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What

Master project

Where

Amsterdam UMC location AMC
Department of Radiology

About

Magnetic Resonance
Elastography in the pancreas

When

To be discussed

Time

From 3 to 6 months (or longer)

What is in it for you

An interdisciplinary project
where you learn about
application and/or optimization
in quantitative MRI methods.

What is required

Master student (e.g. biomedical
technology/engineering or
physics) with an affiliation with
MR techniques and preferable
with experience in MATLAB

Master student project

Titel: Application of Magnetic Resonance Elastography in the pancreas

Magnetic Resonance Elastography (MRE) is an MR technique that uses an external vibration and an phase-locked MR sequence to non-invasively estimate soft tissue visco-elastic properties, such as stiffness. There are multiple applications to be explored as tissue stiffness can differ between healthy and diseased tissue.

At the Amsterdam UMC location AMC the application of MRE in the pancreas is currently being explored in patients suffering from pancreatic adenocarcinoma. The hypothesis is that tissue shear stiffness could be a potential biomarker to predict treatment efficacy. The application in the pancreas is not evident and therefor optimization is necessary. At the moment we are working on optimization of data acquisition (e.g. breathing patterns pancreas position or influence of patient preparation), post-processing (e.g. phase-unwrapping and implementation of artificial neural networks) and validation using ex-vivo measurements (together with pathology and/or TUE).

This is an interdisciplinary project and involves technical optimization and clinical implementation. Therefore, the exact content of a master project is flexible and can be discussed based on preferences.

With this project we are looking for a master student to do their 3 or 6 months research project with us. You are interested in quantitative MR methods and have a background in biomedical sciences, engineering or physics (or similar). For this project MATLAB experience is preferred.

If you are interested please send you motivation letter and resume to a.vanschelt@amsterdamumc.nl.