PERSONAL INFORMATION

Lorenzo Lasagni

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Sex male | Date of birth 29/11/1993 | Nationality Italian

WORK EXPERIENCE

November 2023 - Actually

PhD candidate, Università degli studi di Firenze

Ph.D. Scholarship Title: "Deep Learning-Based Advanced Magnetic Resonance Imaging Analysis and Their Application in the Diagnosis of Cognitive Impairment"
This scholarship focuses on the development of machine learning techniques, encompassing both radiomics and deep learning, for the analysis of neuro-imaging. The primary application areas include pre-surgical planning for epilepsy and advancements in neuro-oncology.

March 2023 – October 2023

Researcher, Università degli studi di Firenze

Winner of a fellowship for research activities entitled "Tissue characterization using molecular imaging techniques and artificial intelligence." My main areas of expertise involve the analysis of advanced MRI techniques for pediatric preoperative neuroimaging. Secondly, I am involved in the implementation of artificial intelligence algorithms for the analysis of tractography and MRI images of epilepsy-related diseases.

December 2019- February 2023

Researcher, Università degli studi di Firenze

Research grant with the title “Techniques borrowed from physical sciences and AI techniques for effective optimization of the CT exams”. The first goal of the project is to develop software that utilizes the techniques used in astrophysical studies to permit better detection of signals in low-dose CT. Since Covid-19 has started a second focus was added to develop software to segment ill lungs, using morphological and radiomics information.

July 2019- November 2019

Researcher, AUSL Reggio Emilia, IRCCS

Scholarship for study and research activities to be carried out at the Complex Operating Structure “Medical Physics” within the project “Evaluation technique for crystalline dose for workers exposed to ionizing radiation in the medical field, modeling of related biological effects and radio-induced risk reduction strategies.

April 2018- October 2018

Researcher, CPT, PSI (Paul Scherrer Institute)

Thesis activity; I have been involved in the commissioning for patching and rescanning for 4D treatments. I have been working on the computational calculation part, to permit changes to the normal configuration of the 4D dose calculation, and also on the experimental part to verify that the delivery corresponds to the analytical calculation.

September 2015- February 2016

Data analyst, DIBINEM, Alma Mater Studiorum University of Bologna

“Confronto di dati volumetrici di neuroimaging RM, acquisiti con differenti sonde a radiofrequenza”

Thesis activity; I have made a data analysis about signals acquired with two different coils for magnetic

resonance neuroimaging. The final goal of my job was to determine for which type of studies it could be better to use one coil concerning the second one.

EDUCATION AND TRAINING

2019-2022

University of Florenze

70/70 cum laude

Graduate school in medical physics

- Radiotherapy treatment plan;
- Usage of physics in clinical;
- Radiobiology.

2016-2019

Alma Mater Studiorum University of Bologna

110/110

Master's degree in Physics Applied to Medicine

- Main uses of physics in the field of medicine and biology;
- Data analysis and Complex system studies;
- Nuclear and subnuclear physics.

2012-2016

Alma Mater Studiorum University of Bologna

Physics degree

- Introduction to all the modern fields of research in physics;
- Detailed studies about math.

PERSONAL SKILLS

Mother tongue: Italian

Other language(s)

	UNDERSTANDING		SPEAKING		WRITING
	Listening	Reading	Spoken interaction	Spoken production	
English	C1	C1	C1	C1	B2

Levels: A1/A2: Basic user - B1/B2: Independent user - C1/C2 Proficient user
Common European Framework of Reference for Languages

Communication skills

Good communication and relational skills acquired with team working activities made during my university studies and my jobs.
Main speaker in some political talks.

Organisational / managerial skills

Great managerial skills acquired thanks to:

- Co-supervisor of MS thesis
- AIFM National Youth Advisor
- President of AISF (Associazione Italiana Studenti di Fisica, (Italian Association of Physics Student) in Bologna; (2018-2019)
- Vice-president of AISF (Associazione Italiana Studenti di Fisica, Italian Association of Physics Students) in Bologna; (2017-2018)
- Representative of the students for my high school institute during my 5th year.

Digital skils

Expert:

- Python

- MATLAB
- Pytorch
- Office

Basic:

- C++

Driving license B

HONORS AND AWARDS

- 2nd best oral communication in Biophysics and Medical Physics at National Congress of SIF 2022.
- National prize for scientific communication, between high schools, about Guglielmo Marconi.

SCIENTIFIC PAPERS AND PATENT

2020 - Udroiu, I., Sgura, A., Lasagni, . *et al.* DNA damage in lens epithelial cells exposed to occupationally-relevant X-ray doses and role in cataract formation. *Sci Rep* **10,** 21693 (2020). https://doi.org/10.1038/s41598-020-78383-2

2021 - Doria S, Valeri F, Lasagni L, et al. Addressing signal alterations induced in CT images by deep learning processing: A preliminary phantom study, Physica Medica 83 (2021). https://doi.org/10.1016/j.ejmp.2021.02.022.

2021 - Iori M, Isolan L, Piergallini L, Chendi A, Lasagni L, et al. How direct measurements on worker eyes with Scheimpflug camera can affect lens dose conversion coefficients in interventional radiology. J Radiol Prot. 2021. https://doi.org/10.1088/1361-6498/abf56f

2023 - Valeri F, Bartolucci M, Lasagni L, et al. UNet and MobileNet CNN based model observers for CT protocol optimization: comparative performance evaluation by means of phantom CT images. J. Med. Imag. 10(S1) doi: 10.1117/1.JMI.10.S1.S11904

2023 - Lasagni L., Low-contrast detection and super-resolution in CT images: Evaluation of a novel approach based on Centroidal Voronoi Tessellation, IL NUOVO CIMENTO 46 C. Doi: 10.1393/ncc/i2023-23071-4

2023 - Lasagni L. et al., "METODO PER LA SEGMENTAZIONE POLMONARE DA UNA SCANSIONE VOLUMETRICA DEL TORACE", patent with number of the request: 102023000023646

PARTECIPATION IN SEMINARS, CONFERENCES AND CONGRESS AS A TEACHER/ SPEAKER/ ANNOUNCER

2019 - ISS, **Valutazione dettagliata degli effetti della dose al cristallino negli IRCCS.** 6 November 2019, Rome

2022 - ECMP 2022, **Centroidal Voronoi Tessellation for low contrast detection and super-resolution in phantom CT images.** 18-20 August 2022, Dublin

2022 - SIF 2022, **Possibile applicazione della Centroidal Voronoi Tesselation per il rilevamento di lesioni a basso contrasto in immagini TC.** 13 September 2022, Milan

2023 - ECR 2023, **Explainable AI for prostate cancer detection, a novel approach to better understand and optimize neural network.** 1-5 March 2023, Wien

Care colleghe e cari colleghi,

mi chiamo Lorenzo Lasagni, mi sono specializzato presso la Scuola di Specializzazione in Fisica Medica di Firenze nel dicembre 2022 e attualmente sono dottorando presso l'Azienda Ospedaliero-Universitaria Meyer IRCCS di Firenze.

Dopo aver avuto l'onore di far parte dell'ultimo Consiglio di AIFM Giovani, ho deciso di ricandidarmi per un secondo mandato come consigliere, con l'entusiasmo di chi ha già lavorato e visto alcuni primi successi del gruppo e con la consapevolezza dell'importanza di portare avanti e rafforzare il lavoro fin qui svolto.

Ora è il momento di consolidare quanto fatto, rafforzare i rapporti con le altre società scientifiche e, soprattutto, cercare di coinvolgere ancora di più i giovani colleghi nella vita dell'associazione, rendendoli protagonisti delle iniziative e dei progetti che ci riguardano.

Fin da quando ero studente ho sempre creduto nel valore della rappresentanza e della partecipazione. Sono stato rappresentante d'istituto alle superiori, vice-presidente e poi presidente dell'Associazione Italiana Studenti di Fisica (AISF) dell'Università di Bologna, e ho rappresentato i medici fisici in formazione nella mia Scuola di Specializzazione a Firenze. La mia motivazione resta la stessa: dare voce ai colleghi, creare legami, costruire spazi in cui confrontarsi e crescere insieme.

Nel mio primo mandato, ho sostenuto un approccio duplice al lavoro del gruppo: favorendo il coinvolgimento diretto dei giovani attraverso incontri, confronti e proposte; e cercando di rendere AIFM Giovani un punto di riferimento accessibile anche per gli specializzandi e i neolaureati che si affacciano alla professione.

- Vorrei continuare su questa strada, proponendo iniziative concrete come:
- il rafforzamento del dialogo tra giovani professionisti e istituzioni scientifiche;
- la valorizzazione delle esperienze locali attraverso progetti nazionali condivisi, come il progetto scuole;
- la promozione di momenti di incontro – in presenza e online – che alimentino non solo il confronto professionale, ma anche quello umano.

Credo profondamente che l'energia e le idee dei giovani possano rappresentare una risorsa fondamentale per l'evoluzione della nostra professione e della nostra associazione. Per questo, se me ne darete l'opportunità, continuerò a impegnarmi con passione e responsabilità.

Un caro saluto,