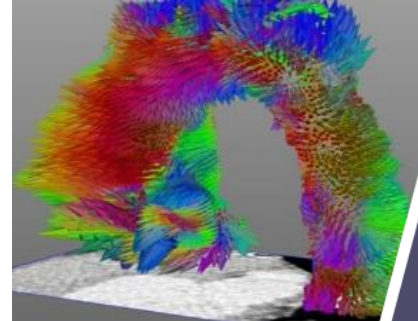# IMTIC
Inverse Method For Tissue Characterization

Software to visualize the large arteries & parietal qualities in order to help the decision of the surgical act and to prevent the risk of rupture of the aneurysm

REFERENCE	IMTIC [D02695]
KEYWORDS	MEDICAL DEVICE, E-HEALTH, IMAGING, NUMERICAL SIMULATION, PLANNING, ENDOPROSTHESIS, SURGERY

APPLICATIONS

- CLINICAL AND SURGICAL DECISION SUPPORT
- DIAGNOSIS AND MONITORING OF THE WALL QUALITY OF THE ARTERIES
- UNDERSTANDING OF ANEURYSM PATHOLOGIES

TARGET MARKETS

- Clinical decision support systems
- In Vivo visualization of the aorta with projection of biomechanical properties
- Medical Device software

Technology readiness level

TRL 4 ⋯ TRL 5

INTELLECTUAL PROPERTY

Patent (pending), software

RESEARCH TEAM

CREATIS (Centre de Recherche en Acquisition et Traitement de l'Image pour la Santé) & LAMCOS (Laboratoire de Mécanique des Contacts et des Structures)
INSA, CNRS, INSERM, Université Claude Bernard Lyon 1 / Université de Lyon

DESCRIPTION

IMTIC software can be used to model the mechanical behavior of the aortic wall in order to reconstruct the aorta in 3D and its wall quality from the patient's in vivo data. The software uses the CT images in a specific interval in order to assess the behavior of the aorta, to deduce its parietal quality via signal processing, and to highlight the location of pathological and healthy areas of the vessel. It does not require any additional patient procedure or additional imaging device. Using the displacement fields, the map of the wall deformation is obtained over the entire length of the aorta, along with the stiffness parameters. It is thus possible to identify the patients presenting risks, to estimate the wall quality before the surgical operation, to identify the biomechanical parameters responsible for possible failures of endovascular treatment, to follow the evolution of vascular pathologies, to best size prostheses and stents.
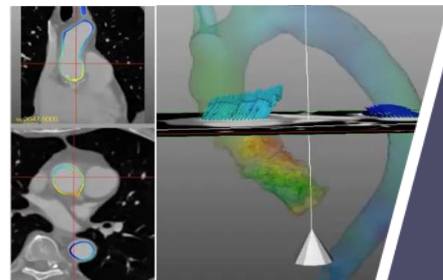
COMPETITIVE ADVANTAGES

- Measurement based on dynamic 3D image acquisition (scanner, tomography, ultrasound, etc.)
- Fast measurement without calibration
- Compatible with traditional imaging systems (input data in standard DICOM format)

DEVELOPMENT STATUS

- Robust mathematical models
- Demonstrator available

PARTNERSHIP

PULSALYS is looking for an industrialist wishing to put this product on the market and / or a start-up carrier.

CONTACT US

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