

BRACCO FELLOWSHIPS EDUCATION IN RESEARCH ENROLMENT FORM

Name of Institution: IRCCS Ospedale Galeazzi Sant'Ambrogio

City and Country of Institution: Milano, Italy

RESEARCH GROUP

Brief description of the research group and of its mission:

Our research group is composed by six people, of whom the chair is Professor Luca Maria Sconfienza, full professor of radiology at University of Milano, Italy. Our first mission is research in all fields of musculoskeletal diagnostic and interventional radiology, including applications of artificial intelligence to it. Our group also has significant collaboration and interaction with non-medical scientists, including engineers, physicists, mathematicians, and

TITLE OF PROPOSED RESEARCH PROJECT

Artificial intelligence applied to imaging of bone and soft tissue tumors

OBJECTIVES

- To investigate the diagnostic performance of radiomics-based machine learning on MR images for classification of bone and soft tissue tumors in both diagnosis-related (e.g., discrimination of tumor type/grading) and prognosis-related tasks (e.g., prediction of response to neoadjuvant therapy, recurrence, survival)
- To identify reliable and informative radiomic features of bone and soft tissue tumors on MR images to be included in machine-learning classifiers
- To compare the diagnostic performance of radiomics-based machine-learning classifiers with experienced radiologists
- To allow sharing of experiments and machine-learning algorithms for classification of bone and soft tissue tumors remotely with other scientists

APPLICANT'S DUTIES

- Collect bone and soft-tissue tumor cases in local archives
- Manage patients' clinical data

- Contribute to radiomic analysis for all tumor types included in the preliminary reliability analysis and subsequent classification studies performed both retrospectively (diagnosis-related) and prospectively (prognosis-related).
- Contribute to data and model online sharing, if in the correct timeframe of the project

APPLICANT'S BENEFITS

- Participation on scientific outcomes of the project i.e. presentations to congresses or publications of papers
 - Learn the basics of research methodology, particularly applied in the field of artificial intelligence and new technologies in imaging
 - Interact with young, well-prepared researchers, working not only in a clinical setting but also in the fields of engineering, mathematics, and informatics
-
- Project Leader: Prof. Luca Maria Sconfienza, MD PhD
 - Members: Dr. Salvatore Gitto, MD PhD; Prof. Carmelo Messina, MD; Dr. Domenico Albano, MD PhD; Dr. Francesca Serpi, MD