

LUCIA SCHIATTI

Postdoctoral researcher at the Istituto Italiano di Tecnologia

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EXPERIENCE

Postdoctoral researcher

Unit for Visually Impaired People - Istituto Italiano di Tecnologia (IIT)

December 2018 - Ongoing Genova, Italy

- Development of eye-tracking procedures for evaluating and rehabilitating visual attention and oculomotor skills in visually impaired children.
- Development of motion tracking procedures for evaluating gross and fine motor skills of visually impaired children.
- Technical development of devices for rehabilitation and multisensory stimulation of children with visual impairments, within the framework of the joint lab IIT-Fondazione Mondino (IIT joint labs).

Research fellow

Department of Advanced Robotics - Istituto Italiano di Tecnologia (IIT)

November 2014 - November 2018 Genova, Italy

- Development of adaptive technologies within the "Empathic and Expressive Technologies for People with Amyotrophic Lateral Sclerosis" (TEEP-SLA) project (www.teep-sla.eu).
- Development of low-cost and portable hardware for electroencephalographic (EEG) signals sensing, integration with other biosignal sensors and external assistive devices.
- Implementation of multimodal interfaces based on gaze detection (eye-tracking) and brain signals - i.e. Brain-Computer Interfaces (BCIs). Development of related hybrid paradigms for computer interaction and control of assistive robotic devices.
- Integration of context information in a reinforcement learning scheme to improve human-machine interaction.

Research collaborator

BIOTech - Center for Biomedical Technologies

April 2013 - October 2014 Trento, Italy

- EEG brain connectivity analysis (coupling and causality) in time and frequency domain for discrimination of motor execution and motor imagery tasks.
- Design of time domain tools for multivariate time series analysis, publicly available as contributed Matlab toolbox (Schiatti et al 2015). Application to the characterization of causality patterns between ECG, heart period and arterial pressure physiological time series.

Trainee with European program Leonardo da Vinci

Department of Data Analysis - Faculty of Psychology and Educational Sciences, Ghent University

December 2013 - March 2014 Ghent, Belgium

- Design of data analysis algorithms for information-based measures of dynamical connectivity, implementation in Matlab, and application to time series from cortical electroencephalography (ECoG) signals recorded on monkeys performing a problem solving task.

EDUCATION

Ph.D. in Bioengineering and Robotics

Istituto Italiano di Tecnologia-University of Genova

November 2014 - February 2018

Thesis title: Co-adaptive control strategies in assistive Brain-Machine Interfaces

M.Sc. in Mechatronics Engineering

University of Trento

October 2009 - March 2013

Thesis title: Frequency analysis of brain rhythms for motor execution and motor imagery tasks classification

Final grades: 110/110 with honors

B.Sc. in Industrial Engineering

University of Trento

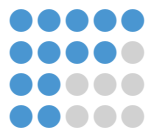
October 2004 - March 2009

Thesis title: Selective Laser Melting of maraging steels

Final grades: 110/110 with honors

LANGUAGES

Italian
English
French
Russian



STRENGTHS

Matlab Simulink Labview C++
Processing Unity3D C# Python
TensorFlow Arduino

INTERESTS

Signal Processing Machine Learning
Reinforcement Learning Eye-tracking
Motion Tracking EEG & EMG
Brain-Computer Interfaces
Neuroprosthetics Visual Rehabilitation
Assistive Technologies

PUBLICATIONS

Journal Articles

- Schiatti, L, G Nollo, G Rossato, and L Faes. "Extended Granger causality: a new tool to identify the structure of physiological networks". In: *Physiological measurement* 36.4 (2015), p. 827.

Conference Proceedings

- Schiatti, L, J Tessadori, G Barresi, L King, and LS Mattos. "The Effect of Vibrotactile Feedback on ErrP-Based Adaptive Classification of Motor Imagery". presented to *IEEE International Conference on the Engineering in Medicine and Biology Society (EMBC)*. 2019.
- Schiatti, L, J Tessadori, N Deshpande, G Barresi, LC King, and LS Mattos. "Human in the Loop of Robot Learning: EEG-Based Reward Signal for Target Identification and Reaching Task". In: *2018 IEEE International Conference on Robotics and Automation (ICRA)*. IEEE. 2018, pp. 4473–4480.
- Schiatti, L, J Tessadori, G Barresi, L S Mattos, and A Ajoudani. "Soft brain-machine interfaces for assistive robotics: A novel control approach". In: *Rehabilitation Robotics (ICORR), 2017 International Conference on*. IEEE. 2017, pp. 863–869.
- Tessadori, J., L. Schiatti, G. Barresi, and L. S. Mattos. "Does tactile feedback enhance single-trial detection of error-related eeg potentials?" In: *2017 IEEE International Conference on Systems, Man, and Cybernetics (SMC)*. 2017, pp. 1417–1422.
- Barresi, G, J Tessadori, L Schiatti, D Mazzanti, DG Caldwell, and LS Mattos. "Focus-sensitive dwell time in EyeBCI: Pilot study". In: *Computer Science and Electronic Engineering (CEECE), 2016 IEEE 8th Annual International Conference of the*. IEEE. 2016, pp. 54–59.
- Schiatti, L, L Faes, J Tessadori, G Barresi, and L Mattos. "Mutual information-based feature selection for low-cost BCIs based on motor imagery". In: *Engineering in Medicine and Biology Society (EMBC), 2016 IEEE 38th Annual International Conference of the*. IEEE. 2016, pp. 2772–2775.
- Schiatti, L, G Nollo, G Rossato, and L Faes. "Investigating cardiovascular and cerebrovascular variability in postural syncope by means of extended Granger causality". In: *Cardiovascular Oscillations (ESGCO), 2014 8th Conference of the European Study Group on*. IEEE. 2014, pp. 43–44.


Conference Abstracts

- Malvicino, S, L Schiatti, J Tessadori, G Barresi, M Casadio, and LS Mattos. "Low-Cost and Open-Source Semi-Dry Electrodes for Assistive BCIs". In: *IEEE 41st Annual International Conference of the Engineering in Medicine and Biology Society (EMBC)*, poster presentation. 2019.
- Schiatti, L and M Gori. "Effect of visual impairments on the auditory-visual fusion in speech perception: a pilot study". In: *42nd European Conference on Visual Perception (EVCP)*, poster presentation. 2019.
- Schiatti, L, S Signorini, and M Gori. "Quantitative evaluation of visual social attention in children with low vision using eye tracking". In: *17th Biennial Meeting of Child Vision Research Society (CVRS)*, poster presentation. 2019.

COURSES

IIT-UniGe High Tech Entrepreneurship Workshop

[Genoa, Italy](#)

 22 March – 18 May 2018

ACAI Summer School on Reinforcement Learning

[Nieuwpoort, Belgium](#)

 7 – October 2017

MIT-Harvard Brains, Minds and Machines

[MBL, Woods Hole, MA](#)

 13 August – 3 September 2017

IEEE-EMBS Biomedical Signal Processing

[Collegio Borromeo, Pavia, Italy](#)

 30 August – 6 September 2015

Social Human-Robot Interaction

[Åland, Finland](#)

 24 – 28 August 2015

ACHIEVEMENTS

Unige Start Cup competition First Prize

Awarded for the business idea UNLOCK, during SMARTcup Ligura 2018, Genoa, Italy.

Special Partner Prize Francesca Redoano

Awarded for the business idea UNLOCK, during SMARTcup Ligura 2018, Genoa, Italy.

International Cooperation and Development scholarship

Awarded by University of Genova during the SPeRA congress 2015 for a training period at the Onlus "Time for Peace-Genova", about prototyping a low-cost electromyographic (EMG) actuated hand prosthesis.


REFEREES

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Dr. Leonardo De Mattos

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