Engineering/Physics Post-Doctoral Fellow Position

Functional Neuroradiology Unit, Division of Neuroscience
Vita-Salute San Raffaele University and San Raffaele Scientific Institute
Milan, Italy

The Functional Neuroradiology Unit at the Neuroscience Division, Vita-Salute San Raffaele University and San Raffaele Scientific Institute, Milan is looking for highly committed post doctoral level scientists with strong knowledge in MRI physics or engineering, motivated to work in an interdisciplinary environment that develops, validates and translates advanced MRI techniques in the clinics. The successful candidate will work with the **neuro-oncology team** at the Unit, which has a consolidated track record in the development and clinical implementation of diffusion MR imaging and tractography, functional MRI, MR spectroscopy and perfusion-weighted MR imaging, to help improving the understanding of brain tumor biology both in clinical and preclinical setting, to plan surgery and to evaluate treatment response.
The Unit is equipped with a state-of-the-art human 3 Tesla MR scanner (Ingenia 3T CX, Philips Healthcare) dedicated to advanced clinical research, and three up-to-date 1.5T Philips MR scanner. A state-of-the-art 7 Tesla MRI scanner (7T BioScan 70/30, Bruker, Germany), dedicated to small-animal imaging is available at the San Raffaele Experimental Imaging Center (CIS). A fully hybrid PET/MRI scanner (SIGNA PET/MR, General Electric Medical System) is available at the Nuclear Medicine Department of San Raffaele Hospital, actively collaborating with the Functional Neuroradiology Unit.

Primary Research areas:

- Advanced analysis of diffusion MRI and resting state fMRI data (e.g. HARDI tractography, connectomics, network analysis) in patients with brain tumors;
- Cutting-edge diffusion MRI acquisition and analysis techniques for tissue microstructural imaging to characterize brain tumor biology, both in clinical and preclinical setting;
- Implementation of novel large scale analyses for post-processing and quantitative interpretation of multi-dimensional and multi-faceted advanced imaging data (conventional, diffusion, perfusion) using radiogenomic approaches and deep learning techniques;
- Developing methods for ^{1}H MRS, and quantification of metabolites such as 2-HG in brain gliomas.

Eligibility Requirements: Applicants must have a PhD in physics, biomedical engineering, computer science, electrical engineering, or related fields. Strong experience with Matlab and Python programming and advanced analysis softwares for image processing (i.e. Python and DiPy, AFNI, FSL, R) is required. First-hand experience in the acquisition and analysis of diffusion MRI and/or brain spectroscopic imaging data is highly desired, and skills in statistical and computational methods are also desired. Knowledge of pulse sequence programming, especially on Philips systems, will be considered a plus. The ideal candidate will be reliable and equally productive when working independently or cooperatively.

How to apply: The position is available immediately and for up to two years. Applicants should email a CV along with two references and a statement of research interests/activities to Dr. Antonella Castellano, MD, PhD (castellano.antonella@hsr.it). Informal inquiries are welcomed and will be answered promptly.