

# LUCIA SCHIATTI

Research Fellow at the Istituto Italiano di Tecnologia

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in Ischiatti    GoogleScholar    ResearchGate



## PROFESSIONAL EXPERIENCE

### Research collaboration

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

November 2014 - Ongoing    Genova, Italy

- Developer of adaptive technologies within the "Empathic and Expressive Technologies for People with Amyotrophic Lateral Sclerosis" (TEEP-SLA) project ([www.teep-sla.eu](http://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 collaboration

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.

### Traineeship 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.

## STRENGTHS

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

## INTERESTS

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

## 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 Mechatronic 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

## COURSES

IIT-UniGe High Tech  
Entrepreneurship Workshop

Genova, Italy

22 March - 18 May 2018

ACAI Reinforcement Learning  
Nieuwpoort, Belgium

7 - 14 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  
Aland, Finland

24 - 28 August 2015

## PUBLICATIONS

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### Journal Articles

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

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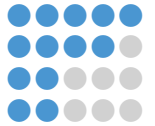
### Conference Proceedings

- Schiatti, L et al. "Human in the Loop of Robot Learning: EEG-based Reward Signal for Target Identification and Reaching Task". accepted to to *IEEE International Conference on Robotics and Automation (ICRA)*. 2018.
- Schiatti, L et al. "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. et al. "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. DOI: 10.1109/SMC.2017.8122812.
- Barresi, G et al. "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 et al. "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 et al. "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.

## LANGUAGES

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Italian  
English  
French  
Russian



## ACHIEVEMENTS

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### "International Cooperation and Development" scholarship

Awarded by University of Genova on academic year 2015/16 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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