasound Images. Am J Compt Sci Inform Technol Vol.10 No.2: 134

## Description

The COVID-19 pandemic has created a global health epidemic that has impacted all aspects of human life and brought the world to a standstill. The most imperative requirement of COVID-19 diagnosis is early identification of the disease. For achieving this, the ML algorithm helps to speed up the process while conserving cost and energy. After conducting a thorough background investigation, it became clear that there are few surveys focused on COVID-19 events. Therefore, this study provides comprehensive information on Lung Ultrasound markers in COVID-19 using real-time. In this paper, huge potential efforts are made to study the roadmap of lung ultrasound markers with the detail of COVID-19. In the end, this paper also highlights the analysis of COVID-19 crisis in various domains. The feasibility of ultrasound in COVID-19 patients is clear from the survey. Detecting irregular B lines and pleural lines or traces from LUS images will help in prompt diagnosis and control of the on-going COVID-19 pandemic. The various deep learning models will make diagnosis easy and accurate, helping doctors and staff on the front line in this pandemic situation especially RVM which has better performance as compared to SVM or NN.

## Lung Ultrasound

SARS-CoV-2 ranks third in the most commonly diagnosed coronavirus, with the ability to cause pneumonia in few of the infected people and very few cases requiring emergency care. Originating from China in a place called Wuhan, it has spread to the whole world. As the spread of COVID-19 spreads, there is a strong need for quick and reliable testing and decision-making tools. Since the external signs are identical to those of flu, diagnosis requires clinical trials. Prompt prognosis and contact tracking are key components of the COVID-19 emergency preparedness to constraint the virus from spreading further. With the proliferation of latest patients, mainly the ones in want of emergency care, fitness experts can examine the effect of vital control decisions. Although CT is a well-established method of detecting COVID-19, it has several disadvantages that prevent its widespread use: CT is not broadly available, the time to get results are long, and most critically the device is not

transferable and patients have to be transferred. The lack of evidence for illness trends in lung US, primarily B-lines and pleural line abnormalities, support LUS during the COVID-19 pandemic. LUS for COVID-19 has diagnostic accuracy comparable to CT and is even more sensitive in detecting pulmonary imaging biomarkers. As a result, in triage or resource-constrained situations, LUS can be a useful tool that can be used as a globally accessible first-line inspection approach to direct cascade testing. Furthermore, determining the relevant LUS pattern can be difficult, requiring time and qualified personnel. This brings to mind medical image recognition systems based on Machine Learning (ML), which are intended to be used as clinical support tools for doctors, assisting with data collection, patient diagnostics, and monitoring.

## Need for the Survey

In the desperate attempt to fight the COVID-19 pandemic, various experiments have been carried out in various directions, and DL combined with medical imaging technology has also been carefully studied to find the final solution. One of the biggest challenges in COVID-19 research is insufficient data. Due to insufficient testing, some death reports and viral infections have not been investigated. No country in the world can provide reliable data on this subject, but research and development must continue. Therefore, the integration of knowledge is necessary. This knowledge can help DL model improve its prediction accuracy.

## Roadmap of Lung Ultrasound

Early detection allows for the prevention and control of active infections. If there is a risk of significant decline, patients with a minor illness do not need hospitalization. In the short term, a comprehensive approach to assisting health professionals in diagnosing cases and assessing the likelihood of developing a critical or critical situation, or from critical to violent situations, can help hospitals better access limited resources. Exiled patients can be closely monitored at home using LUS imaging. This is especially important in long-term care facilities and in areas where hospital beds are of high quality. If there are not

enough COVID-19 test kits, LUS can help diagnose patients. With LUS, patients can be treated by the same doctor who performs all prescribed tests. This is a critical moment because recent studies have shown that in the worst-hit countries, 3% to 10% of infected patients are health care professionals, and there is a severe shortage of health care professionals.

LUS is a supplemental screening tool that can be used in any healthcare facility. It could be possible to perform a preliminary screening to distinguish between patients who are low-risk and those who are high-risk. LUS is non-ionizing and can be done every 12–24 hours, making for careful supervision of health conditions as well as early detection of lung activity. Since portable ultrasound devices have a smaller surface area than

CT scans, they are easier to sterilize. Medical professionals can easily perform LUS in the area of illness. This will also make it possible for pre-hospital care to be more accurate for patients who have to be hospitalized.

LUS images can be taken at the bedside of the patient, thus helps in reduction of the number of practitioners who can take care of the patient. The use of chest X-rays or computed tomography requires referral to a radiology clinic, which may expose more people to the virus. LUS is easier to use as a diagnostic tool than other innovative methods that support pre-existing and standardized lung tests. Finally, LUS is an inexpensive tool that can be used quickly in areas with limited resources.