Postdoc position: Thinking inside the voxel

Research
The study of white matter structure and integrity is a hot research topic that has been pursued using various MR-based methodologies: diffusion weighted imaging, (multi-compartment) relaxometry, phase imaging and QSM.
Yet these measures have never been truly integrated or validated.
We expect to develop and validate complex models of signal evolution that can be used to convert sets of magnetic resonance images, into the magnetic properties of the white matter myelin sheath and the relative size of intra and extra-axonal compartments.

Job description
To develop and validate complex models of signal evolution in biophysically inspired tissue microstructure that can be used to convert sets of magnetic resonance images, into magnetic properties of the white matter myelin sheath and the relative size of intra and extra-axonal compartments.
In this project we will take advantage of the multidimensional MR space and the availability of over-determined ex-vivo data where a tissue ground truth is available. The methods developed will then be explored in-vivo in the context of neuro-degeneration.

Location
You will be based at the Donders Centre for Cognitive Neuroimaging, a research centre of the Radboud University in Nijmegen, which conducts cutting-edge fundamental and clinical research in cognitive neuroscience. This internationally renowned centre currently hosts more than 100 PhD candidates and postdoctoral researchers from more than 25 countries, offering a stimulating and multidisciplinary research environment. The centre is equipped with four MRI scanners (7T, 3x 3T) and high-performance computational facilities.
English is the lingua franca at the centre.
The Radboud University is one of the leading academic communities in the Netherlands. Situated in the oldest city of The Netherlands, it has nine faculties and enrolls over 17,500 students in 107 study programmes.
The successful candidate will work in the Magnetic Resonance Techniques research group, a young and international lab, which is currently home to five PhD students and three postdoctoral fellows. Particularly in this project, you will collaborate with the High Field Magnet Laboratory (NWO large scale facility located in Nijmegen) and the Department of Anatomy (RadboudUMC).

Requirements
The candidate should hold a PhD in the field of MR physics, signal processing or computational sciences.
Having experience with white matter modelling, fingerprinting or machine learning are beneficial but not necessary.
A good command of written and spoken English;
The interdisciplinary nature of this project requires excellent social skills and team spirit;
You will take an active role in the co-supervision of a PhD student.
NWO-I prefers candidates who have qualifying experience (e.g. as PhD student or postdoctoral researcher) in a scientific research institute abroad.

Conditions of employment
You will be employed by NWO-I for a fixed period of two year, starting during the first half of 2018 (earliest would be January 2018 and the latest June 2018).
Your salary will be up to a maximum of 4,089 euro gross per month, depending on your level of experience. The salary is supplemented with a holiday allowance of 8 percent and an end-of-year bonus of 8.33 percent.
The conditions of employment of NWO-I are laid down in the Collective Labour Agreement for Research Centres (Cao-Onderzoekinstellingen), more exclusive information is available at this website under Personeelsinformatie (in Dutch) or under Personnel (in English).
General information about working at NWO-I can be found in the English part of this website under Personnel. The 'Job interview code' applies to this position.
Contact information
José P. Marques, senior Researcher, Radboud University.

Application
Online application

Please apply before 1 December 2017. If a suitable applicant for the position is found earlier, the position will be closed without further notice. Position will start in the first half of 2018.