

ULTRACOV: An intelligent ultrasound scanner for lung condition evaluation in COVID-19

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Abstract

Lung ultrasound is a valuable tool for diagnostic and follow-up of COVID-19 patients. It does not use ionizing radiation and can be performed at patient bedside, which makes it suitable from primary care and emergency to critical care units and after discharge follow-up [1-2] and facilitates the management and use of resources under the COVID-19 pandemic. However, lung ultrasound is not widely used yet, mainly due to the complex scanning and interpretation of lung images and the lack of trained personnel [3]. Furthermore, in a pandemic context, ultrasound with conventional scanners entails a greater risk of contagion for the examiner than other techniques such as chest radiography and computed tomography.

The objective of the ULTRACOV project is the development of an ultrasound scanner aimed at the early detection and follow-up of COVID-19, specially conceived for pandemic situations and high healthcare pressure. Through image processing algorithms that simplify the examination and interpretation of the results, and a design oriented to the operation in high-risk conditions (easy disinfection, ergonomics, etc.) it is intended to extend lung ultrasound to a greater number of professionals and services. It is expected to have a positive impact on the capacity of the health systems to manage COVID-19 patients, since it is a very specific tool for evaluating the lung condition at all stages of the disease, including potential chronic problems. medium and long term.

REFERENCES

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FIGURES

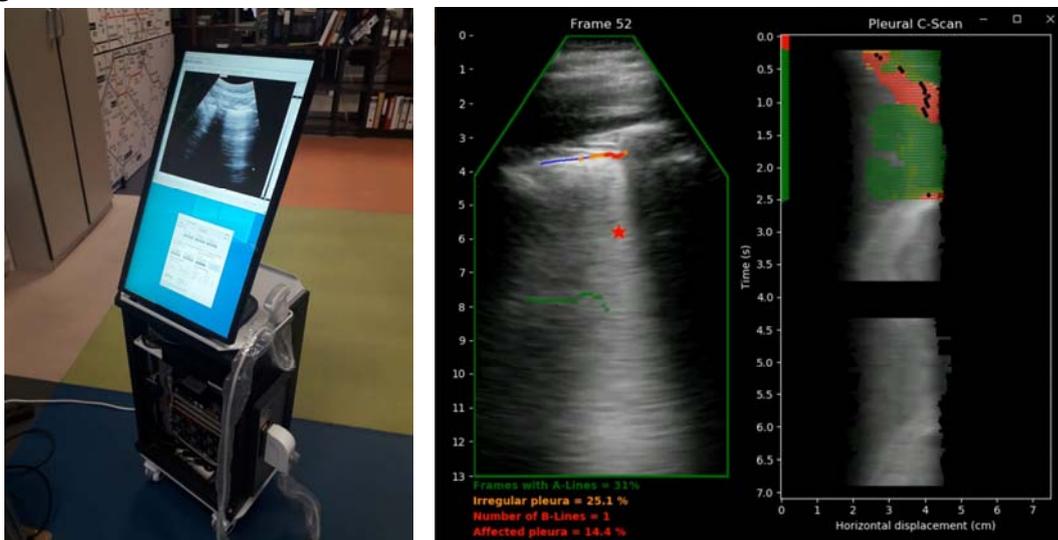


Figure 1: (Left) Picture of the prototype under construction (Right) Computer-aided diagnosis output example