

# AIDHEART

## AI for the detection of heart transplant rejection

**Heart transplantation** is a treatment for selected patients with end-stage heart failure. Improvements in immunosuppressive therapies and patient management have increased the life expectancy of heart transplant patients. Despite this success, **rejection remains the "Achilles heel" of heart transplantation**. Biopsy and invasive coronary angiography are widely accepted as the gold standard for diagnosing acute graft rejection and chronic rejection. However, biopsies are invasive, and they carry a significant cumulative risk of complication.

**Magnetic resonance imaging (MRI)** is non-invasive, ionizing radiation-free, proven imaging method, which can provide accurate quantitative information on tissue composition.

**Our solution** is to apply **convolutional neural network (CNN)** based deep learning (DL) methods to combine available MRI information in **detecting patients at risk of acute rejection**.

Our **team** is a unique combination of cardiologists, radiologists and medical physicists with combined over 100 years of experience in university-level research. The key team members are:

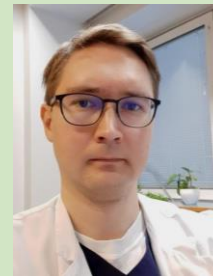
### Tiina Ojala, MD, Ped. Card., Doc.

Tiina is specialized in Pediatric Cardiology and has over 20 years experience in cardiac imaging. She has high-level cardiac imaging experience from Canada and London, UK.



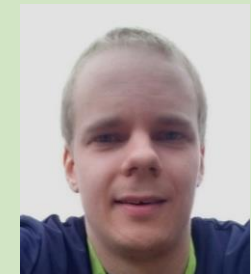
### Juha Peltonen, Med. Phys., DSc (Tech)

Juha has been working with MRI for over 10 years, specializing in cardiac magnetic resonance imaging. He has also researched and published on deep learning applications.



### Lauri Lehmonen, Med. Phys., PhD.

Lauri is working in the department of cardiology as a medical physicist and has been researching and publishing studies considering cardiac magnetic resonance imaging.



SPARK VALUE: We are looking for the SPARK project enabling us to package and deliver scientifically developed state-of-art solution