



# ALTUS

## Diagnosing lung diseases using ultrasound imaging and AI

ALTUS has been developed by Carnot LSI researchers amidst the health crisis to perform novel pulmonary diagnoses that combine ultrasound image analysis and AI. It harnesses an array of ultrasonic sensors covering the area of interest for tomography and automatic signal processing. It offers a customised and rapid framework for the detection of lung diseases, including Covid-19.

Carnot LSI Institute

### Scientific / technological breakthrough

ALTUS was originally designed for sealing inspection in industrial environments using ultrasound imaging, before being used to investigate lung diseases.

The key innovation is that the array of ultrasonic sensors may be easily mounted onto the patient's chest.

Each successive transducer in the matrix then acts as transmitter and the other transducers become receivers.

For each patient, the image is generated automatically using the propagation times, and particularly the relative distortions between the signals received.

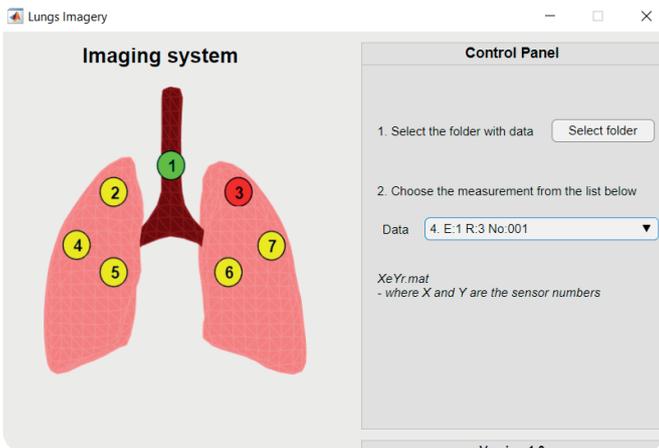
This helps overcome the physical limitations of ultrasound imaging.

Images are generated globally over the whole lung and the transducers do not need to be moved manually.



**Competitive advantage for the economic stakeholders**

This innovation speeds up lung diagnosis, especially in the home or in medical practices. Imaging may be used to monitor the patient's condition autonomously and safely, both for the patient (non-intrusive, no radiation) and for medical staff (no risk of contamination). This imaging process makes for more efficient patient monitoring as it can be permanently installed and used to report any changes in the lung's condition in real time. The fact that the imaging is performed using acoustics provides a more economical analytical process than products currently available. Partnerships are being negotiated with radiologists and ALTUS will be marketed by partner start-up companies.



### Contact

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