# Master Thesis

# Validation of Vascular Architecture Imaging (VAI) with MR-Angiography and Venography

## Background:

Vascular architecture imaging (VAI) using contrast-enhanced MRI can be used to measure the structural and topological heterogeneity of microvasculature. The vessel size index is a key parameter quantified from VAI. It describes the vessel diameter in µm. To validate the VAI, an accurate method for characterizing vascular features of arteries and veins is needed.



Fig.: MR-Angiography

## Your tasks:

In cooperation with the Department of Diagnostic and Interventional Radiology (DIR) at Heidelberg University Hospital (UKHD), a post-processing pipeline should be developed to calculate vessel size and other features from MR angiography and venography and to compare these features with the results of VAI.

## Qualifications:

For the processing of the topic basic programming knowledge in Python and Matlab is necessary. Additionally, interest in medical research should be present.

## We offer:

- Intensive support
- Modern workstations and high-performance computers as working environment
- Productive and dynamic atmosphere in a team
- Cooperation with a clinical research institute
- Cooperation with international research groups
- Career perspectives as young scientist

## Interested?

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