



# IQ-BRAIN

Improving qMRI by Realizing trustworthy integration of AI in Neuro-Imaging

The MSCA-Doctoral Network project **IQ-BRAIN** is looking for **16 talented and motivated doctoral candidates eager to push the field of quantitative MRI**. Doctoral Candidates (DCs) will enrol in PhD degree programmes and be employed for 36 months in a network with partners from academia, hospitals and industry.

## About IQ-BRAIN

IQ-BRAIN ([www.iq-brain.eu](http://www.iq-brain.eu)) is an MSCA Doctoral Network that aims to **bring quantitative MRI to the clinic** by improving and accelerating the technique through innovative development of trustworthy physics-informed deep learning methods, with neuroimaging as a key application area. IQ-BRAIN will train the next generation of multidisciplinary top scientists in the qMRI pipeline and a wide array of **research and transferable skills**, who can effectively bridge the gap between method development and clinical implementation.

## Our offer

- Exciting **multidisciplinary research** in a collaborative network of top academic and industrial partners.
- **State-of-the-art** computing and imaging infrastructure to support your research.
- You will be enrolled in a **PhD training programme** at excellent universities.
- You will be supervised by an international and intersectoral **doctoral supervisory committee**.
- You will benefit from a **training programme** with experts in the field, with a special focus on career development via research and transferable skills.
- You will be employed by the host organisation on the MSCA-DN project for a period of **3 years**. Depending on the host organisation, additional funding of max. 1 year may be available to complete the doctoral degree.
- You will benefit of a regular employment contract, with a **competitive remuneration** based on the allowances and country correction coefficients in the MSCA Work Programme 2023 ([here](#), p. 81), with deduction of compulsory employer's social security contributions. The final gross salary is based on the applicable regulations of the host institution and country ([more info in this MSCA information note](#)).
- **Expected start date:** between April and September 2025. We encourage last-year master students who will graduate by this time to already apply.

More info: <https://www.uantwerpen.be/en/projects/iq-brain/jobopenings/>



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## Eligibility criteria of the Marie-Skłodowska Curie Actions programme

- **Doctoral Candidate:** At the date of the recruitment, you are not already in possession of a doctoral degree. Researchers who have successfully defended their doctoral thesis but who have not yet formally been awarded the doctoral degree will not be considered eligible.
- **Mobility rule:** Applicants can be of any nationality, but researchers must not have resided or carried out their main activity (work, studies, etc.) in the host country for more than 12 months in the 36 months immediately before their date of recruitment. Compulsory national service, short stays such as holidays, and time spent as part of a procedure for obtaining refugee status under the Geneva Convention are not taken into account.
- For more information about being an MSCA fellow in a Doctoral Network, you can consult this [information package](#) of the European Research Executive Agency.

## General requirements and selection criteria

- You hold a **Master's degree** in a relevant field (physics, computer science, mathematics, (biomedical) engineering, or equivalent), or will have obtained it by the time of your appointment.
- You are motivated to **pursue a doctoral degree** through an individual research project.
- You can demonstrate **strong study results**.
- You have a **relevant scientific background**, with potential prior related research experience.
- In view of the international context, you sufficiently master the **English language**.
- **International mobility** of researchers is a key concept within the MSCA DN framework. As such, you are willing to participate in international meetings, trainings and secondments.
- You are **eager to tell the world** about your novel findings with attractive posters, sparkling presentations and high-quality papers in international journals and conference proceedings.

## Application procedure

- You can apply for max. 3 doctoral positions.
- Applications can only be submitted via the [online job platform](#) until **1 December, 23:59**. Your application must include a recent CV (including a transcript of study results), a motivation letter and contact info of two references.
- After closing of the applications, we will evaluate your application and inform you as soon as possible about the results. **Pre-selected candidates** will be invited to an online interview with the supervisor.
- **Short-listed candidates** will be invited to an online interview with the full selection committee in January/February 2025.
- The recruitment process of DCs within IQ-BRAIN will be **open and transparent**, with specific attention for gender balance and diversity. The recruitment will align with the principles set out in the [European Charter for Researchers and the Code of Conduct for the Recruitment of Researchers](#).

## More information

For general information about the IQ-BRAIN project and the job offers, you can contact the **IQ-BRAIN coordinator's office** via [info-IQ-BRAIN@uantwerpen.be](mailto:info-IQ-BRAIN@uantwerpen.be)

## Overview of the PhD positions

You can consult the specific job description for each PhD position [here](#).

PhD position	Host institution	Main Supervisor
<b>DC 1:</b> Intra-scan modulation with model-guided AI for accelerated diffusion MRI	University of Antwerp, Belgium	Prof. Dr. Jan Sijbers
<b>DC 2:</b> Deep learning-augmented super resolution reconstruction for accelerated relaxometry	Siemens Healthineers, Belgium	Dr. Thomas Janssens
<b>DC3:</b> Implementation of efficient simultaneous T2 and diffusion brain mapping	Instituto Superior Técnico, Portugal	Prof. dr. Rita G. Nunes
<b>DC 4:</b> Acquisition and joint reconstruction of dynamically weighted and undersampled MR-datasets	Bruker BioSpin, Germany	Dr. Sascha Koehler
<b>DC 5:</b> Robust DL Models for Accelerated Multi-Contrast MRI Reconstruction from Nonuniform k-space Data	Ghent University, Belgium	Prof. dr. Aleksandra Pizurica
<b>DC 6:</b> qMRI reconstruction with intra-scan motion compensation, uncertainty estimation, and segmentation	Erasmus MC, The Netherlands	Dr. Dirk Poot
<b>DC 7:</b> Trustworthy AI for DL-based reconstruction of multi-parametric qMRI	Technische Universität München, Germany	Prof. dr. Daniel Rueckert
<b>DC 8:</b> Developing a Deep learning-based qMRI method for multi-TE arterial spin labelling MRI	University of Antwerp, Belgium	Prof. Dr. Jan Sijbers

<b>DC 9:</b> Unsupervised uncertainty prediction for trustworthy and unbiased qMRI	Helmholtz Munich, Germany	Prof. Dr. Julia Schnabel
<b>DC 10:</b> Develop a DL-based qMRI method for robust multi-compartment diffusion-relaxometry	Erasmus MC, The Netherlands	Dr. Dirk Poot
<b>DC 11:</b> Multiparametric MRI with quantification of the brain clearance and iron content in the diseased brain	University of Antwerp, Belgium	Prof. Dr. Marleen Verhoye
<b>DC 12:</b> Probing brain microstructure with multi-parametric, multi-component qMRI, AI at 3T and 7T	Forschungszentrum Jülich, Germany	Dr. Ana-Maria Oros-Peusquens
<b>DC 13:</b> Brain age estimation from multiparametric k-space data	Amsterdam UMC, The Netherlands	Prof. Dr. Matthan Caan
<b>DC 14:</b> MRI image quality enhancement for quantitative applications	icometrix, Belgium	Dr. Thibo Billiet
<b>DC 15:</b> Quantifying neurofluid pathways through AI-accelerated long T1/T2-range MRI	Oslo University Hospital, Norway	Prof. Dr. Kyrre Emblem
<b>DC 16:</b> Quantitative phenotyping via the generative modelling of quantitative MRI data	King's College London, United Kingdom	Prof. Dr. Jorge Cardoso