



OSPEDALE SAN RAFFAELE

Milano, 15 December 2022

**Post-medical physics graduation/Postdoctoral position in
Radiomics and lung densitometry for ARDS (acute respiratory distress syndrome)**

The Medical Physics Department of the San Raffaele Scientific Institute in Milan are searching for a highly motivated graduated in Medical Physics/postdoc for a recently founded project on Digital Pathology.

Project overview

The high incidence of barotrauma in patients with COVID-19-related acute respiratory distress syndrome (ARDS) (16.1%, with a mortality rate >60%) provides rationale for considering COVID-19 ARDS a paradigm for lung frailty. Our group reported clear radiological predictors of barotrauma in COVID-19 ARDS, such as the Macklin effect and several quantitative lung densitometry parameters, well predicting the severity of mortality due to respiratory distress. Since lung frailty is a major issue also in non-COVID-19 ARDS (6% barotrauma, with a mortality rate of 46%) we want first to extend our findings to these patients, usually seen in intensive therapy units. In addition, using machine learning and artificial intelligence-based approaches we also want to identify imaging biomarkers, including radiomics, to non-invasively assess lung frailty in a mixed cohort of COVID-19/non-COVID-19 ARDS patients. Then, we want to prospectively validate these biomarkers in a cohort of patients at risk of experiencing ARDS. The same concept will be applied to a multi-institutional cohort of non-COVID-19 patients within another granted project in collaboration with the Anesthesiology and the Radiology departments of our Institute. This will provide a therapeutic algorithm for ARDS patients at high-risk for barotrauma, identifying those most likely to benefit from hyperprotective strategies.

Key skills and experience of the ideal candidate:

- She/he should be a physicist, preferentially graduated in medical physics or with PhD
- Experience in image processing and analysis, preferentially with experience in radiomics
- Experience in machine learning and computational skills
- Willingness to work in a multidisciplinary environment
- A good knowledge in spoken and written English

For more information please contact:

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