



Andrea Ranieri

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WORK EXPERIENCE

01/2022 – 10/2022 Roma, Italy

RESEARCH SCHOLARSHIP GRANTEE IRCCS FONDAZIONE SANTA LUCIA

Research activities held at the Neuroelectrical Imaging and Brain-Computer Interface Laboratory (NEILab), mainly focused on:

- EEG processing in post-stroke subjects;
- functional brain connectivity estimation and analysis;
- tensor decomposition techniques for brain connectivity patterns in healthy subjects.

07/2022 – 08/2022 Schiedlber, Austria

RESEARCH INTERNSHIP G.TEC MEDICAL ENGINEERING GMBH

Visiting period supported by the European DoCMA project (MSCARISE2017 - Horizon 2020). The main goal was to analyze the online effects induced by a transcranial direct current stimulation (tDCS) treatment in healthy subjects involved in cognitive tasks.

11/2021 – 12/2021 Roma, Italy

BIOMEDICAL ENGINEER IRCCS FONDAZIONE SANTA LUCIA

Occasional professional services at the Neuroelectrical Imaging and Brain-Computer Interface Laboratory (NEILab) focused on:

- the acquisition of both theoretical and practical skills for EEG and EMG recording;
- gaining experience with EEG acquisition systems and processing softwares (BrainProduct and g.tec).

06/2021 – 08/2021 Soverato, Italy

WAITER EXOTICA - THE LOUNGE CLUB

Main tasks:

- welcome to customers;
- take table orders and waiter services;
- room and table cleaning.

01/2021 – 03/2021 Catanzaro, Italy

JANITOR CONVITTO NAZIONALE "PASQUALE GALLUPPI"

Main tasks:

- school facilities cleaning;
- supervision and surveillance of children within the school building.

EDUCATION AND TRAINING

11/2022 – CURRENT Roma, Italy

AUTOMATIC CONTROL, BIOENGINEERING AND OPERATIONS RESEARCH (ABRO) PH.D. CANDIDATE

Sapienza, University of Rome

Ph.D. candidate for the Bioengineering curriculum (ING-INF/06). The research is focused on advanced EEG signal processing and connectivity estimate techniques for neurological networks of post-stroke patients. The activity is conducted at the Neuroelectrical Imaging and Brain-Computer Interface Laboratory (NEILab) at Fondazione Santa Lucia, Roma (RM).

Field of study Bioengineering

09/2018 – 05/2021 Roma, Italy

MASTER'S DEGREE IN "BIOMEDICAL ENGINEERING" Sapienza, University of Rome

Final grade 110/110 Cum Laude |

Thesis Medical Image Segmentation: a comparison of different segmentation approaches on MRI breast cancer dataset

09/2014 – 03/2018 Catanzaro, Italy

BACHELOR'S DEGREE IN "COMPUTER AND BIOMEDICAL ENGINEERING" Università Magna Graecia di Catanzaro

Final grade 110/110 Cum Laude | **Thesis** Dispositivo embedded, low-cost e general purpose per il monitoraggio dei neonati

09/2009 – 06/2014 Soverato, Italy

SCIENTIFIC HIGH SCHOOL DIPLOMA Liceo Scientifico Statale "Antonio Guarasci"

Final grade 100/100

DIGITAL SKILLS

Matlab/Simulink | BrainVision Analyzer | Programming (JAVA) | Python | Microcontrollers (Arduino) | SQL basic knowledge | Microsoft Office

LANGUAGE SKILLS

Mother tongue(s): **ITALIAN**

Other language(s):

	UNDERSTANDING		SPEAKING		WRITING
	Listening	Reading	Spoken production	Spoken interaction	
ENGLISH	B2	B2	B2	B2	B2

Levels: A1 and A2: Basic user; B1 and B2: Independent user; C1 and C2: Proficient user

TEACHING ACTIVITIES

10/2023 – 12/2023

Teaching support, "Modelli di sistemi biologici" course

Teaching support for the MATLAB hands-on sessions, "Modelli di sistemi biologici" course (Master's Degree in "Biomedical Engineering", ING-INF/06, 9CFU), A.Y. 2023/24.

LICENSES AND CERTIFICATIONS

08/10/2021

ESB Level 1 Certificate in ESOL International All Modes (B2 CEFR)

Pass with distinction.

HONOURS AND AWARDS

2024

IEEE EMBC NextGen Scholar Award – IEEE Engineering in Medicine and Biology Society (EMBS)

Scholar award to support the participation in the 46th Annual International Conference of the IEEE Engineering in Medicine and Biology Society (EMBS).

2023

Avvio alla Ricerca 2023 – Sapienza, University of Rome

Principal investigator for the project "A MATLAB-based toolbox for the analysis of inter-cluster interactions in functional brain networks" (AR123188AFB27819).

● CONFERENCES AND SEMINARS

15/07/2024 – 19/07/2024 Orlando, Florida (US)

46th Annual International Conference of the IEEE Engineering in Medicine and Biology Society (EMBS)

21/06/2023 – 23/06/2023 Padova, Italy

VIII Congress of the National Group of Bioengineering (GNB)

06/06/2023 – 09/06/2023 Brussels, Belgium

10th International BCI Meeting

● PUBLICATIONS

Publications in Peer-reviewed indexed journals

- **A. Ranieri**, F. Pichiorri, E. Colamarino, V. De Seta, D. Mattia, J. Toppi, "Parallel Factorization to Implement Group Analysis in Brain Networks Estimation", *Sensors*, vol. 23, no. 7, 2023, DOI: 10.3390/s23031693.
- C. Militello, **A. Ranieri**, L. Rundo, I. D'Angelo, F. Marinozzi, T. V. Bartolotta, F. Bini, G. Russo, "On unsupervised methods for medical image segmentation: investigating classic approaches in breast cancer DCE-MRI", *Applied Sciences*, vol.12, no.1, 2022, DOI: 10.3390/app12010162.

Abstracts from national and international conferences

- F. Patarini, F. Pichiorri, F. Tamburella, **A. Ranieri**, M. Lorusso, G. Serratore, A. Bigioni, M. Masciullo, G. Scivoletto, D. Mattia, J. Toppi, "Impact of visual feedback on patient-therapist interaction during robotic gait rehabilitation in individuals with spinal cord injury: a multimodal eye-tracking and HD-EEG study", XXIII SIAMOC Congress, Roma (Italy), 04-07 October, 2023
- **A. Ranieri**, F. Pichiorri, J. Toppi, E. Colamarino, E. Mongiardini, F. Cincotti, D. Mattia, "Re-Configuration of Resting state brain networks after BCI training in stroke patients", 10th International BCI Meeting, Brussels (Belgium), 06-09 June, 2023.
- F. Pichiorri, J. Toppi, E. Colamarino, E. Mongiardini, **A. Ranieri**, M. Lorusso, F. Tamburella, F. Cincotti, D. Mattia, "Identifying the best candidates for a rehabilitative BCI targeting upper limb motor recovery", 10th International BCI Meeting, Brussels (Belgium), 06-09 June, 2023.
- E. Mongiardini, F. Pichiorri, E. Colamarino, **A. Ranieri**, J. Toppi, D. Mattia, F. Cincotti, "Long-term effect on EEG sensorimotor responsiveness to motor imagery after a BCI training for stroke rehabilitation", 10th International BCI Meeting, Brussels (Belgium), 06-09 June, 2023.
- F. Pichiorri, F. Tamburella, **A. Ranieri**, F. Patarini, M. Lorusso, G. Serratore, A. Bigioni, I. Pisotta, M. Masciullo, D. Mattia, G. Scivoletto, J. Toppi, "Inter-ro-gait: studio di eye-tracking ed EEG per la valutazione dell'interazione terapeuta-paziente durante la riabilitazione robotica del cammino in pazienti con lesioni midollari", XXII SIRM National Congress, Riva del Garda (Italy), 16-18 April, 2023.

Conference Proceedings indexed in Medline

- **A. Ranieri**, F. Pichiorri, E. Mongiardini, E. Colamarino, F. Cincotti, D. Mattia, J. Toppi, "Spectral graph theory to investigate topological and dynamic properties of EEG-based brain networks: an application to post-stroke patients", accepted as oral presentation for the 46th Annual International Conference of the IEEE Engineering, Orlando (FL), US, 15-19 July, 2024.
- **A. Ranieri**, F. Pichiorri, E. Colamarino, V. De Seta, D. Mattia, J. Toppi, "On the use of PARAFAC algorithm in group network analysis: a simulation study", VIII Congress of the National Group of Bioengineering, Padova (Italy), 21-26 June, 2023.
- E. Mongiardini, E. Colamarino, F. Pichiorri, **A. Ranieri**, J. Toppi, D. Mattia, F. Cincotti, "Brain-Computer Interface assisted Motor Imagery training in post-stroke rehabilitation: longitudinal study of the EEG sensorimotor rhythms", VIII Congress of the National Group of Bioengineering, Padova (Italy), 21-26 June, 2023.

● PARTICIPATION IN NATIONAL AND INTERNATIONAL PROJECTS

2024 – CURRENT

LEAF - Long-term monitoring EEG to investigate how basal Activity Fluctuations impact on responsiveness of patients with Disorders of Consciousness

Progetto di Ricerca Medio, 2023

Participation as investigator.

2023 – CURRENT

A MATLAB-based toolbox for the analysis of inter-cluster interactions in functional brain networks (AR123188AFB27819)

Progetto per Avvio Alla Ricerca, 2023

Participation as principal investigator.

DiSCloser: Unlocking recovery potential of arm sensorimotor functions after spinal cord injury by promoting activity-dependent brain plasticity and modeling the causal relationship between brain plasticity and recovery of functions

Progetti Ricerca Finalizzata

Participation as investigator.

● **DRIVING LICENCE**

Driving Licence: B

I agree to the processing of my personal data in this CV pursuant art. 13 d. lgs. June 30, 2003 n. 196 -"Code regarding the protection of personal data" and art. 13 GDPR 679/16 - "European regulation on the protection of personal data" .

Roma, 28/07/2024