

Non-Invasive Estimation of the Mechanical Properties of the Heart

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Technology description

The University of South Carolina is offering licensing opportunities for Non-Invasive Estimation of the Mechanical Properties of the Heart

Background:

Left ventricular remodeling, a mechanistic response to myocardial injury, has been shown to underlie the progression to heart failure. As such, sensitive technique to track the rate and extent of remodeling are necessary to evaluate risk and treatment options on a patient-specific basis. Echocardiography has become the gold standard for assessing the structure and function of the heart. Moreover, recent advancements in both hardware and software have given rise to a relatively new echocardiographic capability: the assessment of regional myocardial deformation through two-dimensional speckle tracking echocardiography.

Invention Description:

Sensitive techniques to track the rate and extent of left ventricular remodeling are necessary to evaluate risk and treatment options on a patient-specific basis. A novel extension to speckle-tracking echocardiography technology has been developed as a means to non-invasively identify the mechanical properties of the left ventricular myocardium.

Application area

This technology can be implemented as a post-processing compliment to traditional echocardiographic studies to provide a detailed biomechanical analysis of the changing heart as it pertains to disease progression. While the work presented herein specifically relates to the left ventricle of the heart, the same methodology can be extended to other soft tissues within the body.

Advantages

There are no products, services, or processes that exist that address the problem that this invention solves. No other product utilizes myocardial strain imaging in an inverse framework to identify mechanical properties of the heart. This technology will provide clinicians with a diagnostic advantage as they look to assess the progression of heart disease and/or the effectiveness of treatment strategies.

Institution

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