

## Curriculum Vitae

### Personal information

First name(s) / Surname(s) **Raffaella Massafra**



### Occupational field

Vice Scientific Director as Research Coordinator at Scientific Direction, I.R.C.C.S. Istituto Tumori “Giovanni Paolo II”, Bari

Medical Physics Manager at U.O.S.D. Fisica Sanitaria, I.R.C.C.S. Istituto Tumori “Giovanni Paolo II”, Bari

### Work experience

Dates	2022 – to date
Occupation or position held	Vice Scientific Director as Research Coordinator (resolution n. 470/2022)
Main activities and responsibilities	Coordination of scientific research through the development of new strategies
Name and address of employer	I.R.C.C.S. Istituto Tumori “Giovanni Paolo II”, Viale Orazio Flacco 65, 70124 Bari, Italy
Type of business or sector	Scientific Direction
Dates	2009 – to date
Occupation or position held	Medical Physics Manager
Main activities and responsibilities	Development of radiotherapy treatment plans and scientific supervision of a multidisciplinary research group in the field of medical AI, because of her High Specialization in “Applicazioni innovative di elaborazione dati oncologici” (resolution n. 936/2020 and resolution n. 62/2022), and her role as Responsible of "Area Artificial Intelligence e Big Data" of the working group "Bioinformatics-Big Data Science" of IRCCS Istituto Tumori "Giovanni Paolo II" (resolution n. 92/2021)
Name and address of employer	I.R.C.C.S. Istituto Tumori “Giovanni Paolo II”, Viale Orazio Flacco 65, 70124 Bari, Italy
Type of business or sector	U.O.S.D. Fisica Sanitaria
Dates	2007 - 2009
Occupation or position held	Medical Physics Manager
Main activities and responsibilities	Development of radiotherapy treatment plans
Name and address of employer	Azienda Ospedaliero Universitaria O.O.R.R. di Foggia + A.S.L. BAT

Type of business or sector	U.O.C. Radioterapia
Dates	2006 – 2007
Occupation or position held	Medical Physics Expert (Professional Collaborator)
Main activities and responsibilities	Development of radiotherapy treatment plans
Name and address of employer	I.R.C.C.S. Istituto Tumori “Giovanni Paolo II”, Viale Orazio Flacco 65, 70124 Bari, Italy
Type of business or sector	U.O.C. Fisica Sanitaria
Dates	2006
Occupation or position held	Term-contract research collaborator
Main activities and responsibilities	Research collaborator as part of “Progetto MAGIC-5 (Medical Applications on a Grid Infrastructure Connection)
Name and address of employer	Istituto Nazionale di Fisica Nucleare (INFN), Via Giovanni Amendola 173, 70126 Bari, Italy
Type of business or sector	Dipartimento Interateneo di Fisica, Università degli Studi di Bari “Aldo Moro”
Dates	2002
Occupation or position held	Term-contract research collaborator
Main activities and responsibilities	Research collaborator
Name and address of employer	Tecnologie Innovative per la Rivelazione e L'Elaborazione del Segnale (TIREs), Piazza Umberto I 1, 70121 Bari, Italy
Type of business or sector	Dipartimento Interateneo di Fisica, Università degli Studi di Bari “Aldo Moro”
<b>Education and training</b>	
Dates	2021
Title of qualification awarded	Master Lab
Principal subjects/occupational skills covered	Artificial Intelligence Technology & Management
Name and type of organisation providing education and training	Fondazione Ateneo Impresa – Federlazio Business Center
Dates	2005
Title of qualification awarded	First Level Qualified Expert
Principal subjects/occupational skills covered	Physical monitoring of radiation protection
Dates	2005
Title of qualification awarded	Specialization
Principal subjects/occupational skills covered	Medical Physics
Name and type of organisation providing education and training	Università degli Studi di Napoli “Federico II”
Dates	2003
Title of qualification awarded	First Level Master
Principal subjects/occupational skills covered	Tecnologie per il Rilevamento spaziale – Algoritmi di classificazione su immagini landsat
Name and type of organisation providing education and training	Dipartimento Interateneo di Fisica, Università degli Studi di Bari “Aldo Moro”

Dates	2001
Title of qualification awarded	Single-cycle master's degree
Principal subjects/occupational skills covered	Physics
Name and type of organisation providing education and training	Dipartimento Interateneo di Fisica, Università degli Studi di Bari "Aldo Moro"
<b>Personal skills and competences</b>	
Mother tongue(s)	Italian
Other language(s)	English
<b>Organisational skills and competences</b>	Collaborating and working well together with others, clear communication skills, conflict management and resolution skills, mentoring and coaching team members, public speaking and presentation skills, socializing skills, constructive feedback, flexibility in thinking and operating style, listening well, networking and building relationships.
<b>Technical skills and competences</b>	Attention to detail, strategic planning, workflow analysis, coordinating events, multitasking, scheduling.  Design of AI models and algorithms to treat big data and biomedical imaging within the oncological field.
<b>Grant</b>	
Project	PNC Project - "DARE - Digital Lifelong Prevention" funded by Ministry of University and research.
Year	2022
Position in the project	Principal Investigator
Project	"Tecnopolo per la medicina di precision" - Implementation of Multimodal Imaging Platform Combined with Artificial Intelligence in Precision Medicine
Year	2022
Position in the project	Principal Investigator
Project	Studio Pilota multidimensionale sui meccanismi di risposta e di tossicità alla radioterapia in neoplasie primariamente (chemio) radiotrattate (RADECISION) funded by Ministry of Health.
Year	2021
Position in the project	Coordinator
Project	ACC project "MEF - Health Big-data
Year	2021
Position in the project	Referent

	Project	Radiomics predictive modeling based on real world data funded by Ministry of Health.
	Year	2021
	Position in the project	Coordinator
	Project	Ricerca Finalizzata di Rete - Definition and testing of a new model of clinical governance based on the integration of tools such as Health Technology Assessment, Clinical Practice Guidelines, Clinical Pathways, and healthcare performance measurement for planning, implementation and management of healthcare interventions in different settings - INTEGRATE-HEALTH-GOV funded by Ministry of Health and Regione Puglia.
	Year	2018
	Position in the project	Principal Collaborator and Study Coordinator
<b>Additional information</b>		
	Co-author of more than 60 scientific publications on accredited scientific journals. Co-author of more than 100 posters and abstracts presented at national and international conferences.	
	Guest Editor of the Special Issues: “Neoadjuvant Therapy in Breast Cancer: Biomarkers and Early Response Prediction” on the journal Frontiers in Oncology, “Clinical studies on Breast Lymph-nodes Involvement” on the journal Applied Sciences, “Artificial Intelligence in the Detection and Segmentation of Breast Cancers” on the journal Frontiers in Oncology.	
	Scientific and technological association with INFN and part of the working table for the framework convention among Università di Bari, I.R.C.C.S. Istituto Tumori “Giovanni Paolo II” and INFN.	
<b>Last conferences</b>		
	Congresso Nazionale SIAPeC-IAP, Padova (2022).	
	Congresso Nazionale IMI 2022, Firenze (2022).	
	Congresso Nazionale AIOM 2022: oncologia e complessità, Roma (2022).	
	ASCO 2022: Che novità nel carcinoma mammario? Bari (2022).	
	Novità terapeutiche per il carcinoma mammario per il 2023, Bari (2022).	
	Nuove Strategie di Valutazione e Riduzione del Rischio nelle Neoplasie della Sfera Femminile, Bari (2022).	
	Stage educativo: Radioterapia nel carcinoma del polmone localmente avanzato non resecabile, Bari (2022).	
	7th ACC Annual Meeting New Technologies And Strategies To Fight Cancer, Roma (2022).	
	37th SITC Annual Meeting, Boston (2022).	
	European Congress of Radiology, Vienna (2022).	

## Main publications

- Massafra R, Fanizzi A, Amoroso N, et al (2023) Analyzing breast cancer invasive disease event classification through explainable artificial intelligence. *Front Med (Lausanne)*. (IF 4.468)
- M.C. Comes ... et R. Massafra. A deep learning model based on whole slide images to predict disease-free survival in cutaneous melanoma patients *Scientific Reports*, 2022. (IF 4.996)
- R. Massafra<sup>+</sup>, M.C. Comes<sup>+</sup>, ...& A. Fanizzi (2022). A machine learning ensemble approach for 5-and 10-year breast cancer invasive disease event classification. *PloS one*, 17(9), e0274691. (IF 3.752)
- Fanizzi, G. Scognamillo, A. Nestola, S. Bambace, S. Bove, M. C. Comes, ... and R. Massafra (2022). Transfer learning approach based on computed tomography images for predicting late xerostomia after radiotherapy in patients with oropharyngeal cancer. *Frontiers in Medicine*, 2842. (IF 5.058)
- Massafra, R., Comes, M. C., Bove, S., Didonna, V., Gatta, G., Giotta, F., ... & Paradiso, A. V. (2022). Robustness Evaluation of a Deep Learning Model on Sagittal and Axial Breast DCE-MRIs to Predict Pathological Complete Response to Neoadjuvant Chemotherapy. *Journal of personalized medicine*, 12(6), 953. (IF 3.508)
- Bove, S., Comes, M. C., Lorusso, V., Cristofaro, C., Didonna, V., Gatta, G., ... & Massafra, R. (2022). A ultrasound-based radiomic approach to predict the nodal status in clinically negative breast cancer patients. *Scientific Reports*, 12(1), 1-10. (IF 4.996)
- Catino, A., Fanizzi, A., Perrotti, P. P. S., Pizzutilo, P., Montrone, M., Galetta, D., & Massafra, R. (2022). 125P Radiomic signature from baseline CT-Scan to predict initial response to treatment in advanced/unresectable pleural mesothelioma: Preliminary data. *Annals of Oncology*, 33, S89-S90 (abstract, IF 51.769)
- Massafra, R., Catino, A., Perrotti, P. M. S., Pizzutilo, P., Fanizzi, A., Montrone, M., & Galetta, D. (2022). Informative Power Evaluation of Clinical Parameters to Predict Initial Therapeutic Response in Patients with Advanced Pleural Mesothelioma: A Machine Learning Approach. *Journal of Clinical Medicine*, 11(6), 1659. (IF 4.964)
- Lombardi, A., Amoroso, N., Bellantuono, L., Bove, S., Comes, M. C., Fanizzi, A., ... & Massafra, R. (2022). Accurate Evaluation of Feature Contributions for Sentinel Lymph Node Status Classification in Breast Cancer. *Applied Sciences*, 12(14), 7227. (IF 2.838)
- Massafra, R., Bove, S., La Forgia, D., Comes, M. C., Didonna, V., Gatta, G., ... & Lorusso, V. (2022). An Invasive Disease Event-Free Survival Analysis to Investigate Ki67 Role with Respect to Breast Cancer Patients' Age: A Retrospective Cohort Study. *Cancers*, 14(9), 2215. (IF 6.575)
- Massafra, R., Latorre, A., Fanizzi, A., Bellotti, R., Didonna, V., Giotta, F., La Forgia, D., Nardona, A., Pastena, M.I., Ressa, M., Rinaldi, L., Russo, A. O. M., Tamborra, P., Tangaro, S., Zito, A., And Lorusso, V. (2021) A Clinical Decision Support System For Predicting Invasive Breast Cancer Recurrence: Preliminary Results. *Frontiers In Oncology*, 11, 284 (IF 4.848)
- Comes, M. C., Fanizzi, A., Bove, S., Didonna, V., Diotaiuti, S., La Forgia, D., ... & Massafra, R. (2021). Early Prediction Of Neoadjuvant Chemotherapy Response By Exploiting A Transfer Learning Approach On Breast DCE-Mris. *Scientific Reports*, 11(1), 1-12 (IF 4.996)

Massafra, R., Pomarico, D., Fanizzi, A., Campobasso, F., Didonna, V., Latorre, A., ... & La Forgia, D. (2021). Advancement Study Of Cancermath Model As Prognostic Tools For Predicting Sentinel Lymph Node Metastasis In Clinically Negative T1 Breast Cancer Patients. *Journal Of BU ON.: Official Journal Of The Balkan Union Of Oncology*, 26(3), 720-727.. (IF 1.695)

Amoroso, N., Pomarico, D., Fanizzi, A., Didonna, V., Giotta, F., La Forgia, D. L., ... & Massafra, R. (2021). A Roadmap Towards Breast Cancer Therapies Supported By Explainable Artificial Intelligence. *Applied Sciences*, 11(11), 4881. (IF 2.474)

Massafra, R., Bove, S., Lorusso, V., Biafora, A., Comes, M. C., Didonna, V., Fanizzi, A., ... & La Forgia, D. (2021). Radiomic Feature Reduction Approach To Predict Breast Cancer By Contrast-Enhanced Spectral Mammography Images. *Diagnostics*, 11(4), 684. (IF 3.110)

Fanizzi, A., Ressa, M. C., Gatta, G., Cristofaro, C., De Santis, V., Didonna, V., ... & Massafra, R. (2021). Disease-Free Survival After Breast Conservation Therapy Vs. Mastectomy Of Patients With T1/2 Breast Cancer And No Lymph Node Metastases: Our Experience. *Applied Sciences*, 11(21), 9800. (IF 2.474)

Losurdo L., La Forgia D., Didonna V., Basile T.M.A., Fanizzi A. , Tangaro S., Carbonara R., Tamborra P., Moschetta M., Fiorentino F., Gorgoglione A., Cinelli F., Massafra R. Abstract —Contrast-Enhanced Spectral Mammography Analysis Of Region Of Interest Based On Gray Levels: A Preliminary Multi- Center Study In Puglia (Italy)ll. *Physica Medica: European Journal Of Medical Physics* (2018). (IF 2.485)

Massafra R., Fanizzi A., Basile T.M.A., Bellotti R., Carbonara R., La Forgia D., Moschetta M., Tamborra P., Tangaro S., Losurdo L., Didonna V. Abstract —Computer Aided Detection System For The Automated Classification Of Clustered Microcalcifications In Digital Mammogramsll. *Physica Medica: European Journal Of Medical Physics* (2018) (IF 2.485)

Bellotti, R., De Carlo, F., Tangaro, S., Gargano, G., Maggipinto, G., Castellano, M., Massafra, R., ... & De Nunzio, G. A completely automated CAD system for mass detection in a large mammographic database. *Medical physics*, 33(8), 3066-3075 (2006) (IF 4.506)

Petrillo, A., Fusco, R., Di Bernardo, E., Petrosino, T., Barretta, M. L., Porto, A., ... & La Forgia, D.(2022). Prediction of Breast Cancer Histological Outcome by Radiomics and Artificial Intelligence Analysis in Contrast-Enhanced Mammography. *Cancers*, 14(9), 2132. (IF 6.575)

La Forgia, D., Vestito, A., Lasciarrea, M., Comes, M. C., Diotaiuti, S., Giotta, F., Massafra, R., ... & Fanizzi, A. (2021). Response Predictivity to Neoadjuvant Therapies in Breast Cancer: A Qualitative Analysis of Background Parenchymal Enhancement in DCE-MRI. *Journal of Personalized Medicine*, 11(4), 256. (IF 4.433)

Avanzo, M., Porzio, M., Lorenzon, L., Milan, L., Sghedoni, R., Russo, G., Massafra, R., Fanizzi, A., Massafra, R., ... (2021). Artificial Intelligence Applications In Medical Imaging: A Review Of The Medical Physics Research In Italyll. *Physica Medica Sulla AI. Physica Medica* (IF 2.485)

Placidi, L., Gioscio, E., Garibaldi, C., Rancati, T., Fanizzi, A., Maestri, D., ... & Avanzo, M. (2021). A Multicentre Evaluation Of Dosiomics Features Reproducibility, Stability And Sensitivity. *Cancers*, 13(15), 3835. (IF 6.102)

La Forgia, D., Fanizzi, A., Campobasso, F., Bellotti, R., Didonna, V., Lorusso, V., Massafra R., ... & Telegrafo, M. (2020). Radiomic Analysis In Contrast-Enhanced Spectral Mammography For Predicting Breast Cancer Histological Outcome. *Diagnostics*, 10(9), 708. (IF 3.110)

Fanizzi, A., Basile, T. M., Losurdo, L., Bellotti, R., Bottigli, U., Dentamaro, R., Massafra, R., ... & Popescu, O. (2020). A Machine Learning Approach On Multiscale Texture Analysis For Breast Microcalcification Diagnosis. *Bmc Bioinformatics*, 21(2), 1-11. (IF 3.242)

Fausto, A., Bernini, M., La Forgia, D., Fanizzi, A., Marcasciano, M., Volterrani, L., ... & Mazzei, M. A. (2019). Six-Year Prospective Evaluation Of Secondlook Us With Volume Navigation For Mri-Detected Additional Breast Lesions. *European Radiology*, 29(4), 1799-1808. (IF 5.315)

Losurdo, L., Basile, T. M. A., Fanizzi, A., Bellotti, R., Bottigli, U., Carbonara, R., ... & Giotta, F. (2018). A Gradient-Based Approach For Breast Dcemri Analysis. *Biomed Research International*, 2018. (IF 3.246)

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Bari, 10/07/2023

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