

# Marta Bortoletto

## Curriculum vitae

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IRCCS – Centro San Giovanni di Dio – Fatebenefratelli  
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Date of Birth: 05/11/1979

Place of Birth: Brescia, Italy

### Current position:

**Researcher** at the Cognitive Neuroscience Unit. IRCCS – Centro San Giovanni di Dio – Fatebenefratelli, Brescia, Italy (from 01/2013).

Coordinator of a full research line 2013-2015: “Cortical Plasticity and connectivity: induction and monitoring through non invasive brain stimulation”.

**Adjunct post-doc** at the Cognitive Neuroscience Group, Queensland Brain Institute, University of Queensland, Australia (from 05/2010).

### Higher education:

2007 PhD in Psychobiology at the University of Padova, (supervision by prof. L. Stegagno).  
Dissertation: Role of the supplementary motor area in self-initiated movement preparation.

2005 Psychology professional qualification, University of Padova.

2003 MSc in Psychology, with honours, at the University of Padova, (supervision by prof. L. Stegagno). Dissertation: Effects of sleep deprivation on N100 and Mismatch Negativity.

### Research activity:

My research activity has focused on action preparation and the role of motor plans in the perception of actions. My studies have contributed to the understanding of neurophysiological mechanisms supporting intention to act and planning of complex action sequences. Moreover I have investigated how intention to act can modulate action perception and understanding of others' actions. Currently, I am directing my research on the study of cortical connectivity through the combination of non-invasive brain stimulation techniques and electroencephalography.

05/2010 – 12/2012 **Research Associate**, Cognitive Neuroscience Unit at the IRCCS – Centro San Giovanni di Dio – Fatebenefratelli. Research activity: Human cortical plasticity in the motor system.

07/2012 – 11/2012 **Visiting Academic**, Cognitive Neuroscience Group at the School of Psychology and Queensland Brain Institute, University of Queensland, Australia. Research activity: Action preparation and Action perception.

03/2008 – 04/2010 **Post-doctoral fellow**, Cognitive Neuroscience Group at the School of Psychology and Queensland Brain Institute, University of Queensland, Australia. Research activity: Action preparation and Action perception.

- 03/2007 – 02/2008 **Post-doctoral fellow**, Cognitive Neuroscience Unit at the IRCCS – Centro San Giovanni di Dio – Fatebenefratelli. Research activity: Human cortical plasticity through TMS/EEG.
- 01/2004 – 03/2007 **PhD student**, Psychophysiology Laboratory (supervision by Prof L. Stegagno) at the Department of General Psychology, University of Padova. Research activity: Action preparation and sequence planning.
- 03/2006 – 09/2006 **Visiting student**, Howard Florey Institute (supervision by Dr R. Cunnington) at the University of Melbourne, Australia. Research activity: Action preparation and attention.
- 03/2004 – 09/2004 **Graduate student**, Institute of Cognitive Neuroscience (supervision by Prof P. Haggard) at the University College London, United Kingdom. Research activity: Interpersonal Body Representation.
- 07/2003 – 12/2003 **Graduate student**, Psychophysiology Laboratory (supervision by Dr M. Sarlo) at the Department of General Psychology, University of Padova. Research activity: Cardiovascular reactivity in blood phobic patients.

### **Teaching experience:**

- Teaching for “Theoretic and practical workshop on transcranial electrical stimulation”, Brescia, Italy, 26-27 June 2014.
- Teaching for “Theoretic and practical workshop on transcranial electrical stimulation”, Brescia, Italy, 8 July 2013.
- From 2012/2013 teaching assistant of “Physiology and Neurophysiology” within the Degree in Psychiatric Rehabilitation, University of Brescia.
- From 2012/2013 teaching assistant of “Physiology of the nervous system” within the Degree in Physiotherapy, University of Brescia.
- Teaching for 2nd Level Master Course in Neuropsychology: Assessment, Diagnosis and Rehabilitation, Catholic University of the Sacred Heart. Teaching of “State-dependency in neurorehabilitation” (from ay 2012/2013). Teaching and practical training on non-invasive brain stimulation and electroencephalography in cognitive neuroscience (from ay 2011/2012).
- Teaching and practical training for EEG users within the university course entitled “Psychophysiology: Methods and Applications” at the School of Psychology, University of Queensland (2008 and 2009).
- Supervision of graduate students at the Cognitive Neuroscience Unit. IRCCS – Centro San Giovanni di Dio – Fatebenefratelli, Brescia, Italy (2012-2014).
- Supervision of Honors students at the School of Psychology, University of Queensland (2009) .
- Co-supervision of Honors students and graduate students at the Psychophysiology Laboratory at the Department of General Psychology, University of Padova (2005 and 2006) and at the School of Psychology, University of Queensland (2008 e 2009).

### **National and international collaborations:**

- Prof Ross Cunnington and prof Jason B. Mattingley, School of Psychology and Queensland Brain Institute, University of Queensland, Australia

- Prof Pedro C. Miranda, Institute of Biophysics and Biomedical Engineering, University of Lisbon, Portugal
- Dr Luigi Cattaneo, Center for Mind/Brain Sciences, University of Trento, Italy
- Dr Domenica Veniero and prof Gregor Thut, Centre for Cognitive Neuroimaging, Institute of Neuroscience and Psychology, University of Glasgow, Glasgow, UK.

### **Honors and Awards:**

- Italian Society of Experimental Psychology - “Young researcher” Award (September 2007).
- Centenario Rotary Club Brescia Nord - “Excellence” Award for PhD projects (March 2005).
- Erasmus travel grant from the University of Padova to spend six months at the University College London (March 2004).

### **Funding support:**

ASM Foundation (2012) Project title: New interventions aiming at the promotion of healthy aging (P.I. Marta Bortoletto).

### **Scientific organization of the following international symposia/workshops:**

Seminar (2013): Brain processes underlying the planning and perception of actions. IRCCS – Centro San Giovanni di Dio – Fatebenefratelli, Brescia, 08 October.

Workshop (2013): Non-invasive Electrical Brain Stimulation (tDCS,tACS, tRNS): Basic and Applied research. IRCCS – Centro San Giovanni di Dio – Fatebenefratelli, Brescia, 30 Settembre.

### **Scientific organization of the following national symposia/workshops:**

Symposia (2013): Multimodal approach in the study of cortical connectivity. IRCCS – Centro San Giovanni di Dio – Fatebenefratelli, Brescia, 1 Luglio.

Young investigators symposia (2012): The interface between executive control and automatic behavior. *XX Congress of the Italian Society of Psychophysiology*, Venice, 22-24 November.

### **Ad-hoc reviewer for:**

*International scientific journals:* ◇ Brain & Cognition, ◇ Cerebral Cortex, ◇ Journal of Neurophysiology, ◇ Clinical Psychophysiology, ◇ Cortex, ◇ Psychophysiology, ◇ Biological Psychology, ◇ Experimental Brain Research, ◇ Frontiers in Human Neuroscience, ◇ Perceptual & Motor Skills, ◇ Journal of Biomechanics, ◇ Journal of Motor Behavior, ◇ Clinical Neurology and Neurosurgery ◇ Neuropsychological Rehabilitation, ◇ Neuroscience Letters, ◇ Journal of Clinical Neurophysiology

*Ad-hoc grant reviewer:* European Research Council Executive Agency (ERCEA).

### **Personal skills and competences:**

In my research to date, I have primarily employed event-related potential (ERP) measures of neural activity in conjunction with behavioral scores. I am also pursuing research using functional

magnetic resonance imaging (fMRI) and non-invasive brain stimulation techniques, i.e. transcranial magnetic stimulation (TMS) and transcranial electrical stimulation (tES), in combination with electroencephalographic (EEG) and electromyographic (EMG) activity.

Stimuli presentation: E-Prime, Presentation, Visual Basic. EEG/ERPs recording: Neuroscan. Brainvision, Biosemi. EEG/ERPs analyses: Neuroscan, BESA, Vision Analyzer, Cartool, Matlab, EEGlab. ERP source localization: BESA, sLORETA, ASA. fMRI analyses: MRIcro, MRIcron, SPM2, SPM5, Osirix. Neuronavigation: SoftTaxic.

### **Workshops:**

- 14-18/05/2012 MEG/EEG toolkit (FieldTrip), Nijmegen, The Netherlands.
- 21-23/02/2012 NWG Practical Course: Transcranial magnetic and electrical stimulation. Gottingen, Germany.
- 9-16/01/2011 FENS-HERTIE Winter school workshop “Systems neuroscience of primate hand function: Models, mechanisms, rehabilitation and mirror systems”, Obergurgl, Austria
- 12/11/2010 New perspective of transcranial electrical stimulation: from research to clinical practice, Brescia, Italy
- 8–9/08/2009 HCSNet “Perception and action” Workshop, Brisbane, Australia
- 17/02/2009 Training on presentation skills, Brisbane, Australia
- 21-22/06/2008 BESA workshop, Newcastle, Australia
- 23-27/06/2008 FSL workshop, Brisbane, Australia
- 5-6/12/2007 BrainVision Analyzer Workshop, Brescia, Italy
- 15-16/11/2007 The physiology of Mind, Pavia, Italy
- 22-23/09/2006 Clinical Neurology 2006: Prospective & Retrospective. Vienna, Austria
- 27-30/06/2006 fMRI experience VIII, Melbourne, Australia
- 12-13/01/2006 BESA workshop, Munich, Germany
- 21/09/2005 The EEGlab Environment, Lisbon, Portugal
- 11/2004 Visual Basic, Padova, Italy
- 11/2004 Matlab basic level, Padova, Italy
- 06/02/2004 Comparing multiple approaches within psychology. Bologna, Italy

### **“Peer reviewed” publications:**

Veniero D, **Bortoletto M**, Miniussi C (In press). On the challenge of measuring direct cortical reactivity by TMS-EEG. Brain Stimulation.

**Bortoletto M**, Baker SK, Mattingley JB, Cunnington R (2013). Visual–Motor Interactions during Action Observation Are Shaped by Cognitive Context. Journal of Cognitive Neuroscience, 25(11): 1794-806.

**Bortoletto M**, Mattingley JB, Cunnington R (2013). Effects of context on visuomotor interference depends on the perspective of observed actions. PlosOne, 8(1) e53248.

Veniero D, **Bortoletto M**, Miniussi C (2013). Cortical modulation of short-latency TMS-evoked

potentials: evidence for cortical origin. Frontiers in Human Neuroscience, 6:352.

**Bortoletto M**, Mattingley JB, Cunnington R (2011). Intention to act modulates visual perception during action observation. Neuropsychologia, 49: 2097-2104.

**Bortoletto M**, Lemonis, M, Cunnington R (2011). The role of arousal in the preparation for voluntary movement. Biological Psychology, 87: 372-378.

**Bortoletto M**, De Min Tona G, Scozzari S, Sarasso S, Stegagno L (2011). Effects of sleep deprivation on auditory change detection: a N1-Mismatch Negativity study. International Journal of Psychophysiology 81: 312-316.

**Bortoletto M**, Cook, A, Cunnington R (2011). Motor timing and the preparation for sequential actions. Brain and Cognition, 75(2): 196-204.

Brignani D, **Bortoletto M**, Miniussi C and Maioli C (2010). The when and where of spatial storage in memory-guided saccades. Neuroimage, 52(4): 1611-20.

**Bortoletto M**, Cunnington R (2010). Motor timing and motor sequencing contribute differently to the preparation for voluntary movement. Neuroimage, 49(4): 3338-48.

Veniero D, **Bortoletto M**, Miniussi C (2009). TMS-EEG co-registration: on TMS-induced artifact. Clinical Neurophysiology 120: 1392-1399.

Poli S, Sarlo M, **Bortoletto M**, Buodo G, Palomba D (2007). Stimulus-Preceding Negativity and Heart Rate Changes in Anticipation of Affective Pictures. International Journal of Psychophysiology 65(1): 32-9.

**Bortoletto M**, Sarlo M, Poli S, Stegagno L (2006). Pre-Motion Positivity during self-paced movements of finger and mouth. Neuroreport 17(9): 883-6.

### **Book chapters:**

Miniussi C, **Bortoletto M**, Thut G, Veniero D (2012). Assessing cortical connectivity using TMS – EEG. In: *Cortical Connectivity: Brain Stimulation for Assessing and Modulating Cortical Connectivity and Function*. Section I: Methods to assess and modulate cortical connectivity and functions. Robert Chen and John Rothwell (eds.). Springer-Verlag, Berlin Heidelberg chapter 5.

### **Talks in congresses:**

**Bortoletto M**, Pellicciari MC, Miniussi C (2013). State-dependency of tDCS effects on motor learning. *Congress of the Italian Society of Experimental Psychology*, Rome, 16-18 September.

**Bortoletto M**, Pellicciari MC, Miniussi C (2013). Plasticity and homeostatic regulation in the motor system: effects of transcranial electrical stimulation. *Italian Society for Neurological Rehabilitation – SIRN*, Bari, 18-20 April.

**Bortoletto M**, Mattingley JB, Cunnington R (2009). Do Motor Plans Influence Visual Processing? *17<sup>th</sup> Congress of the Italian Society of Psychophysiology*, Siena, 28-31 October.

**Bortoletto M**, Mattingley JB, Cunnington R (2009). Does action preparation modulate perception? *HCSNet Perception and Action Workshop*, Brisbane, 8-9 August.

**Bortoletto M**, Lemonis M, Cunnington R (2008). Effects of arousal state on readiness potential. *18<sup>th</sup> Australasian Psychophysiology Conference and general annual meeting of the society*, Hobart, 27-29 November.

**Bortoletto M**, Cunnington R (2007). Effects of attention to motor timing on movement-related brain activity. *Congress of the Italian Society of Experimental Psychology*, Como, 17-19

September.

### **Invited talks and seminars:**

**Bortoletto M.** Three challenges in the neuroscience: the free will, the mirror neurons and the connectome. Brescia, 30 April 2014.

**Bortoletto M.** Brain processes underlying sensory-motor interference during action observation. Padova, 27 January 2014.

**Bortoletto M.** From Action to Perception: How the motor system can influence visual perception of actions. Brescia, 28 June 2010.

**Bortoletto M.** Effect of attention on temporal production. II Workshop Cognitive Neuroscience Unit, Brescia, 05 June 2007.

**Bortoletto M.** Role of the supplementary motor area in self-initiated movement preparation. Neuroimaging and Neuroinformatics group meeting. Melbourne, 11 August 2006.

**Bortoletto M.** Mismatch Negativity. Seminar: Early components of Event-related Potentials. Padova, 12 July 2005.

**Bortoletto M.** Vision modulates somatosensory cortical processing. PhD Seminars, Padova, 02 February 2004.

### **Posters:**

**Bortoletto M,** Capogrosso, Miniussi C, Perini R (2014). Acute effects of moderate dynamic exercise on brain plasticity. *30th International Congress of Clinical Neurophysiology (ICCN)*, Berlino, 19-23 March.

**Bortoletto M,** Pellicciari MC, Miniussi C (2013). Counter-effects of high-intensity long-lasting tDCS on motor learning. *21<sup>o</sup> Congress of the Italian Society of Psychophysiology*, Lecce, 24-26 October.

Perini R, Capogrosso, **Bortoletto M,** Miniussi C (2013). Acute effects of moderate dynamic exercise on brain plasticity. *21<sup>o</sup> Congress of the Italian Society of Psychophysiology*, Lecce, 24-26 October.

**Bortoletto M,** Pellicciari MC, Miniussi C (2013). State-dependency of tDCS-induced plasticity in the motor cortex. *5<sup>th</sup> International Congress on Non-invasive Brain Stimulation*, Leipzig, 19-22 March.

Pellicciari MC, **Bortoletto M,** Mauri P, Miniussi C (2012). Transcranial direct current stimulation combined with motor training not always gates motor learning. *2<sup>nd</sup> Workshop on Synaptic Plasticity: From Bench to Bed Side*, Taormina, 29-1 October.

**Bortoletto M,** Mattingley JB, Cunnington R (2011). When and how the motor system modulates action perception. *FENS-HERTIE Winter School Workshop*, Obergurgl, 9-16 January.

**Bortoletto M,** Cook A, Cunnington R (2010). Multiple contributions of motor timing to preparation for sequential actions. *16<sup>th</sup> annual meeting of the Organization for Human Brain Mapping*, Barcelona, 6-10 June.

**Bortoletto M,** Lemonis M, Cunnington R (2009). Influence of arousal state on movement-related brain activity. *49<sup>th</sup> annual meeting of Society for Psychophysiological Research*, Berlin, 21-24 October.

**Bortoletto M,** Cunnington R (2009). Attention to timing and sequencing modulates activity

associated with the preparation for action. *16<sup>th</sup> annual meeting of the Cognitive Neuroscience Society*, San Francisco, 21-24 March.

Cunnington R, Keegel J, **Bortoletto M** (2009). Attention and the readiness for voluntary action. *16<sup>th</sup> annual meeting of the Cognitive Neuroscience Society*, San Francisco, 21-24 March.

**Bortoletto M**, Cunnington R (2008). Readiness Potential And Action Preparation. *14<sup>th</sup> annual meeting of the organization for Human Brain Mapping*, Melbourne, 16-19 June.

Miniussi C, **Bortoletto M**, Brignani D, Maioli C (2007). Neurophysiological correlates of spatial working memory as revealed by low resolution electromagnetic tomography. *Congress of the Italian Society of Experimental Psychology*, Como, 17-19 September.

Poli S, Palomba D, **Bortoletto M**, Buodo G, Sarlo M (2006). Stimulus-Preceding Negativity in anticipation of affective pictures. *46<sup>th</sup> annual meeting of Society for Psychophysiological Research*, Vancouver, 25-29 October.

**Bortoletto M**, Sarlo M, Poli S, Stegagno L (2005). Pre-Motion Positivity during self-paced movements of finger and mouth. *45<sup>th</sup> annual meeting of Society for Psychophysiological Research*, Lisbon, 21-24 September.

De Min Tona G, **Bortoletto M**, Scozzari S, Sarasso S, Stegagno L (2005). Effects of total sleep deprivation on auditory sensory memory: a N100-Mismatch Negativity study. *45<sup>th</sup> annual meeting of Society for Psychophysiological Research*, Lisbon, 21-24 September.

Sarlo M, Buodo G, Poli S, **Bortoletto M**, Palomba D (2004). Sensibilità al disgusto e fobia del sangue. *Congress of the Italian Society of Experimental Psychology*, Sciacca, 18-20 September.

De Min Tona G, Scozzari S, Sarasso S, **Bortoletto M**, Salvatelli S, Stegagno L (2004). Total sleep deprivation and ERPs in psychophysiological orienting. *Congress of the Italian Society of Experimental Psychology*, Sciacca, 18-20 September.

De Min Tona G, Sarasso S, Scozzari S, **Bortoletto M**, Salvatelli S, Stegagno L (2004). Total sleep deprivation and orienting response: peripheral indexes. *Congress of the Italian Society for Sleep Research*, Napoli, 24-26 June.

De Min Tona G, De Cesarei A, **Bortoletto M**, Codispoti M, Stegagno L (2003). Effects of total sleep deprivation on Mismatch Negativity (MMN). *Congress of the Italian Society of Experimental Psychology*, Bari, 22 -24 September.

De Min Tona G, De Cesarei A, **Bortoletto M**, Codispoti M, Stegagno L (2003). Changes in N100 and Mismatch Negativity (MMN) after total sleep deprivation. *Congress of the Italian Society for Sleep Research*, Pisa, 18-20 September.

De Min Tona G, Versace F, Picchio E, **Bortoletto M**, Stegagno L (2002). Effect of short-term sleep reduction on the cardiovascular system and level of activation. *Congress of the Italian Society of Experimental Psychology*, Rimini-Bellaria, 16-18 September.

De Min Tona G, Versace F, Picchio E, **Bortoletto M**, Stegagno L (2002). Effect of short-term sleep reduction on the cardiovascular system and level of arousal. *Congress of the Italian Society for Sleep Research*, Padova, 13-14 September.