PERSONAL INFORMATION

Mariangela Filosa

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Google Scholar Profile

WORK EXPERIENCE

In progress since 01/01/2023

Research fellowship

Organisation: The BioRobotics Institute - Sant'Anna School of Advanced Studies, Pontedera (PI)

Main Activities:

- Technical coordination of projects
- Support to team supervision
- Support to technical activities: hardware and software development, experimental design, implementation of artificial intelligence approaches

15/05/2021-31/12/2022

Term-contract research job (co.co.co)

Organisation: The BioRobotics Institute - Sant'Anna School of Advanced Studies, Pontedera (PI)

Main Activities:

- Support to supervision of students
- Technical activities: hardware development, implementation of robotic control strategies and artificial intelligence strategies, experimental activities and data analysis

01/10/2019 – 26/06/2023

PhD in BioRobotics

Organisation: The BioRobotics Institute - Sant'Anna School of Advanced Studies, Pontedera (PI)

Main Activities:

- Implementation of Artificial Intelligence algorithms for wearable systems, robotics and Industry 4.0
- Implementation of high-level control algorithms for collaborative robotics
- Development of robotic platforms
- Study and integration of optic sensors (Fiber Bragg Grating, FBG) for wearables and robotics
- Analysis of the breathing and the upper limbs biomechanics
- Implementation of finite elements methods (FEM) for physical and functioning simulations in Industry 4.0 applications
- Design of experimental protocols

01/11/2018-30/09/2019

Research fellowship

Università Ca' Foscari Venezia

Project: "Validation of innovative haptic systems for sensory function recovery by means of robotic platforms"- ADAPT PARLOMA (SIN00132)
Organisation: Dipartimento di Studi Linguistici e Culturali Comparati, Università Ca' Foscari Venezia and The BioRobotics Institute – Sant'Anna School of Advanced Studies

Sector ING-IND/34 Industrial Bioengineering

EDUCATION AND TRAINING

09/2019

Graduation to Professional Engineer (Italian legislation)

Università di Pisa – Scuola di Ingegneria, Pisa (PI)

10/2015–24/07/2018

Master's degree in Biomedical Engineering (LM-21)

Level 7 QEQ

Università di Pisa – Scuola di Ingegneria, Pisa (PI)

Final mark: 110/110 cum laude

Master thesis: ***"Validation of a sensory feedback device for lower- limb amputees: assessment of discrete vibrotactile stimuli perception during walking in healthy individuals"***

Description: Validation of a sensory feedback device for improving lower limb amputees' walking symmetry. Design of the experimental protocol and recruitment of 15 healthy volunteers for (i) the evaluation of the lower perceptual threshold and its spatial resolution around the waist to vibrations during walking; (ii) the identification of the optimal stimulus intensity of eccentric mass motors for providing distinguishable feedback; (iii) the planning of effective and intuitive feedback strategies.
Definition and analysis of performance indices in order to evaluate the users' ability in perceiving and localizing the vibrations around the waist.
Main activities: Design of the experimental protocol, data collection and analysis
Organisation: The BioRobotics Institute - Sant'Anna School of Advanced Studies, Pontedera (PI)

09/2012–09/10/2015

Bachelor's Degree in Biomedical Engineering (L-8)

Università di Pisa – Scuola di Ingegneria, Pisa (PI)

Final mark: 108/110
Thesis: *"Evalution of VOCs (Volatile Organic Compounds) in the exhaled air of subjects suffering from lung diseases"*

Description: Evaluation of the exhaled air of patients suffering from primary and secondary ciliary dyskinesia in order to recognize them by means of the E-nose technology. Statistical analysis of the detected compounds for inferring potential correlations with the pathologies.
Main activities: Sensor characterization and data statistical analysis.
Organisation: **Consiglio Nazionale delle Ricerche** (CNR), Pisa (PI)

2007–2012

High school

Liceo Scientifico Enrico Fermi, Gaeta (LT)

Final mark: 100/100 e lode

PERSONAL SKILLS

Mother tongue: Italian

Other languages

	UNDERSTANDING		SPEAKING		WRITING
	Listening	Reading	Spoken interaction	Spoken production	
English	B2	B2	B2	B2	B2
French	A2	A2	A1	A1	A1

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

Job-related skills

- Machine learning approach knowledge
- Good expertise in using electronic instrumentation
- Fair expertise in mechanical and electronic design and prototyping
- Motion Capture tools knowledge
- Sensor characterization, data analysis, statistical analysis, and programming expertise
- Editing of technical and ethical committee documentation expertise
- Good skills in coordination and management of experimental activities
- Fair knowledge of the procedures of patent editing and legislation and of the intellectual property protection

Digital skills

SELF-ASSESSMENT				
Information processing	Information processing	Information processing	Information processing	Information processing
Proficient user	Independent user	Independent user	Independent user	Proficient user

Levels: Basic user - Independent user - Proficient user
Digital competences - Self-assessment grid

ECDL (European Computer Driving Licence)

Operating systems: Good (Microsoft Windows, MacOS)
Word: Excellent
Excel: Good
Multimedia: Excellent
Database: Fair
Programming: Good
CAD: Good

Programming languages: C++, G (graphical), Python

Software: MATLAB, LabVIEW, Simulink (in particolare SimScape Multibody), Comsol Multiphysics, Solidworks, Fusion 360 Autodesk, Nexus 2.8.1 (motion tracking software, Vicon Motion Capture Systems), CCS (Code Composer Studio), LTSpice, MeshLab, 3D Slicer, VisualSFM, Regard 3D, Cura, Mathcad, Arduino, SPSS statistics, OpenSim, Slic3r

Other skills

- Team activities coordination and management
- Adaptability, flexibility and problem solving
- Interpersonal skills from teamwork
- Work and time management

Driving license B

ADDITIONAL INFORMATION

Seminars, Conferences and Courses

15/04/2021
Webinar "Artificial Intelligence for rehabilitation and healthcare"
Speech about artificial intelligence approaches for wearable systems providing breathing activity monitoring in rehabilitation and occupational health and safety scenarios.
Role: Speaker

90-11/09/2020
Course TIRRENICAL TECH – Competenze di meccatronica 4.0 per la Toscana Occidentale CP239981
Basic course about data analysis using MATLAB.
Role: Speaker

9-10/11/2017
29th International Congress of the Society for Medical Innovation and Technology (iSMIT)
Conference about: minimally invasive surgery, "flexible" surgery, robotics, interventional radiology, computer aided medicine, nanotechnology and nanomedicine, novel and smart technologies.
Role: Audience

12/2016
Tactile coding and neuroprostheses
Workshop about touch neurophysiology and computational, haptic and biorobotic studies about touch.
Role: Audience

15/03/2016

Can You Speak MATLAB?
Workshop on the optimization strategies in MATLAB.
Role: Audience

27/02/2015
ALERT Project
Workshop on the early-stage autism identification by means of Eye-Tracking technologies.
Role: Audience

Honours and awards

26/05/2012
Concorso di Scrittura Antonio Proia
Description: essay on justice, legality and progress as foundations of governments.
Rank: 1°

Projects

Participation in national and international projects:

- SENSE RISC Project (in progress) (main activity of the phd)
- PARLOMA (research fellowship in 2018/2019)
- CYBERLEGS Plus Plus (master thesis in 2017/2018)

08/07/2016 (course workteam)
A pulse oximeter design and development
Description: hardware development and software implementation of a working pulse oximeter (master's degree laboratory of design of electromedical devices)

Annexes

Publications.pdf

Personal data treatment

I declare that the contents of this CV are correct and accurate to the best of my knowledge and I authorize the
use of personal data, according to EU Regulation n. 2016/679 (GDPR) and Italian D. lgs. 30.06.2003.

(ITA) Ai sensi del Regolamento Generale sulla protezione dei dati (RGPD n. 679/2016), autorizzo il trattamento di
tutti i dati personali contenuti nel presente curriculum vitae. Tutto quanto dichiarato corrisponde a verità ai
sensi delle norme in materia di dichiarazioni sostitutive di cui all'art. 46 e ss. del D.P.R. 445/2000.

Pontedera, 22/07/2023 Signature