

## FRANCESCA MIRAGLIA



### PERSONAL INFORMATION

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**Name** Francesca Miraglia  
**Home address** Via Francesco Lemmi 7 apt 23, 00179 Rome, Italy  
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**Nationality** Italian  
**Date/place of birth** 9/3/1985 Potenza

### EDUCATION

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Catholic University of The Sacred Heart, Rome, Italy

**Doctoral school of Neuroscience** January 2013-October 2015

Developing advanced mathematical algorithms for the evaluation of electroencephalographic signals to understand the behavior of physiologic and pathologic human brain during the aging and the neurodegenerative diseases. Innovative mathematical approach based on graph theory applied to neural networks; study of innovative diagnostic/prognostic instrument in the field of clinical neurosciences.

University of Trieste, Italy

**Specialist Master of Management in Clinical Engineering** January 2012 – May 2013

Management, evaluation, installation, maintenance, and upgrade the instrumentation and equipment, biomedical and info-telematic clinical care in use in health and social services, plan and organize systems of biomedical technologies

“La Sapienza” University of Rome, Italy

**Master of Science in Biomedical Engineering (Final Score: 110/110 cum laude)** October 2011

Hospital Systems, Testing and Servicing of Hospital’s Electro-medical equipment, Biomechanics, artificial organs.

Thesis: “Analysis of radiofrequency pulses in magnetic resonance imaging” at Esaote Spa, Genoa, Italy

“La Sapienza” University of Rome, Italy

**Bachelor Degree** in Clinical Engineering (**Final Score: 102/110**) May 2008

Mathematics, Physics, Chemistry, Electronics, Biomedical Instrumentation, Mechanical Measurements, Sensors.

Thesis: “Analysis of cochlear implant technology” at San Giovanni Addolorata Hospital”, Rome, Italy.

## **WORK / ACADEMIC EXPERIENCE**

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**Research fellowship** , “IRCCS San Raffaele Pisana”, Rome, Italy April 2012 – June 2015

MERIT Project - Multimodal neuroimaging, acquisition and analysis of biological signals from different technologies such as EEG, fMRI, EEG-TMS.

**Internship**, “San Giovanni Addolorata Hospital”, Rome, Italy January 2008 – May 2008

Ensure the safe and the functionality of all the systems, installments as well as instruments (wiring, medicinal gas, air conditioning, etc.) and of electro-medical equipment in order to document and keep a data base for my thesis of my Bachelor Degree. Manage and administrate the office of Clinical Engineering of the Hospital.

Ongoing **part-time job** at the January 2010-December 2010

“Department of Chemical Engineering, Materials, Environment” at “La Sapienza” University of Rome, Italy

Tutoring services for the students, meetings organization for the membership of the department, arrangement and administration of the department website.

## **TECHNICAL EXPERTISE**

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Microsoft Office, Internet, Knowledge Programming Language C, Matlab, EEGlab, Labview.

## **LANGUAGE SKILLS**

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**Italian** (Native); **English** (intermediate level, B2.3 CEFR).

## **HOBBIES**

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Volleyball, Free climbing, Languages, Reading, Sports, Dancing, Travelling, Music.

## **OTHER SKILLS**

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Enthusiastic team-worker, Ability to communicate with skilled and unskilled workers as well as superiors in work settings, Familiarity with engineering lab and related test equipment. Ability in case of problem solving and PR.

## PUBLICATIONS

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Fabrizio Vecchio, Giordano Lacidogna, **Francesca Miraglia**, Florinda Ferreri and Paolo Maria Rossini. Pre-stimulus interhemispheric coupling of brain rhythms predicts cognitive-motor performance in healthy humans. J Cogn Neurosci. 2014 Mar 25:1-8. [Epub ahead of print]

Fabrizio Vecchio, **Francesca Miraglia**, Placido Bramanti and Paolo Maria Rossini. Human brain networks in cognitive decline from healthy to AD throw MCI: a graph theoretical analysis of cortical connectivity from EEG data. J Alzheimers Dis. 2014;41(1):113-27. doi: 10.3233/JAD-132087.

Fabrizio Vecchio, **Francesca Miraglia**, Placido Bramanti and Paolo Maria Rossini. Human brain networks in physiological aging: a graph theoretical analysis of cortical connectivity from EEG data. J Alzheimers Dis. 2014 May 12. [Epub ahead of print]

Fabrizio Vecchio, **Francesca Miraglia**, Lavinia Valeriani, Maria Gabriella Scarpellini, Placido Bramanti, Oriano Mecarelli and Paolo Maria Rossini. Brain connectivity and b-type natriuretic peptide in congestive heart failure patients. Clin EEG Neurosci. 2014 Jul 3. pii: 1550059414529765. [Epub ahead of print]

Fabrizio Vecchio, **Francesca Miraglia**, Giuseppe Curcio, Giacomo Della Marca, Catello Vollono, Edoardo Mazzucchi, Placido Bramanti and Paolo Maria Rossini. Cortical connectivity in fronto-temporal focal epilepsy from EEG analysis: a study via graph theory. Clin Neurophysiol. 2014 Oct 2. pii: S1388-2457(14)00504-5. doi: 10.1016/j.clinph.2014.09.019. [Epub ahead of print]

**Francesca Miraglia**, Fabrizio Vecchio and Paolo Maria Rossini. Human brain networks in physiological and pathological aging: a graph theoretical analysis of cortical connectivity from EEG data. Clinical Neurophysiology Volume 125, Supplement 1, June 2014, Pages S59. Abstracts of the 30th International Congress of Clinical Neurophysiology (ICCN) of the IFCN, March 20–23, 2014, Berlin, Germany

Fabrizio Vecchio, **Francesca Miraglia**, Giuseppe Curcio, Placido Bramanti, Fabrizio Vernieri and Paolo Maria Rossini. Cortical connectivity evaluated by graph theory in dementia: a correlation study between functional and structural data. J Alzheimers Dis. 2015 Jan 22. [Epub ahead of print]

**Francesca Miraglia**, Fabrizio Vecchio, Placido Bramanti and Paolo Maria Rossini. EEG characteristics in “eyes open” vs “eyes closed” conditions: small world network architecture in age-related brain degeneration. Clin Neurophysiol. Under review.

Winnie Jensen, Stanisa Raspopovic, Francesco Petrini, Giuseppe Granata, Giovanni Di Pino, Pawel Maciejasz, Tim Boretius, Bo Geng, David Andreu, Kristian Rauhe Harreby, Aritra Kundu, Jordi Badia, Guillaume Souquet, Jean Francois Charmeux, **Francesca Miraglia**, Fabrizio Vecchio, Annalisa Ciancio, Jean-Louis Divoux, David Guiraud, Silvestro Micera, Xavier Navarrom, Thomas Stieglitz, Ken Yoshida and Paolo Maria Rossini. Sensory feedback generated by intraneural electrical stimulation of peripheral nerves drives cortical reorganization and relieves phantom limb pain: a case study. Nat Comm. Under review.

**Francesca Miraglia**, Fabrizio Vecchio, Placido Bramanti and Paolo Maria Rossini. Small-worldness characteristics and its gender relation in specific hemispheric networks. Neuroscience Under review.

Fabrizio Vecchio, **Francesca Miraglia**, Camillo Porcaro, Carlo Cottone, Andrea Cancelli, Paolo Maria Rossini and Franca Tecchio. Sensory-motor networks' topology in multiple sclerosis fatigue. Neuroscience Under review.

P. Caliandro, F. Vecchio, **F. Miraglia**, G. Reale, G. Della Marca, G. Lacidogna, L. Padua, C. Iacovelli, and P.M. Rossini. Small world characteristics of cortical connectivity in acute stroke. Submitted to Neurorehabilitation and Neural Repair.

Fabrizio Vecchio, **Francesca Miraglia**, Davide Quaranta, Giuseppe Granata, Roberto Romanello, Camillo Marra, Placido Bramanti and Paolo Maria Rossini. Cortical connectivity and memory performance in cognitive decline: EEG graph. Submitted to Neurobiology of aging.

## CONGRESS

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**59<sup>th</sup> National Congress of Clinical Neurophysiology (SINC)**. Milan May 14-17, 2014.

Poster **Francesca Miraglia**, Fabrizio Vecchio, and Paolo Maria Rossini. Physiological and pathological aging: a cortical connectivity analysis by graph theory model applied to brain network.

Poster **Francesca Miraglia**, Fabrizio Vecchio, Giordano Lacidogna, Florinda Ferreri and Paolo Maria Rossini. Pre-stimulus interhemispheric coupling of brain rhythms predicts cognitive-motor performance in healthy humans

Oral communication Fabrizio Vecchio, **Francesca Miraglia**, Giuseppe Curcio, Giacomo Della Marca, Catello Vollono, Edoardo Mazzucchi and Paolo Maria Rossini. Functional connectivity in fronto-temporal focal epilepsy from EEG analysis: a study via graph theory.

**30<sup>th</sup> International Congress of Clinical Neurophysiology (ICCN)** of the IFCN. Berlin March 19-23, 2014

Poster **Francesca Miraglia**, Fabrizio Vecchio, and Paolo Maria Rossini. Human brain networks in physiological and pathological aging: a graph theoretical analysis of cortical connectivity from EEG data.

Symposium Functional and effective brain connectivity in physiological and pathological aging: investigating the most recent methodological approaches such as graph theory and EEG-TMS analyses. Fabrizio Vecchio, **Francesca Miraglia** and Paolo Maria Rossini. Exploring coupling and connectivity in cognition, motor performance and during physiological aging.

**Neuro-Enhancement** [www.nerri.eu](http://www.nerri.eu). MAXXI Museum, Rome, 5<sup>th</sup> June 2014. A professional challenge to cope with the increase of competitiveness and the increase of productivity.

Fabrizio Vecchio, **Francesca Miraglia** and Paolo Maria Rossini. "How can we tell from electroencephalogram how our performances will be?"

**60<sup>th</sup> National Congress of Clinical Neurophysiology (SINC).** Verona May 20-23, 2015.

Poster **Francesca Miraglia**, Fabrizio Vecchio and Paolo Maria Rossini. EEG characteristics in “eyes open” vs “eyes closed” conditions: small world network architecture in healthy aging and age-related brain degeneration.

Poster **Francesca Miraglia**, Fabrizio Vecchio, Camillo Porcaro, Carlo Cottone, Andrea Cancelli, Paolo Maria Rossini and Franca Tecchio. **Sensory-motor networks’ topology in multiple sclerosis fatigue**