

## Doctoral Candidate 6 - qMRI reconstruction with intra-scan motion compensation, uncertainty estimation, and segmentation

<b>Host Institution</b>	Erasmus MC, The Netherlands
<b>PhD enrolment</b>	Erasmus MC, The Netherlands
<b>Primary Supervisor</b>	Dr. Dirk Poot, Dept. of Radiology and Nuclear Medicine
<b>Subject area</b>	MR Physics, use of AI techniques

### About this doctoral project and your tasks

There are several promising quantitative MRI techniques of which the clinical adoption is hindered by long scan times. To address this, you will develop a **qMRI reconstruction framework for novel, highly accelerated, acquisitions**. In this framework subject motion should be compensated to increase the number of successful scans and remaining uncertainty should be estimated to support clinical reasoning and hence aid clinical acceptance.

#### Your tasks will include :

- Sequence setting optimization
- Designing and implementing a DL architecture for qMRI reconstruction
- Write scientific papers
- Present at scientific conferences

### Foreseen secondments

For this project, we foresee secondments to:

- Prof. dr. Daniel Rueckert (3 months) at **Technische Universität München** (Germany)
- Prof. dr. Jan Sijbers (3 months) at **University of Antwerp** (Belgium)
- Dr. Timo Schirmer (3 months) at **GE Healthcare** (Germany)

### About the host institution and research group

The research will be conducted at the **MR physics group** as well as the **Biomedical Imaging Group Rotterdam (BIGR)**, which are part of the department of Radiology & Nuclear Medicine of the Erasmus MC, University Medical Center Rotterdam. The department of Radiology & Nuclear Medicine of the Erasmus MC is one of the largest medical imaging departments in Europe with 10 clinical MRI scanners at several field strengths. The department has an international and diverse character with a good balance between internationally recognised, high-end research and an excellent social working environment. We do not discriminate on the basis of sex, gender, belief, culture, place of birth or occupational impairment when recruiting and selecting staff and students. You will collaborate with a team of experienced researchers with backgrounds in **image analysis, machine learning, radiology, pathology, surgery, and oncology**. Within this project we collaborate with IQ-BRAIN partners and specifically also with GE Healthcare.

## About the offer

- The selected candidate will be employed by Erasmus MC for **36 months** on the MSCA-DN project, with extension up to 12 months to complete the doctoral degree.
- Doctoral candidates are offered a **competitive remuneration** based on the MSCA allowances and the regulations of the host institution. You will receive a gross monthly salary according to the standard wages for researchers in training (OiO) at Erasmus MC (currently min. € 3017).
- **Expected start date:** between April and September 2025. We encourage last-year master students who will graduate by this time to already apply.

More information is available in the [general information document](#) for IQ-BRAIN positions.

## Specific profile and requirements

- Your profile aligns with the [general requirements and eligibility criteria](#) of the IQ-BRAIN project.
- You should be an independent and highly motivated researcher with an **MSc or MEng degree in a technical domain** (e.g., physics, computer science, mathematics, informatics, engineering) (or will have by the time of your appointment).
- Experience with **MR imaging, image processing, and/or machine learning** is highly valued.
- You should be able to communicate and work with researchers from various fields. Excellent proficiency in English is required.

## More information

For additional information about the research project, contact:

**Dr. Dirk Poot**

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