

**PERSONAL INFORMATION**

Family name, First name: **CHIAPPALONE Michela (IEEE # 92443905)**  
 Date of birth and Nationality: December 10th, 1974, ITALIAN  
 Researcher unique identifier: [orcid.org/0000-0003-1427-5147](https://orcid.org/0000-0003-1427-5147)  
 Google Scholar Profile: <https://scholar.google.com/citations?user=E9qBUOYAAAAJ&hl=en>

**BIOGRAPHY**

The research interests of Michela Chiappalone are in the field of Neuroengineering, with a special focus on neuroprosthetics, neurostimulation and neurorehabilitation. She graduated in Electronic Engineering (*summa cum laude*) in 1999 and obtained a PhD in Electronic Engineering and Computer Science from University of Genova (Italy) in 2003, under the supervision of Prof. M. Grattarola and Prof. S. Martinoia. In 2002 she has been visiting scholar at the Dept of Physiology, Northwestern University (Chicago, IL, USA) supervised by Prof F. A. Mussa-Ivaldi. At Northwestern she had the opportunity to work on the first ever developed bi-directional neurorobotic closed loop system involving the brain of a lamprey and a small mobile robot. After a Post Doc at the University of Genova, in 2007 she joined the Neuroscience and Brain Technologies Dept at the Istituto Italiano di Tecnologia (IIT) as a Post Doc, under the supervision of Prof. S. Martinoia. In 2013 she got a team leader position ('Researcher') in the same Institution. In 2015 she has been visiting Professor at KUMED (Kansas City, KS, USA), hosted by Prof. R.J. Nudo, one of most prominent experts of post-stroke plasticity. From 2012 to 2015 M. Chiappalone has been Coordinator of the FET Open European Project BrainBow, judged excellent by the European Commission. In 2017, she joined the Rehab Technologies IIT-INAIL Joint Lab of IIT to lead a group aimed at interfacing robotic devices with the nervous system for applications in neurorehabilitation. In 2018 she got the national scientific habilitation as Full Professor of Bioengineering. Since March 2021, she has been appointed as Associate Professor of Bioengineering at the University of Genova, where she leads a group working on Neuroengineering following a translational methodology starting from in vivo up to human studies. She authored 70 papers published in International Journals, more than 50 peer-reviewed contributions to International Conferences, 8 Book Chapters and she gave more than 70 scientific talks at International/National Conferences and Research Institutions. She is also Editor of 2 Books.

As regards her scientific interests and research directions, since the PhD, Michela Chiappalone specialized on the analysis of signals from electrogenic cells and on closed-loop architectures, working on the first ever bidirectional neurorobotic system involving the brain of a sea lamprey and a small robot. She then moved to study network interactions in in vitro models, also dialoguing with artificial devices and, recently, she focused on complex systems (in vivo, humans) with the aim at restoring brain functions by exploiting neuroengineering solutions (e.g. closed-loop systems, biohybrid interactions, neuroprosthetics, neuromodulation). She is also interested in finding electrophysiological biomarkers of neuropathologies and behavioral recovery, by analyzing brain signals at different spatio-temporal scales (e.g. spikes, LFP, EEG) and performing functional connectivity investigations. In order to reach her research objectives, she strongly believes in the importance of a continuous dialogue among patients, clinicians and researchers to foster new technological solutions that can have rapid and well-accepted applications and that can positively impact the life of disabled people.

**EDUCATION**

2003 **PhD in Electronic Engineering and Computer Science**, University of Genova, & National Research Council, Italy.  
 2000 **Professional Engineer**, 100/100, Ordine degli Ingegneri.  
 1999 **M.S. in Electronic Engineering**, *summa cum laude*, University of Genova, Italy.

**CURRENT and PAST POSITIONS**

2021-today **Associate Professor of Bioengineering**, Department of Informatics, Bioengineering, Robotics and System Engineering (DIBRIS). University of Genova, Italy.  
 2021-today **Affiliated Researcher**, Rehab Technologies, Istituto Italiano di Tecnologia (IIT), Italy.  
 2018-2021 **Researcher (Coordinator of the Neuroengineering division)**, Rehab Technologies, Istituto Italiano di Tecnologia (IIT), Italy.  
 2012-2017 **Researcher (Team Leader)**, Dept. Neuroscience and Brain Technologies (IIT), Italy.  
 2015 **Visiting Professor**, Kansas University Medical Center, KS, USA.  
 2007-2011 **Post Doc**, Dept. Neuroscience and Brain Technologies, IIT, Italy.  
 2003-2006 **Post Doc**, Dept. Biophysical and Electronic Engineering, University of Genova, Italy.

**FELLOWSHIPS**

- 2004 **Visiting Scientist**, Northwestern University, IL, USA. Supervisor: Prof. F.A. Mussa-Ivaldi.
- 2004 **Visiting Scientist**, Netherlands Institute for Brain Research, NIBR, Amsterdam, The Netherlands. Supervisor: Prof. Jaap van Pelt.
- 2003 **Visiting Scientist**, INSERM, Bordeaux, France. Supervisor: Prof. G. Le Masson.
- 2002–2003 **Visiting Scholar**, Department of Physiology, Northwestern University Medical School, IL, USA. Supervisor: Prof. F.A. Mussa-Ivaldi.

**CAREER BREAKS**

(1) Birth of first son in 2005; (2) Birth of second son in 2009; (3) Birth of daughter in 2016.

**HIGHLIGHTS ON SCIENTIFIC RESULTS**

- **70 journal papers** published in **International Journals** + **3 pre-print** manuscripts (under review)
- H-index = **29** (*Scopus*) / H-index = **32** (*Google Scholar*)
- Citations = **2621** (*Scopus*) / Citations = **3919** (*Google Scholar*)
- **2 books** as **Editor**; **7 book Chapters**, **55 full peer-reviewed** papers in **International Conferences**
- **78 invited talks/lectures** at International and National Conferences, Institutions, Companies

**SUPERVISION OF PEOPLE**

- 2012-today **Supervisor** of **8 Post Docs**, IIT, Italy.
- 2010-today **Supervisor** of **9 PhD students** and **10 Fellowship students** at IIT, Italy.
- 2011-2016 **Supervisor of 6 Visiting Scholars** from: Radboud University, The Netherlands; University of Bordeaux, France; University of Uberlandia, Brasil; Army Research Labs, USA; DZNE, Universitätsklinikum Magdeburg, Germany; Kansas University Medical Center, USA.
- 2001- today **Supervisor** of **6 Bachelor** and **18 Master students** from Biomedical Engineering / Mathematics / Computer Science, University of Genova and IIT, Italy.
- 2001 – 2010 **Co-Supervisor** of **5 PhD students** at University of Genova, Italy.

**TEACHING ACTIVITIES**

- 2009-2011, 2013-2018: **Professor** of the integrative course ‘Techniques for the analysis of multichannel neuronal signals’ (20 hours), University of Genova, Italy.
- 2010-2012: **Lecturer** of ‘Signal processing tools for multi-electrode data’ (8 hours), a course directed to the students of the *PhD school in Humanoid Technologies* (IIT).
- 2003-2004, 2007-2008: **Teaching assistant** ‘Methods and techniques for neuroengineering’ and ‘Bioelectronics’, University of Genova, Italy.

**ORGANISATION OF SCIENTIFIC MEETINGS**

- 2021 **Co-Chair e Co-organizer** of the **IEEE WIE International Leadership Summit**, foreseen in Autumn 2021, Genova, Italy (*competitive call, success rate 30%*).
- 2021 **Program Co-Chair** of **IEEE NER’21 (10th International IEEE EMBS Conference on Neural Engineering)**, Virtual Meeting 4-6 May 2021.
- 2019 **Chair and Co-organizer** of the **Workshop ‘Neuroplasticity: technological challenges and ethical considerations’**, **IEEE NER’19** March 20-23, 2019, San Francisco, CA, USA
- 2018 **Chair and Co-organizer** of the **Mini Symposium ‘New Challenges in Neurorehabilitation’**, **IEEE EMBC’18** July 17-21, 2018, Honolulu, HI, USA.
- 2018 **Co-Chair and Co-organizer** of the **Invited Symposium ‘Neuroengineering: devices, data processing and applications’**, **ISCAS’18** May 15-20, 2018, Firenze, Italy
- 2017 **Co-Chair and Co-organizer** of the **Workshop ‘Recent methods and analyses for large-scale neuronal population recordings’**, **CNS Meeting** July 15-20, Antwerp, Belgium
- From 2003 to 2012 I was also **Member** of the **Organizing Committee** of the **First** (2003), **Second** (2004), **Fourth** (2006), **Sixth** (2012) **European School on Neuroengineering** Massimo Grattarola, Italy

**MEMBER OF SCIENTIFIC COMMITTEES**

- 2021 **Associate Editor of Track 6** ‘*Neural Engineering, Neuromuscular Systems & Rehabilitation Engineering*’ of **IEEE EMBC 2021**, Foreseen in Autumn 2021.
- 2021 **Associate Editor IEEE NER 2021 (10th International IEEE EMBS Conference on Neural Engineering)**, Virtual Meeting 4-6 May 2021.
- 2020 **Associate Editor of Track 6** ‘*Neural Engineering, Neuromuscular Systems & Rehabilitation Engineering*’ of **EMBC’20** & **Associate Editor and Jury Member of the ‘Student Paper Competition - SPC’ EMBC’20**, Virtual Meeting, July 20-24 2020.
- 2018 **Co-Chair of Track 6** ‘*Neural Engineering, Neuromuscular Systems & Rehabilitation Engineering*’ **EMBC’18**, July 17-21, 2018, Honolulu, USA
- 2018 **Chair of Track 7** ‘*Neuroengineering*’ of **4<sup>th</sup> Middle East Conference on Biomedical Engineering**, March 28-30 2018, Tunis, Tunisia
- 2017 **Member of the Scientific Advisory Board** of the **3rd Annual Neuroscience R&D Technologies Conference**, September 28-29, London, UK.
- 2015-today **Member of IEEE Neural Engineering Technical Committee.**
- 2012-today **Member of the Scientific Committee of the MEA Meeting Conference**, Germany.

**COMMISSIONS OF TRUST**

- 2020-today **Chief Specialty Editor** of the Section *Neuroprosthetics* of **Frontiers in Neuroscience**.
- 2017-today **Member of the PhD school in Bioengineering and Robotics**, University of Genova, Italy.
- 2013-today **Member of International PhD committees** in the EU area.
- 2013-2015 **Review Panel Member** of the interdisciplinary expert **Panel for the International Collaboration of the Research Foundation Flanders (FWO)**.
- 2012-today **Scientific Expert (panel member)** for **European Commission (EC) projects**.
- 2011-today **Scientific Remote Evaluator** for the **EC: ERC Consolidator Grant (Panel PE7, System and Communication Engineering)**; **EC: Future and Emerging Technologies (FET)**; **Netherlands Organisation for Scientific Research (NWO)**; **Research Foundation Flanders (FWO)**; **U.S. – Israel Binational Science Foundation**; **DIM-ELICIT (France)**; **ETH Zurich (Switzerland)**; **Fondazione Cariplo (Italy)**.
- 2011-2016 **Member of the PhD school in Neuroscience**, University of Genova, Italy.
- 2010-today **Editor** for the International Journals: *IEEE OJEMB*, *Progress in Biomedical Engineering*, *Scientific Reports*, *Computational Intelligence and Neuroscience* (this one ended in 2020).
- 2007-today **Referee** for the **Annual Computational Neuroscience Meeting (CNS)**
- 2003-today **Referee** for **International Journals** (e.g. *Nature Materials*, *IEEE Trans. on Biomedical Engineering*, *J. of Neural Engineering*, *International J. of Neural Systems*, *Cerebral Cortex*, *Scientific Reports*, *Neural Networks*, *J. of Neurophysiology*, *European J. of Neuroscience*, *PLoS One*, *Sensors and Actuators B. Chemical*, *J. of Neuroscience Methods*, *Neurocomputing*, *BMC Neuroscience*).

**MEMBERSHIPS OF SCIENTIFIC SOCIETIES**

*Society for Neuroscience* since 2004; *Organization for Computational Neurosciences (OCNS)* since 2011; *IEEE Engineering in Medicine and Biology Society (EMBS)* and *Women in Engineering (WIE)* since 2012.

**FUNDING ID as Coordinator/PI/Co-investigator (last 5 years)****On-Going projects**

- **NEUROHYSTIM: A NEUROHYbrid system to drive intracortical microSTIMulation in neuronal networks in vivo**, *Bando Galileo: Université Franco-Italienne*. 01/01/2021-31/12/2022.
- **A reference architecture for closed-loop systems in the neurotechnology field**, awarded by *MathWorks*. 01/10/2020-30/09/2021.

**Past projects**

- **The effect of tACS at gamma frequency on working memory performance in patients affected by mild to moderate Huntington’s disease**. *Gossweiler Foundation*. 2017-2019.
- **Novel technological approaches for rewiring neural circuitry following brain injury**. *Ministry of Foreign Affairs and International Collaboration of Italy (MAECI), Bi-lateral project of high relevance: Italy-USA action*. 2016-2018.

- **Electroceutical: the new frontiers in treating neural disorders**, awarded by **Novartis Italia**. 01/09/2017-31/07/2018.
- **Rewiring Brain Units: bridging the gap of neuronal communication by means of intelligent hybrid systems – ReBUs**, European Commission ‘*H2020-MSCA-IF-2014*’. 16/03/2016-15/03/2018.
- **Linking biological and artificial neuronal assemblies to restore lost brain functions: towards the design of innovative bi-directional neuroprostheses – BRAINBOW**, European Commission ‘*FET Open Young Explorers*’. 01/02/2012-31/05/2015. *Final Score: EXCELLENT*.

#### INTERNATIONAL RECOGNITION/PRIZES/AWARDS

- 2018. **National Scientific habilitation as Full Professor in Bioengineering** (09/G2).
- 2012. **Finalist of ERC Starting Grant 2012**. *Final score at step 2: ‘A’*, but under the budget cut-off.
- 2011. **Coordinator** of the project BRAINBOW, funded as ‘Future and Emerging Technologies – FET Young Explorers’: success rate: 4.4%, final score *Excellent*.
- 2009. **Cover of the International Journal ‘Cerebral Cortex’** (number 19, issue 6).
- 2004, Brixen (Italy). **Winner** of the ‘**PATRON PhD Award**’ for the **best PhD dissertation in the bioengineering field**, assigned by the National Bioengineering Group (GNB).
- 2004, Milan (Italy). **Winner** of the **5<sup>th</sup> edition of the ‘Design - in Award’** with a project entitled ‘Neuro-electronic solutions for Neuroengineering’.
- 2002, Rome (Italy). **Finalist** of the Italian ‘**FOCUS Award 2002**’, promoted by the Italian scientific magazine FOCUS, with a project entitled ‘*Neuro-electronic approach for in vitro investigations*’.