Giulia Rocco

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Research Scientist | Multimodal Neuroimaging & Signal Processing Expert

Experienced in multimodal data acquisition and advanced signal processing, specializing in high-dimensional time-series modeling and functional brain mapping. Passionate about bridging neuroscience and technology. Quick learner, proven ability to design and execute complex experimental research studies across interdisciplinary teams.

WORK EXPERIENCE

I3S Lab and Centre Hospitalier Universitaire de Nice • **Nice, France** **01/2020 - 11/2023**
Graduate Research Assistant

- Conducted multimodal data collection and analysis (fMRI, fNIRS, EEG)
- Created novel experimental frameworks, advancing research in motor control
- Managed subjects, budget, and data across the different institutions and partners

MultifunkIM Lab, Concordia University • **Montreal, Canada** **03/2022 - 12/2022**
Visiting Researcher

- Pioneered cerebellar fNIRS image reconstruction solving forward and inverse problems
- Analyzed data using advanced statistical and novel quantitative methods

NIRx Medical Technologies • **Berlin, Germany** **06/2022 - 07/2022**
PhD Intern

- Documented technical aspects on simultaneous fNIRS/fMRI acquisitions

Université Côte d' Azur • **Nice, France** **01/2019 - 11/2019**
Teaching Assistant

- Taught Algorithms & Programming with R - practical sessions and projects

B3Lab and PHEEL Laboratories, Politecnico di Milano • **Milan, Italy** **01/2019 - 11/2019**
Research Intern

- Specialized in biomedical signal processing (EEG, ECG, PPG, EDA, eye tracking)
- Conducted novel VR therapeutic approaches for patients with neurodevelopmental disorders
- Analyzed biomedical signals for biomarketing applications

Lutech • **Milan, Italy** **10/2015 - 12/2015**
Support Engineer

- Supported staff in operating rooms within the deployment of an EHR framework

LAFAS Lab, Università di Milano • **Milan, Italy** **03/2015 - 07/2015**
Visiting Student

- Modified, tested and evaluated machine learning algorithms for CT image segmentation
- Statistical analysis of automatic vs user-operated methods

EDUCATION

PhD (MSCA-COFUND) in Automatics, Signal and Image processing
Université Côte D'Azur • Nice, France

Master Thesis in Biomedical Audio Engineering
KU Leuven • Leuven, Belgium

Erasmus+ mobility in Engineering
KTH Royal Institute of Technology • Stockholm, Sweden

Master's Degree in Biomedical engineering - Electronic Technologies
Politecnico di Milano • Milan, Italy • GPA: 110/110

Bachelor's Degree in Biomedical Engineering
Politecnico di Milano • Milan, Italy • GPA: 102/110

AWARDS & SCHOLARSHIPS

Grant for Pilot Projects 10/2022
Quebec Bio-Imaging Network (20K$)

Excellence Prize 12/2021
Université Côte D'Azur

Winner Emerging Talent 11/2021
MSCA Falling Walls Lab - Listed among the 75 International Emerging Talents

Best Poster Award 07/2021
4th Congress of the Physiology and Integrative Biology French Society

Public Award, 3-minutes Thesis contest 04/2021
18th IEEE International Symposium on Biomedical Imaging

Doctoral Scholarship 01/2020
Marie Sklodowska-Curie Actions COFUND (15 selected over 500 applicants)

Merit Scholarship 09/2016
Politecnico di Milano

PUBLICATIONS

Characterization of the Intelligibility of Vowel-Consonant-Vowel (VCV) Recordings in Five Languages for Application in Speech-in-Noise Screening in Multilingual Settings
Applied Sciences

Enhancing Cerebellar fNIRS/fMRI via Tailored Pipelines
Biennial meeting of the Society of Functional Near-Infrared Spectroscopy (SfNIRS 2024)

Densifying Optodes Montage to Enhance Cerebellar fNIRS
Biennial meeting of the Society of Functional Near-Infrared Spectroscopy (SfNIRS 2022)

When fNIRS meets fMRI to complement cerebellar exploration
IEEE International Symposium on Biomedical Imaging (ISBI 2022)

A chiral fNIRS spotlight on cerebellar activation in a finger tapping task
43rd Annual International Conference of the IEEE Engineering in Medicine and Biology Society (EMBC)

Single-Trial Detection of Event-Related Potentials with Integral Shape Averaging : An Application to the Elusive N400

43rd Annual International Conference of the IEEE Engineering in Medicine and Biology Society (EMBC)

Asymmetries in Cerebellar Activation during Finger Movements : A Functional Near-Infrared Spectroscopy Study

Acta Physiologica : 4th Congress of Physiology and Integrative Biology, 88th Congress of French Physiological Society, Faculté de Médecine, Nice, France, 2-4 September, 2021

Exploring the cerebellum with functional near-infrared imaging : a preliminary study

IEEE 18th International Symposium on Biomedical Imaging (ISBI 2021)

P300 event-related potentials classification from EEG data through interval feature extraction and recurrent neural networks

SophIA Summit 2020

An automated speech-in-noise test for remote testing : Development and preliminary evaluation

American journal of audiology

Characterization of eye gaze and pupil diameter measurements from remote and mobile eye-tracking devices

XV Mediterranean Conference on Medical and Biological Engineering and Computing-MEDICON 2019 : Proceedings of MEDICON 2019 , September 26-28 , 2019 , Coimbra, Portugal

Development and preliminary evaluation of a novel adaptive staircase procedure for automated speech-in-noise testing

2019 41st Annual International Conference of the IEEE Engineering in Medicine and Biology Society (EMBC)

Heart rate variability from wearables : a comparative analysis among standard ECG, a smart shirt and a wristband

pHealth 2019

Validation of an automatic hard tissue segmentation algorithm for cone beam CT data

37th IEEE Annual conference on Engineering in Medicine and Biology

SKILLS

Programming: Matlab, Python, R, C++

Quantitative: Time-series analysis, Regression analysis, Machine learning, Hypothesis testing, Inverse problems, Monte Carlo simulations

Language: English, Italian, French