

GIULIA MARIANI

PERSONAL INFORMATION



12.10.1996

QUALIFICATIONS

- Qualification to the profession of industrial engineer

COMPUTER SKILLS

- Matlab language and Simulink
- exposed to Unity and C#
- C, C++ and C#
- Wolfram Mathematica
- Microsoft Office
- Linux

EXPERIENCE

PhD in Bioengineering at University of Genova, in collaboration with Rehab Technologies Lab, Istituto Italiano di Tecnologia (IIT)

Genoa, Italy

This work consists in evaluating new lower limb prostheses developed by the Rehab Technologies research group, which have already been validated in a pilot trial. To this end, it will apply advanced measures to assess mental aspects such as cognitive effort, incarnation and confidence and the level of physiological conformity in the use of the device, such as physical exertion, movement and muscle activation patterns. Activities will include: the development of a clinical protocol to evaluate lower limb amputees; the review of the methodology for the evaluation of mental and physiological aspects; data analysis; and close collaboration and interaction with our partners. There will be a lively network of collaborations with hospitals and research institutes, in particular with the INAIL Prosthetics Centre in Budrio, the national reference centre for prosthetics. The project requires extensive experience in biomechanics (e.g. motion capture system, EMG signals) and proven expertise in biomedical engineering and patient interaction. .

Nov 23 - Present

Research Fellow at Rehab Technologies Lab, Istituto Italiano di Tecnologia (IIT)

Genoa, Italy

Research and study for the collection and analysis of physiomotor data related to actions performed by limbs (natural and artificial) of an individual also as part of the HYPERLEG project. The project focuses on the development and use of a lower limb prosthesis designed by Rehab's research line. The contribution of my work aims to analyze the concept of embodiment by going to evaluate the mental workload during a walking task by dwelling on the evaluation of the subject's pupillometry.

Nov 22 - Nov 23

Field Application Engineer, Sordina IORT Technologies S.p.A

Aprilia, Italy

Design, testing and installation of radiation therapy equipment in hospitals and research centers. I performed training for physicians and radiation therapists on the machines and carried out research for new radiation therapy techniques focused on a new physical phenomenon "Flash Effect."

Jun 21 - Nov 22

LANGUAGES

Italian

C2

English

B2

Department of Basic and Applied Sciences for Engineering, Rome, Italy

Nov 20 - May 21

Thesis study focused on "Feasibility for an innovative SPECT detector with high-Z organic scintillators." It aims to develop a new type of next-generation imaging machines starting from the same physical and technological principles underlying common SPECT devices but implementing a radical change precisely in the image detection strategy by modifying the idea of scintillator by increasing the performance of the device in terms of spatial resolution, timing and cost.

EDUCATION

Biomedical Engineer, in Rehabilitation and Biomechanics "La Sapienza"

Nov 2018 - 2021

Rome, Italy

Final grade: 110/110 cum laude

Courses: Numerical Methods for Biomedical Engineering, Engineering for Regenerative Medicine, Biomaterial Resistance, Models of Biological System, Industrial Neuroscience, Medical Radiation Physics, Fluid Motion in Biological Systems, Data Processing and Biomedical Signals II, Bio-Electromagnetic Interaction I, Biomedical Instrumentation II, Advanced Biomedical Data Analysis, Biomechanics, Biomechanics and Tissue Engineering Laboratory.

Università "La Sapienza", Clinical Engineering

2015 - 2018

Rome, Italy

Final grade: 107/110

Physics subjects: Physics I, Physics II.

Mathematical methods: Mathematical Analysis I, Mathematical Analysis II, Geometry, Chemistry, Mathematic Lab, Management.

Engineering subjects: Computer Lab, Building Science, Thermal Sciences, Electrical Engineering: Plant and Electric Machines, Electromagnetic Fields, Fluid Mechanics, Mechanical Measurements, Electronics, Fundamentals of Automatics, Hospital Plants I, Biomedical Instrumentation I, Deterministic and Stochastic Signals and Data Processing and Biomedical Signals I, Transportation Science and Economics. **Laboratory activities:** Seminars and Laboratory of Human Anatomy and Physiology

Liceo Scientifico L. Spallanzani, High School

2010 - 2015

Tivoli (RM), Italy

Final grade: 99/100

Scientific track. Final report: *The Chaos*

PUBLICATIONS

Mariani G., Tessari F. et al. "*Competitive Training in Spatial Augmented Reality for Prosthetic Leg Embodiment*", Accepted for publication in the conference of SEGAAH 2023, August 2023

Mariani G., Tessari F. et al. "*An Augmented Cooperative Setting for Training the Embodiment of an Artificial Lower Limb*", Accepted for publication in the conference of SMC 2023, October 2023

Romano F., Milluzzo G. et al. "*First Characterization of Novel Silicon Carbide Detectors with Ultra-High Dose Rate Electron Beams for FLASH Radiotherapy*", in Applied Sciences, on February 2023

Gasparini A., Vanreusel V. et al. "*TOOLKIT FOR CHARACTERIZING THE RELEVANT PARAMETERS OF A NOVEL UHDR LINAC FOR PRECLINICAL FLASH-RT*", in Physica Medica, on December 2022

Di Martino F., Del Sarto D. et al. "A new calculation method for the free electron fraction of an ionization chamber in the ultra-high-dose-per-pulse regimen", in *Physica Medica*, on November 2022

Leblans P., Vanreusel V. et al. "Point scintillator dosimetry in ultra-high dose rate electron "FLASH" radiation therapy: A first characterization", in *Physica Medica*, on October 2022

Di Martino F., Del Sarto D. et al. "A new solution for UHDP and UHDR (Flash) measurements: Theory and conceptual design of ALLS chamber", in *Physica Medica*, on October 2022

Verona Rinati G., Felici G. et al. "Application of a novel diamond detector for commissioning of FLASH radiotherapy electron beams", in *Medical Physics*, on June 2022

Vanreusel V., Galante F. et al. "MO-0050 Optically stimulated luminescence dosimetry as alternative for radiochromic film in UHDR e-beams?", in *Radiotherapy and Oncology*, on May 2022

Gasperini A., Felici G. et al. "OC-0283 Diamond detectors as a powerful real-time tool for commissioning UHDR electron beams in water", in *Radiotherapy and Oncology*, on May 2022

ADDITIONAL ACTIVITIES

November 2021

Energy Family Project APS

I participate in the Enable Italia project, a community of volunteers that puts at its disposal its 3D printing capabilities and its own printers to create and supply free, low-cost prosthetic devices for children and adults.

November 2019

Clowntherapy Rome, Italy

Clowntherapy service provided at the 'Policlinico Umberto I' hospital in Rome.

Rome, Italy

June 2019

"Home automation for the disabled"