skyra g60 MRT at the Univ. Magdeburg, Laura Dobisch DZNE Magdeburg.
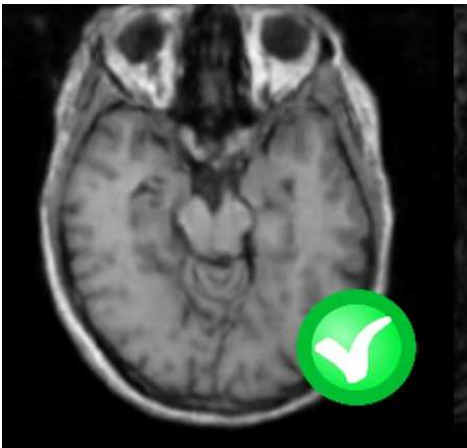

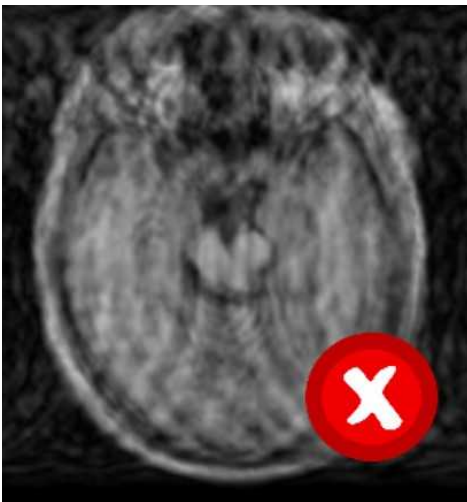*Image of the IXI data set with good quality (https://brain-development.org/ixi-dataset/).*

Image of the IXI data set with artificially induced motion artefacts.

We offer a **HiWi-Position**
in the field of „Deep Learning-Based Quality Analysis of Magnetic Resonance Imaging (MRI)-Data"

Background: Commonly, the image quality is assessed visually in the clinical routine; a person manually decides whether the images are of sufficient quality or have to be acquired again. This procedure needs to be optimized: The quality evaluation is subjective and takes time because patients occupy the scanner. Sometimes there is no evaluation at all due to time constraints. If a scan with insufficient quality is overlooked, this can severely impair the diagnosis or image-based intervention. In the worst case, the image acquisition must be repeated at a later date - an undesirable effort and an impairment of the patient's quality of life.

Goal: The aim of an interdisciplinary project with the University Clinic for Radiology is the automated evaluation of the image quality through deep learning-based detection and classification of image artifacts and the quantification of these disruptive factors. A traffic light coding should provide information about the image quality, through the values usable, questionable or unusable. The scans of usable quality reach the reader directly in order to diagnose or to prepare the image-guided intervention. The scans with questionable quality may need to be visually inspected; those that are of unusable quality require a new scan immediately. Appropriate preparatory work exists and should be tested and adapted based on new data.

We offer:
- Participation in interesting, clinically relevant research
- Cooperation with clinical partners
- Friendly and supportive atmosphere
- Excellent teamwork

We expect:
- Motivation, creativity and team spirit
- Very good deep learning knowledge (PyTorch,TensorFlow,Keras,…)
- Experience in analyzing medical image data

Additional Information:

Please send your relevant and persuasive application together with an actual transcript of grades per e-mail to:

HiWi - Position
MedDigit
yannic.waerzeggers@med.ovgu.de

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yannic.waerzeggers@med.ovgu.de

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yannic.waerzeggers@med.ovgu.de

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