

Maria Evelina Fantacci

Education

1992: Degree in Physics at University of Pisa.

1994: Postgraduate Diploma at Specialty School in Medical Physics at University of Pisa.

Working positions

1992–1994: Fellowship at University of Pisa.

1995: Research contract at CERN (European Center for Nuclear Research, Geneva, Switzerland).

1995–1997: Fellowship at INFN (Istituto Nazionale di Fisica Nucleare).

1997–2018: Researcher at the Department of Physics "Enrico Fermi" of the University of Pisa.

Since 2018: Associate Professor at the Department of Physics "Enrico Fermi" of the University of Pisa.

Since 2021: National Scientific Qualification to the Role of Full Professor (SC 02/D1).

Research activities

The scientific activity of MEF took place within the following main research topics:

- Study and development of new semiconductor detectors, dedicated electronics, and related medical applications.
- Implementation, performance evaluation and comparative tests of a digital mammography prototype.
- Development and validation of a mammographic Computer Aided Detection system and its implementation on GRID infrastructure.
- Development of a Computer Aided Detection system for the automated research of nodules in Computed Tomography, implementation in an automatic analysis web service based on cloud computing and clinical validation.
- Development of algorithms aimed at the automatic analysis of clinical and ultra-high-field MRI (Magnetic Resonance Imaging) images of brain and musculoskeletal system.
- Optimization and implementation of sequences aimed at MRI acquisitions with dedicated coils of the musculoskeletal system at ultra-high-field (7 Tesla).
- Development of algorithms aimed at finding autism spectrum disorder (DSA) biomarkers in clinical MRI images.
- Characterization of CT (Computed Tomography) instrumentation associated with different reconstruction algorithms for dose optimization and imaging quality evaluations.
- Development of a new personalized dose indicator in digital mammography and breast tomosynthesis.
- Development and validation of a deep learning methods based system for automatic classification of digital mammograms in tissue density classes.
- Development and validation of a deep learning methods based system for automatic quantification of lung involvement in CT scans of patients affected by COVID-19 pneumonia.

These activities are documented by 235 scientific publications and documents, including more than 100 articles in international journals (with ISSN).

Scopus (September 2021): H-index 20, 159 documents, 2077 citations.

Teaching activities

She has held/holds many courses at Pisa University (physics, medical physics, physics of medical imaging, radiation protection, radiobiology, physical instrumentation for medicine and biology, physics applied to human movement) and has been supervisor of a total 29 thesis (degree and master's degree in physics, PhD in physics, specialty school in medical physics).

Moreover, she has held/holds numerous positions of responsibility in research projects, both national (MIUR and INFN funded), also in collaboration with industries and foundations, and international (EU funded), with the role of local coordinator or of work package leader; she also carried out scientific dissemination activities, is referee for several journals of international relevance, member of the editorial board of the journals Electronics (MDPI) and Computational and Mathematical Methods in Medicine (Hindawi) and of the program committee of various conferences of international relevance.

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