**LINKÖPING UNIVERSITY**

# Staging of Liver Fibrosis and Inflammation by Machine Learning Analysis of MR Images

## Background

Chronic liver disease is a large and growing medical problem. Chronic liver diseases can have numerous different etiologies, but they can all lead to the development of inflammation and fibrosis in the liver, which in turn can progress to cirrhosis and liver failure. The current method for assessing liver fibrosis and inflammation is by performing a liver biopsy, i.e. using a large needle to obtain a small piece of liver tissue and examine the tissue in a microscope. However, a needle biopsy is a both invasive and inaccurate procedure. There is, therefore, a great interest in developing new completely non-invasive techniques, such as MRI, in order to replace or reduce the need for biopsies.

## Project Description

The aim of the project is to investigate if machine learning analysis of MR images we have collected in various studies can be used to stage liver fibrosis and inflammation. The analysis could include texture analysis, or training a deep neural network. Exploring the potential of different methods will be an important part of the project.

## Student Profile

- Background in biomedical engineering, applied physics or medical engineering
- Interest in image analysis

## Contact

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