

LUCA GIANNONI

EDUCATION

Doctorate of Philosophy (PhD) in Medical Imaging

Exp. May 2020

University College London (UCL), United Kingdom

- *Supervisors:* Dr. Ilias Tachtsidis; Dr. Frédéric Lange.
- *Provisory thesis title:* "Hyperspectral Imaging of the Hemodynamic and Metabolic States of the Exposed Cortex".
- Part of the Brain Injury and Trauma Monitoring using Advanced Photonics (BitMap) ITN, project no. 675332.
- Affiliated to Engineering and Physical Sciences Research Council (EPSRC) Centre for Doctoral Training (CDT) in Medical Imaging

Master of Science (M.Sc.) in Nuclear Engineering

July 2016

Università di Pisa (UniPi), Italy

- *Final grade:* 110/110 *cum laude* (with honours).
- *Thesis title:* "Design, Development and Investigations of a Novel X-ray Fluorescence and X-ray Luminescence Computed Tomography System for Theranostic Applications".
- *Supervisors:* Prof. Francesco d'Errico (UniPi); Prof. Ling-Jian Meng (UIUC); Dr. Valerio Giusti (UniPi).
- Thesis preparation and research at the Department of Nuclear, Plasma and Radiological Engineering (NPRE), University of Illinois at Urbana-Champaign (UIUC), USA.

Bachelor of Science (B.Sc.) in Nuclear, Safety and Security Engineering

Oct 2013

Università di Pisa (UniPi), Italy

- *Final grade:* 110/110.
- *Thesis title:* "Exposure to Low Doses of Ionizing Radiations: Is the Linear No-Threshold Model Valid?".
- *Supervisor:* Prof. Marino Mazzini.

EDUCATION EXPERIENCE

Exchange Graduate Student in Nuclear, Plasma and Radiological Engineering

Aug 2015 – May 2016

Department of Nuclear, Plasma and Radiological Engineering (NPRE)

University of Illinois at Urbana-Champaign (UIUC), IL, United States

- *Semesters:* Fall 2015 and Spring 2016.
- *GPA:* 4.0/4.0.
- *Research and Academic Supervisor:* Prof. Ling-Jian Meng.
- Performed main research for the Master of Science (M.Sc.) thesis, working as Visiting Research Scholar with Prof. L. J. Meng in the Radiation Detection and Imaging (RDI) group.
- Attended and completed NPRE graduate courses and seminars.
- Attended and completed Bioengineering (BIOE) graduate courses.

RESEARCH EXPERIENCE

Marie Curie Early Stage Researcher (ESR)

Sept 2016 – Sep 2019

*Department of Medical Physics and Biomedical Engineering,
University College London (UCL), United Kingdom*

- *Research Group:* Biomedical Optics Research Laboratory (BORL), Multimodal Spectroscopy (MMS) group, Dr. Ilias Tachtsidis (PI).
- *Collaborations:* 1) Department of Neuroinflammation, Institute of Neurology, University College London (Prof. Kenneth J. Smith, Dr. Andrew L. Davies); 2) School of Computer Science, University of Birmingham (Prof. Hamid Dehghani);
- Part of the Brain Injury and Trauma Monitoring using Advanced Photonics (BitMap) ITN, project no. 675332.
- Designed, developed and tested a near-infrared (NIR) hyperspectral imaging (HSI) system for monitoring oxygenation, hemodynamics and metabolism on the exposed cerebral cortex of small animal models (mice and rats).
- Conducted investigations on hemodynamics and metabolism of the exposed cortex of mice and rats during induced hypoxia, anoxia and hyperoxia, using custom-made near-infrared (NIR) hyperspectral imaging (HSI) system.
- Conducted investigations on hemodynamics of the exposed cortex of rats after administration of different experimental vasodilation drugs for Multiple Sclerosis (MS) treatment, using custom-made near-infrared (NIR) hyperspectral imaging (HSI) system.
- Tested and investigated of the suitability of different benchtop setups based on spectral-scanning hyperspectral imaging (HSI) to perform brain metabolic monitoring in small animals (mice).
- Tested and investigated of the suitability of a commercial hyperspectral snapshot camera to perform brain metabolic monitoring in small animals (mice).
- Designed and conducted studies on brain-mimicking, blood and Intralipid-based liquid phantom with custom-made near-infrared (NIR) hyperspectral imaging (HSI) system.
- Performed Monte Carlo simulations of optical diffusion in biological tissue with Meshed-Monte Carlo (MMC) code for experimental system validation and development.
- Developed Monte Carlo computational optical framework for hyperspectral imaging (HSI) of brain tissue.
- Developed and validated data processing algorithms for near-infrared (NIR) hyperspectral imaging (HSI) data to reconstruct maps of changes in hemodynamics and metabolism on the exposed cortex of small animal models (mice and rats).
- Conducted investigations using broadband near-infrared spectroscopy (bNIRS) for monitoring hemodynamics and metabolism on the exposed spinal cord of control and experimental autoimmune encephalomyelitis (EAE) rats after administration of different experimental vasodilation drugs for Multiple Sclerosis (MS) treatment.

RESEARCH EXPERIENCE (CONTINUED)

BitMap Research Secondment (1 week)

Dec 2017

School of Computer Science,

University of Birmingham (UoB), United Kingdom

- *Supervisor:* Prof. Hamid Dehghani.
- Part of the Brain Injury and Trauma Monitoring using Advanced Photonics (BitMap) ITN, project no. 675332.
- Trained on NIRFAST software for brain NIRS.
- Created an integration and conversion Matlab platform between MMC and NIRFAST software.
- Developed NIRFAST-based finite element method (FEM) model for hyperspectral imaging (HSI) of brain tissue.
- Performed FEM simulations of optical diffusion in biological tissue with NIRFAST for experimental system validation and development.

Visiting Student Researcher

Aug 2015 – June 2016

Department of Nuclear, Plasma and Radiological Engineering (NPRE),

University of Illinois at Urbana-Champaign (UIUC), IL, United States

- *Research Group:* Radiation Detection and Imaging (RDI) group, Prof. L. J. Meng (PI).
- *Collaborations:* 1) Department of Radiology, University of Chicago (Prof. Chin-Tu Chen, Prof. Patrick J. La Riviere, Dr. Shih-Hsun Cheng, Dr. Luewei Lo); 2) Department of Radiology, Massachusetts General Hospital, Harvard University (Prof. Quanzheng Li, Dr. Joyta Dutta, Dr. Kyungsang Kim); 3) Department of Bioengineering, University of Illinois at Urbana-Champaign (Prof. Andrew Smith, Prof. Dipanjan Pan); 4) Department of Chemistry, University of Illinois at Urbana-Champaign (Prof. Yi Lu); 5) Department of Material Science and Engineering, University of Illinois at Urbana-Champaign (Prof. J.J Cheng); 6) Department of Industrial and Civil Engineering, Università di Pisa (Prof. Francesco d'Errico).
- Developed and designed a novel laboratory setup and instrumentation for benchtop X-ray Fluorescence Computed Tomography (XFCT) and X-ray Luminescence Computed Tomography (XLCT).
- Developed and validated algorithms and numerical codes for geometric calibration of imaging detectors and geometries for XFCT and XLCT applications.
- Designed and conducted imaging experiments for studying X-ray photodynamic therapy (XPDT) and radiation therapy with heavy metal nanoparticles (Y_2O_3 , LaF_3 , HfO_2 and Quantum Dots).
- Quantification and comparison of energy-modulated x-ray fluorescence and luminescence signals, for both imaging and therapeutic applications, of different heavy metal nanoparticles (Y_2O_3 , LaF_3).
- Designed and manufactured gel phantoms and 3D printed plastic phantoms for imaging experiments on XFCT, XLCT and XPDT.
- Designed and tested sensitivity of slit apertures, pinhole apertures and collimation systems for X-ray imaging setups and for fluorescence and luminescence signal collection.

RESEARCH EXPERIENCE (CONTINUED)

- Designed and investigated the feasibility of novel high-energy X-ray fluorescence emission techniques for preclinical and clinical imaging of trace heavy metals in organisms (Gd, Pt, La, Au, Hf) and high-Z therapeutic nanoparticles.
- Applied and tested custom-designed and prototype energy-resolving photon counting (ERPC) CdTe semiconductor detectors for imaging applications.
- Applied and tested commercial CCD, EMCCD and CMOS camera for imaging and theranostic applications.
- Developed and implemented data processing codes in Matlab and C for imaging and quantification of XFCT and XLCT signal.

RESEARCH INTERESTS

- Optical engineering and advanced photonics.
- Design and development of optical systems and devices.
- Optical microscopy and imaging.
- Numerical methods and computational simulations for optical systems.
- Design and development of medical imaging systems and devices.
- Imaging devices and detectors for biomedical systems.
- Biomedical optics and photonics.
- Functional Near-Infrared Spectroscopy (fNIRS) and Imaging (fNIRI).
- Biomedical hyperspectral (HSI) and multispectral imaging (MSI).
- Intrinsic Signal Optical Imaging (ISOI).
- Neuroimaging and functional imaging.
- Monte Carlo and finite element method (FEM) computational models and methods for biomedical optical imaging.
- Nuclear medicine and radiological imaging modalities.
- X-ray fluorescence (XF) and X-ray luminescence (XL) imaging modalities for diagnostics and cancer treatment therapy.
- X-ray fluorescence (XF) imaging techniques and systems for tracing naturally occurring heavy metals and retained heavy metal contrast agents in human body.
- X-ray photodynamic therapy (XPDT).
- Novel applications and improvements of CdTe semiconductor detectors, CCD, EMCCD and CMOS cameras for nuclear medicine and imaging with ionizing radiations.
- Biological and health effects of ionizing radiation in human body and dose-effect risk models for general public and workers.

PUBLICATIONS

FIRST AUTHOR:

Giannoni, L., Lange F. and Tachtsidis, I., "Investigation of the quantification of hemoglobin and cytochrome-c-oxidase in the exposed cortex with near-infrared hyperspectral imaging: a simulation study", *Journal of Biomedical Optics* 25(4):046001, April 2020, DOI: [10.1117/1.JBO.25.4.046001](https://doi.org/10.1117/1.JBO.25.4.046001).

PUBLICATIONS (CONTINUED)

Giannoni, L., Lange F. and Tachtsidis, I., "A near-infrared hyperspectral imaging system for quantitative monitoring of hemodynamics and metabolism on the exposed cortex of mice", *Proc. SPIE 11074, Diffuse Optical Spectroscopy and Imaging VII*, 1107413, July 2019, DOI: [10.1117/12.2526599](https://doi.org/10.1117/12.2526599)

Giannoni, L., Lange F. and Tachtsidis, I., "Hyperspectral imaging of the hemodynamic and metabolic states of the exposed cortex: Investigating a commercial snapshot solution", In: Thews O., LaManna J., Harrison D. (eds), *Oxygen Transport to Tissue XL. Advances in Experimental Medicine and Biology*, vol 1072, Springer, August 2018, DOI: [10.1007/978-3-319-91287-5_3](https://doi.org/10.1007/978-3-319-91287-5_3)

Giannoni, L., Lange F. and Tachtsidis, I., "Hyperspectral imaging solutions for brain tissue metabolic and hemodynamic monitoring: past, current and future developments", *Journal of Optics* 20(4):044009, March 2018, DOI: [10.1088/2040-8986/aab3a6](https://doi.org/10.1088/2040-8986/aab3a6).

Giannoni, L., Mazzini, M., "Exposure to Low Doses of Ionizing Radiations: Is the Linear No-Threshold Model Valid?", *22nd International Conference on Nuclear Engineering, Volume 6: Nuclear Education, Public Acceptance and Related Issues; Instrumentation and Controls (I&C); Fusion Engineering; Beyond Design Basis Events*, 2015, DOI: [10.1115/ICONE22-30967](https://doi.org/10.1115/ICONE22-30967).

SECOND AUTHOR:

George, G., Giannoni, L. and Meng, L.J., "Energy-modulated x-ray fluorescence and luminescence emissions from therapeutic nanoparticles", *Physics in Medicine & Biology* 64(3):035020, January 2019, DOI: [10.1088/1361-6560/aaec3](https://doi.org/10.1088/1361-6560/aaec3).

CONFERENCES ATTENDANCE

ORAL PRESENTATIONS:

Giannoni, L., Lange F. and Tachtsidis, I., "A near-infrared hyperspectral imaging system for quantitative monitoring of hemodynamics and metabolism on the exposed cortex of mice", *2019 SPIE European Conference on Biomedical Optics (ECBO 2019)*, Munich, Germany, June 23-25, 2019

Giannoni, L., Lange F. and Tachtsidis, I., "Hyperspectral imaging of the hemodynamic and metabolic states of the exposed cortex", *45th Annual Meeting of the International Society on Oxygen Transport to Tissue (ISOTT 2017)*, Halle, Germany, August 19-23, 2017.

Giannoni, L., George, J., Lai, X., and Meng, L.J., "Design and Feasibility Study of a Full-Ring X-ray Fluorescence Emission Computed Tomography System based on Small-Pixel CdTe Detectors for Real-Time Monitoring of X-ray Induced and Nanoparticle Mediated Radiation Therapy", *Society of Nuclear Medicine and Molecular Imaging 2016 Annual Meeting (2016 SNMMI Annual Meeting)*, San Diego, USA, June 11-15, 2016.

Giannoni, L., Mazzini, M., "Exposure to low doses of ionizing radiations: Is the linear no-threshold model valid?", *2014 22nd ASME International Conference On Nuclear Engineering (ICONE22)*, Prague, Czech Republic, July 7–11, 2014.

POSTER PRESENTATIONS:

Giannoni, L., Lange, F. and Tachtsidis, I., "Near infrared hyperspectral imaging of the hemodynamic and metabolic states of the exposed cortex: in vivo investigation on small animal models", *2nd fNIRS UK Conference (fNIRS UK 2019)*, Birmingham, UK, September 26-27, 2019.

Giannoni, L., Lange, F. and Tachtsidis, I., "A Monte Carlo hyperspectral imaging framework simulating hemodynamic and metabolic monitoring of the exposed cortex", *2nd fNIRS UK Conference (fNIRS UK 2019)*, Birmingham, UK, September 26-27, 2019.

Giannoni, L., Lange F. and Tachtsidis, I., "Hyperspectral imaging of the hemodynamic and metabolic states of the exposed cortex: System development and applications", *fNIRS 2018, Biennial Meeting of the Society of Functional Near-Infrared Spectroscopy*, Tokyo, Japan, October 5-8, 2018.

CONFERENCES ATTENDANCE (CONTINUED)

Giannoni, L., Lange F. and Tachtsidis, I., "Hyperspectral imaging of the hemodynamic and metabolic states of the exposed cortex: A Monte Carlo investigation", *45th Annual Meeting of the International Society on Oxygen Transport to Tissue (ISOTT 2017)*, Halle, Germany, August 19-23, 2017.

CONFERENCE ABSTRACTS:

George, J., **Giannoni, L.**, Kim, K., Dutta, J., Cheng, S.H., Li, Q., Lo, L.W., Groll, A.N., La Riviere, P.J., and Meng, L.J., "Tri-Modality X-Ray Luminescence, Fluorescence and Transmission Computed Tomography for Monitoring X-Ray Induced Photodynamic Therapies", *2016 IEEE Nuclear Science Symposium and Medical Imaging Conference (2016 IEEE NSS-MIC)*, Strasbourg, France, October 29, 2016 – November 5, 2016.

George, J., **Giannoni, L.**, Lo, L.W., La Riviere, P.J., and Meng, L.J., "An Image Guided and Energy-Multiplexed Combinatorial Therapeutic Delivery System for X-Ray Induced Photodynamic Therapy", *2016 IEEE Nuclear Science Symposium and Medical Imaging Conference (2016 IEEE NSS-MIC)*, Strasbourg, France, October 29, 2016 – November 5, 2016.

Yoon, B.H, George, J., **Giannoni, L.**, Li, M., Groll, A.N., Smith, A.M., La Riviere, P.J., and Meng, L.J., "Preclinical Hybrid Imaging of Nanocrystals via X-ray Luminescence, Fluorescence, and Transmission Computed Tomography for Simultaneous Monitoring of Metal Ions and Cancer Growth: Feasibility Study", *2016 Midwest BME Regional Conference*, Champaign, USA, November 4, 2016.

George, J., **Giannoni, L.**, Kim, K., Dutta, J., Yoon, B.H, Groll, A.N., Li, Q., La Riviere, P.J., and Meng, L.J., "Hybrid X-ray Fluorescence, Luminescence and Transmission Computed Tomography for Image-Guided Nanoparticle-mediated X-ray Micro-Beam Therapy", *Society of Nuclear Medicine and Molecular Imaging 2016 Annual Meeting (2016 SNMMI Annual Meeting)*, San Diego, USA, June 11-15, 2016.

TEACHING AND TUTORING EXPERIENCE

Consultant

Nov 2019 – Present

Polaris & Dawn International, China

- Coaching and mentoring international students applying for a PhD in Medical imaging at University College London (UCL).
- One-to-one sessions with students, including preparation and review of CV, preparation to interviews, supervisor selection, preparation of the application online to the PhD programme.

PhD Tutor

Feb 2018 – Jan 2019

The Brilliant Club, United Kingdom

- Website: <https://thebrilliantclub.org>
- Summer placement (April to June 2018) at St. Edwards RC Primary School, Upton Park, London (Key Stage 2); Course topic: *How many engineers does it take to make ice cream?*
- Fall placement (Oct. to Dec. 2018) at Valentines High School, Ilford, London (Key Stage 5); Course topic: *Shining light into brain activity.*
- Designed, organized and taught 7-week tutorials on STEM research for high-performing pupils in low-participating schools (two groups of 6 and 8 pupils).
- Designed, assigned and assessed homework during the tutorials.
- Designed and assessed final written assignments, providing also feedback on it to the pupils.

PUBLIC ENGAGEMENT EXPERIENCE

MetaboLight

Dec 2016 – Sep 2019

*Department of Medical Physics and Biomedical Engineering,
University College London (UCL), United Kingdom*

- Website: <http://metabolight.org>
- Funded by Wellcome Trust (104580/Z/14/Z)
- Organized science communication and engagement activities for the general public about the research performed by the MMS group at UCL, particularly regarding neonatal brain monitoring with fNIRS.
- Organized and led workshops and seminars regarding biomedical optics, fNIRS and the research performed by the MMS group at UCL BIORL, mainly for students, physics teachers and clinicians.
- Organized and led the MetaboLight exhibition stand at The Royal Society Summer Science Exhibition 2019 in London, UK.
- Organized and led the MetaboLight exhibition stand at the 2018 Big Bang Fair in Birmingham, UK.
- Organized and led the MetaboLight exhibition stands at UCL academic and research open days and at other scientific festivals (2017 Norwich Science Festival in Norwich, UK and 2018 Summer Big Bang Fair in Sutton, UK).
- Contributed to write articles and sections in the MetaboLight magazines concerning biomedical optics and medical physics that are accessible to the general public.
- Contributed to the Twitter page, Facebook page and website of the MetaboLight project for dissemination and advertising.

ACADEMIC PROJECTS

Final Project for the exam of Imaging and Therapeutic Agents

May 2016

University of Illinois at Urbana-Champaign (UIUC), IL, United States

- Supervisor: Prof. Dipanjan Pan.
- Title: "Improving depth penetration and biocompatibility of X-ray luminescence for multiplexed detection of prostate cancer biomarkers".
- Proposed a prototype idea for an X-ray luminescence imaging system for multiplexed detection of prostate cancer biomarkers.

Final Project for the exam of Nuclear Materials

Mar 2014

Università di Pisa (UniPi), Italy

- Supervisor: Prof. Salvatore Lanza; Prof. Luigi Lazzeri.
- Studied the radiolysis of water in light water reactors (LWR) and the related technologies used to cope with the formation of hydrogen and oxygen in the primary system.

Final Project for the exam of Safety and Risk Analysis

Jan. 2013

Università di Pisa (UniPi), Italy

- Supervisor: Prof. Marco Nicola Carcassi.
- Performed risk analysis and assessment of the fire prevention system of an Italian chemical company.

ACADEMIC PROJECTS (CONTINUED)

Undergraduate thesis

June – Sept 2013

Università di Pisa (UniPi), Italy

- *Supervisor:* Prof. Marino Mazzini.
- *Title:* “Exposure to Low Doses of Ionizing Radiations: Is the Linear No-Threshold Model Valid?”.
- Studied the biological and health effect of ionizing radiation in human body and the dose effect models for risk assessment of radiation exposure of public and workers.
- Analysed and critically reviewed the Linear No-Threshold Model for low exposures of ionizing radiations, comparing it with Hormesis and bystander effect risk-dose models.
- Presented the thesis work as oral presentation at *ICONE22, 7-11 July 2014*, and published in the conference proceedings.

SELECTED ACADEMIC COURSEWORK

Medical Imaging:

- *Principles of Imaging with Ionizing Radiations* (UIUC).
- *Imaging and Therapeutic Agents* (UIUC).
- *Medical applications of Nuclear Technologies* (UniPi).

Nuclear Detectors and Instrumentation:

- *Nuclear, Plasma and Radiological Engineering Laboratory* (UIUC).
- *Nuclear Measurements* (UniPi).

Radiation Protection:

- *Radiation Protection* (UniPi).

Nuclear Physics and Engineering:

- *Principles of Nuclear Engineering* (UniPi).
- *Nuclear Reactor Physics* (UniPi).
- *Numerical Models for Nuclear Reactors* (UniPi).

Nuclear Power Plants:

- *LWR, CANDU, Gen. III and Gen. IV Nuclear Reactors* (UniPi).
- *Nuclear Safety* (UniPi).
- *Thermal-Hydraulics for Nuclear Power Plants* (UniPi).
- *Operation and Control of Nuclear Power Plants* (UniPi).

Mechanics and Materials:

- *Nuclear Materials* (UniPi).
- *Structural Mechanics and Principles of Mechanical Design* (UniPi).

Workshop and Professional Training:

- *BitMap training on NIRFAST* (UoB).
- *BitMap laboratory training on Time-Domain (TD) NIRS* (Politecnico di Milano).
- *BitMap training on Diffuse Correlation Spectroscopy (DCS)* (ICFO).
- *fNIRS 2016 Training Course on tissue optics and NIRS* (2016 fNIRS Biennial Meeting).
- *UCL Innovation and Enterprise Boot Camp* (UCL).
- *Statistics for Researcher* (UCL Doctoral School training).
- *RELAP/SCDAPSIM User Training Workshop* (UniPi).

UNIVERSITY SERVICE

President of UCL Medical Physics Social Committee

June 2017 – Sept 2019

*Department of Medical Physics and Biomedical Engineering,
University College London (UCL), United Kingdom*

- Organized and led social events in the department.
- Attended academic group meeting in the department.

Student Representative

Nov 2014 – July 2016

Nuclear Engineering Degree Academic Council, Università di Pisa (UniPi), Italy

- Attended teaching meetings of the Academic Council of the MSc course in Nuclear engineering.
- Contributed to the discussion about how to renew and improve the teaching program of the MSc course in Nuclear Engineering.
- Supported the interest of students in the Council.

Administration Office Assistant

Sept. 2013 – May 2015

School of Engineering, Università di Pisa (UniPi), Italy

- Helped and supported other students with problems related to their academic and professional career.
- Organized seminars and events for the School of Engineering.
- Created a complete online database of dissertations, theses and internships of alumni of the MSc of Engineering Management.

CERTIFICATIONS AND LICENCES

LabVIEW Core 2

July 2018

- Course length: 3 days.
- Successful completion.
- Released by *National Instruments, USA.*

UCL Enterprise Boot Camp

Feb 2018

- Course length: 3 days.
- Successful completion.
- Released by *UCL Innovation and Enterprise.*

Animal (Scientific Procedures) Act 1986 Personal Licence (PIL)

Dec 2017

- *Licence No. I7AE8AFCA*
- Released by *Home Office, UK.*

LabVIEW Core 1

Mar 2017

- Course length: 3 days.
- Successful completion.
- Released by *National Instruments, USA.*

General Revised Test (GRE®)

Mar 2016

- Verbal Reasoning: 160/170 (85th Percentile).
- Quantitative Reasoning: 160/170 (76th Percentile).
- Analytical Writing: 4/6 (56th Percentile).
- Released by *Educational Testing Service, USA.*

International English Language Test (IELTS), Academic

Sept 2014

- Overall Score: 8/9 (Listening: 8.5/9, Reading: 8.5/9, Writing: 7.5/9, Speaking: 7.5/9).
- Released by *British Council, London, UK.*

PROFESSIONAL MEMBERSHIPS

SPIE – The International Society for Optics and Photonics Student member.	2019 - Present
International Society on Oxygen Transport to Tissue (ISOTT) Student member.	2017 - Present
Society for Functional Near-Infrared Spectroscopy (SfNIRS) Student member.	2016 - Present
Institute of Electrical and Electronics Engineers (IEEE) IEEE Young Professional.	2015 - 2019
Society of Nuclear Medicine and Molecular Imaging (SNMMI) Scientist-in-Training.	2016 - 2019
American Society of Mechanical Engineers (ASME) Student member.	2014 - 2019

TECHNICAL SKILLS

Operating Systems (OS) and Suites:

- Windows and Microsoft Office suite (Visual Studio, Word, Excel, PowerPoint).
- Mac OS X.
- Linux.

Programming Languages:

- MATLAB
- C++

Data Analyses and Graphing Software:

- OriginPro

Visual programming language (VPL) and System Design Software:

- LabVIEW

Computer Aided Design (CAD) and Modelling Software:

- PTC Creo 3.0

Version Control System (VCS) Software:

- GitHub

Imaging and Reconstruction Software:

- Cobra 7
- Amide

Monte Carlo Simulation Codes and Tools:

- Meshed-Monte Carlo (MMC)
- Monte Carlo Extreme (MCX)
- Geant4
- SRIM
- TRIM

Finite Element Simulation Codes:

- NIRFAST
- NIRFASTSlicer

Mesh Generation Codes:

- Iso2mesh

Image Segmentation Codes:

- Sefexa

LANGUAGES

Italian: Native Language

English: Fluent

Spanish: Basic

REFERENCES

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LINKS
