HEALTH & BIOMEDICAL

More effective Magnetic resonance imaging

HEALTHTECH - DIAGNOSTIC IMAGING SOLUTIONS | MEDICAL DEVICES | MEDICAL EQUIPMENT

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PATENT STATUS
✓ Granted

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7

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INTERNATIONALIZATION

RESEARCH TEAM | INVENTORS
Daniela Besozzi, Marco Nobile, Daniele Papetti, Camilla Torlasco

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Contrast-enhanced MRI becomes more effective for patients and hospitals, thanks to this new method that determines the optimal value of the inversion time in which to acquire the diagnostic image. The method uses an AI and machine learning model and is customized according to the patient and the type of examination to be performed. It has been tested for myocardial examinations.

Technical Features

Inversion time (TI) is the measurement of the time lapse between radiofrequency and static (sampling) pulses, which is necessary to obtain the magnetic resonance imaging (MRI) signal and detect via imaging the relaxation of a tissue to be examined. To date, TI is estimated by the MRI operator, based on personal experience or often by trial and error, or by subjecting the patient to different inversion times to compare the acquired images, the quality of which is not guaranteed in any case. Time and cost of test administration, image quality and readability, however, can now be improved through a machine learning model, capable of being calibrated to the patient's significant data and the specific parameters of the examination to be performed. The model has been trained on a multiplicity of sample assessments in myocardial examinations and is potentially applicable to other MRI examinations.
The invention was awarded the first prize in the Shark Tank Competition (CRM2024). It was also awarded at the 83rd annual conference of the Italian Society of Cardiology.
Link to the relative page of the universities Milano-Bicocca and Ca' Foscari.

Possible Applications

- MRIs with a paramagnetic contrast agent, particularly of the myocardium

Advantages

- Optimization of time and resources;
- Better quality of the captured images and consequently better supported diagnosis;
- Fewer exams and shorter times for the patient to undergo examination.

PATENT OWNERS

Università degli studi di Milano-Bicocca
IRCCS Auxologico
Università Ca' Foscari Venezia

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