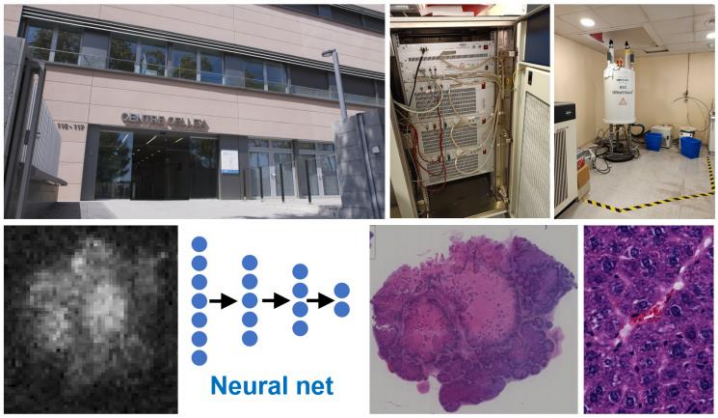
3-year PhD studentship in Diffusion MRI and Artificial Intelligence in Oncology

Vall d'Hebron Institute of Oncology (VHIO), Barcelona (Spain)

Call opening in June 2022



Expression of interests are welcome from motivated candidates for a **3-year PhD project in computational diffusion Magnetic Resonance Imaging (dMRI) and Artificial Intelligence (AI) in oncology**.

The successful candidate will join the **Radiomics Group at VHIO, supervised by Dr Raquel Pérez López (MD, PhD), Radiomics Group leader, and Dr Francesco Grussu (PhD), 2022 La Caixa Junior Leader Fellow**. Candidates can already show their interest by **emailing their CV to Francesco Grussu (fgrussu@vhio.net).**

Please also get in touch if interested in an informal chat via Zoom or in person at ISMRM 2022.

Project information

This PhD project is part of a broader scientific programme in MRI research in oncology at VHIO, which aims to develop the **next-generation computational MRI methods with unprecedented sensitivity and biological specificity to cancer.** The new methods will ultimately i) enable earlier metastasis detection, opening new unexplored windows for curative treatment, and ii) provide exquisite non-invasive tumour microenvironment characterisation, for treatment personalisation and disease activity monitoring. Tasks involved in the project:

- dMRI Monte Carlo simulations in cancer microenvironments reconstructed from biopsies
- Development of AI methods to predict cancer microenvironments from dMRI scans
- Scanning tumour specimens on a 9.4T Bruker system to enable MRI-histology comparisons
- Demonstrating the new dMRI approaches in patients at the Vall d'Hebron Hospital, Barcelona

Employment information

- Competitive salary and full contribution to national social security and pension schemes
- 40 hours/week with 28 leave days/year plus standard national, regional and local festivities
- Option to choose the University in Barcelona where the PhD would be awarded

Required skills (essential)

- Completed Master's degree in one of Physics, Engineering, Mathematics, Computer Science
- Good Python programming and Unix shell scripting skills
- Basic knowledge of MRI theory and numerical methods (e.g., Monte Carlo simulations)
- Proficiency in spoken and written English.

Desired skills

- Basic knowledge of oncology
- Previous experience in dMRI and/or AI

The Radiomics Group, VHIO, and the Campus

The Vall d'Hebron Institute of Oncology (VHIO), created by José Baselga in 2007 and led by Josep Tabernero, has established itself as a comprehensive cancer centre of proven excellence internationally. Located within the Vall d'Hebron Barcelona Hospital Campus, VHIO researchers closely collaborate and interact with Vall d'Hebron physician-scientists. Translational science and clinical research are therefore tightly connected, accelerating bench-bedside-bed scientific discoveries. Dr Raquel Pérez López's VHIO Radiomics Group applies imaging biomarkers and radiomics to cancer discovery, striving to advance precision imaging in personalised medicine for improved cancer patient care. The Group comprises of 3 post-docs, 4 PhD students, 1 computer scientist and 1 radiology resident, who can count on direct access to a computational cluster, preclinical 9.4T MRI and µCT systems, and research time on several 1.5T and 3T clinical MRI systems. Radiomics Group web site: https://radiomicsgroup.github.io. VHIO web site: https://www.vhio.net. Vall d'Hebron Campus web site: https://www.vallhebron.com.

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