

# Debora Brignani

## Curriculum Vitae

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IRCCS – Centro San Giovanni di Dio – Fatebenefratelli  
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Place and date of birth: Asola (MN), 1<sup>st</sup> May 1977

### Current Position

Researcher at the Neurophysiology Lab, IRCCS Centro San Giovanni di Dio - Fatebenefratelli, Brescia.

Assistant Professor of Human Physiology at the Department of Clinical and Experimental Sciences, University of Brescia, Brescia.

Principal Investigator of the project “Novel tailored network-based rTMS treatments in Alzheimer's disease: an integrated multi-imaging approach”, funded by the Italian Ministry of Health (Progetti di Ricerca Giovani Ricercatori – Ricerca Finalizzata 2016: GR-2016-02364718).

### Academic and Professional Qualifications

National Scientific Qualification (ASN), Academic Recruitment Field 05/D1 II band, awarded on May 2019.

National Scientific Qualification (ASN), Academic Recruitment Field 11/E1 II band, awarded on November 2018.

Enrolment in the Professional Register of Psychologists of Lombardy (n.16898) from March 2014.

Ph.D. in Neuroscience awarded on May 2006. University of Verona, Faculty of Medicine, Verona, Italy. Thesis entitled: “Orienting visuospatial attention and working memory: electrophysiological evidence”. Supervisor: Prof. G. Berlucchi.

Qualifying examination for Professional Psychology, 2<sup>nd</sup> session 2003. University of Padova, Padova, Italy.

“Laurea” in Psychology (BSc in Psychology and MSc in General and Experimental Psychology), 108/110 awarded on December 2001. University of Padova, Faculty of Psychology, Padova, Italy. Final thesis entitled: “Motor-related cortical potentials and force modulation: a comparison between two types of visual feedback”. Supervisor: Prof. L. Stegagno.

### Research Experience

2009–present: researcher at the Neurophysiology Lab headed by Prof. C. Miniussi, IRCCS Centro San Giovanni di Dio Fatebenefratelli, Brescia.

2007–2008: post-doctoral fellow at the Neurophysiology Lab headed by Prof. C. Miniussi, IRCCS Centro San Giovanni di Dio Fatebenefratelli, Brescia.

2006–2007 (August–April): academic visitor at Brain and Cognition Laboratory, Department of Experimental Psychology, University of Oxford, Oxford, United Kingdom. Supervisor: Prof. A.C. Nobre.

2003–2005 (January–December): Ph.D. Student in Neuroscience. Department of Neurological and Vision Sciences, University of Verona, Verona, Italy. Supervisor: Prof. G. Berlucchi.

2004 (May): visiting student at the Department of Human Physiology and Pharmacology – Division of High Resolution EEG – University of Rome “La Sapienza”. Supervisor: Dott. C. Babiloni.

2002–2003 (March–March): attending student at the Neurophysiology Lab, IRCCS “San Giovanni di Dio – FBF”, Brescia. Supervisor: Prof. C. Miniussi.

2000–2001 (October-December): attending student at the Psychophysiology Laboratory, Department of General Psychology - University of Padova. Supervisor: Prof. L. Stegagno.

### Teaching Experience

From 2016/17 to date. Adjunct Professor of Physiology of the Nervous System (BIO/09), Bachelor Degree in Physiotherapy, Department of Clinical and Experimental Sciences, University of Brescia, Brescia.

From 2016/17 to date. Adjunct Professor of Physiology (BIO/09), Bachelor Degree in Psychiatric Rehabilitation Techniques, Department of Clinical and Experimental Sciences, University of Brescia, Brescia.

2016/17. Adjunct Professor of Physiology of the Nervous System (BIO/09), Bachelor Degree in Physiotherapy, Department of Clinical and Experimental Sciences, University of Brescia, Cremona.

From 2007/08 to 2016/17. Adjunct Professor of Physiology (BIO/09), Bachelor Degree in Social Worker, Department of Clinical and Experimental Sciences, University of Brescia, Mantova (from 2007/08 to 2010/11), Brescia (from 2010/2011 to 2016/17).

2014/16. Supervisor of a PhD student (Laura Panizza: “A multimodal approach to the study of aging”), PhD School in Psychology, Catholic University of the Sacred Heart, Milano.

2015/16. Adjunct Professor of Neuropsychology of communication, Master Degree in Developmental Psychology and Communication, Faculty of Psychology, Catholic University of the Sacred Heart, Milano.

From 2012/13 to 2015/16. Adjunct Professor of Brain Computer Interface, 2<sup>nd</sup> Level Master Course in Neuropsychology: Assessment, Diagnosis and Rehabilitation, Faculty of Psychology, Catholic University of the Sacred Heart, Brescia (from 2012/13), Milano (from 2014/15).

From 2013/14 to 2014/15. Adjunct Professor of Neuropsychology and Cognitive Neuroscience practice, Bachelor Degree in Psychological Sciences and Techniques, Faculty of Psychology, Catholic University of the Sacred Heart, Brescia.

2013/14. Assistant Professor for the course “The outcome of quantitative research: from scientific papers to spin-off”, PhD School in Psychology, Catholic University of the Sacred Heart, Milano.

2011/12. Supervisor of a final thesis for the Master Degree in Neuroscience and Neuropsychological Rehabilitation, Faculty of Psychology, University of Padova, Padova.

### Teaching Experience upon invitation

2007/2008 and 2008/2009. Lessons on “Transcranial Magnetic Stimulation” during the course of Research Techniques in Psychobiology, in the Master Degree in Experimental Psychology and Cognitive-Behavioural Neuroscience / Clinical Psychology, Faculty of Psychology, University of Padova, Padova.

### ‘Peer Reviewed’ Publications

25 papers in 12 years (2007-2019): H-index: 11; Total of citations: 559 (Scopus).

1. **D. Brignani**, C. Bagattini, V. Mazza (2018). Pseudoneglect is maintained in aging but not in mild Alzheimer's disease: new insights from an enumeration task. *Neuropsychologia* 111:276-283.
2. C. Bagattini, V. Mazza, L. Panizza, C. Ferrari, C. Bonomini, **D. Brignani** (2017). Neural dynamics of multiple object processing in Mild Cognitive Impairment and Alzheimer's Disease: future early diagnostic biomarkers? *Journal of Alzheimer's Disease* (in press).
3. M. Ruzzoli, C. Pirulli, V. Mazza, C. Miniussi, **D. Brignani** (2016). The mismatch negativity as an index of cognitive decline for the early detection of Alzheimer's disease. *Scientific Report* 6:33167.
4. F. Vecchio, M.C. Pellicciari, F. Miraglia, **D. Brignani**, C. Miniussi, P.M. Rossini (2016). Effects of transcranial direct current stimulation on the functional coupling of the motor cortical network. *Neuroimage* 140:50-56.
5. M. Mancini, **D. Brignani**, S. Conforto, P. Mauri, C. Miniussi, M.C. Pellicciari (2016). Assessing cortical synchronization during transcranial direct current stimulation: a graph-theory analysis. *Neuroimage* 140:57-65.

6. T. Cunillera, **D. Brignani**, D. Cucurell, L. Fuentemilla, C. Miniussi (2016). The Right Inferior Frontal Cortex in Response Inhibition: a tDCS-ERP Coregistration Study. *Neuroimage* 140:66-75.
7. V. Mazza, **D. Brignani** (2016). Electrophysiological Advances on Multiple Object Processing in Aging. *Frontiers in Aging Neuroscience* 8:46.
8. S. Pagano, E. Fait, **D. Brignani**, V. Mazza (2016). Object individuation and compensation in healthy aging. *Neurobiology of Aging* 40:145-54.
9. S. Pagano, E. Fait, A. Monti, **D. Brignani**, V. Mazza (2015). Electrophysiological correlates of subitizing in healthy aging. *Plos One* 10(6):e0131063.
10. P. Mauri, C. Miniussi, M. Balconi, **D. Brignani** (2015). Bursts of transcranial electrical stimulation increase arousal in a continuous performance test. *Neuropsychologia* 74: 127-36.
11. C. Bagattini, S. Mele, **D. Brignani**, S. Savazzi (2015). No casual effect of left hemisphere hyperactivity in the genesis of neglect. *Neuropsychologia* 72, 12-21.
12. M. Mancini, M.C. Pellicciari, **D. Brignani**, P. Mauri, C. De Marchis, C. Miniussi, S. Conforto (2015). Automatic artifact suppression in simultaneous tDCS-EEG using adaptive filtering. *Conf Proc IEEE Eng Med Biol Soc.* 2015:2729-32.
13. T. Cunillera, L. Fuentemilla, **D. Brignani**, D. Cucurell, C. Miniussi (2014). A simultaneous modulation of reactive and proactive inhibition processes by anodal tDCS on the right inferior frontal cortex. *Plos One* 9(11):e113537.
14. M.C. Pellicciari, **D. Brignani** and C. Miniussi (2013). Excitability modulation of the motor system induced by transcranial direct current stimulation: a multimodal approach. *Neuroimage* 83, 569-580.
15. **D. Brignani**, M. Ruzzoli, P. Mauri and C. Miniussi (2013). Is transcranial alternating current stimulation effective in modulating brain oscillations? *Plos One* 8(2): e56589.
16. C. Miniussi, **D. Brignani** and M.C. Pellicciari (2012). Combining transcranial electrical stimulation with electroencephalography: a multimodal approach. *Clinical EEG & Neuroscience* 43 (3) 184-191.
17. M. Ruzzoli, C. Pirulli, **D. Brignani**, C. Maioli and C. Miniussi (2012). Sensory memory during physiological aging indexed by mismatch negativity (MMN). *Neurobiol Aging*, 33, 625.e21-625.e30.
18. D. Veniero, **D. Brignani**, G. Thut and C. Miniussi (2011). Alpha-generation as basic response-signature to transcranial magnetic stimulation (TMS) targeting the human resting motor cortex: A TMS/EEG co-registration study. *Psychophysiology*, 48, 1381-1389.
19. **D. Brignani**, M. Bortoletto, C. Miniussi and C. Maioli (2010). The when and where of spatial storage in memory-guided saccades. *Neuroimage*, 52, 1611-1620.
20. **D. Brignani**, J. Lepsien and A.C. Nobre (2010). Purely endogenous capture of attention by task-defining features proceeds independently from spatial attention. *Neuroimage* 51(2):859-66.
21. D. Guzzon, **D. Brignani**, C. Miniussi and C.A. Marzi (2010). Orienting of attention with eye and arrow cues and the effect of overtraining. *Acta Psychologica* 134(3):353-62.
22. **D. Brignani**, J. Lepsien, M. Rushworth and A.C. Nobre (2009). The timing of neural activity during shifts of spatial attention. *Journal of Cognitive Neuroscience* 21(12), 2369-2383.
23. **D. Brignani**, D. Guzzon, C.A. Marzi and C. Miniussi (2009). Attentional orienting induced by arrows and eye-gaze compared with an endogenous cue. *Neuropsychologia* 47(2), 370-81.
24. **D. Brignani**, P. Manganotti, P.M. Rossini and C. Miniussi (2008). Modulation of cortical oscillatory activity during Transcranial Magnetic Stimulation. *Human Brain Mapping* 29(5), 603-612.
25. **D. Brignani**, C. Maioli, P.M. Rossini and C. Miniussi (2007). Event-related power modulations of the EEG preceding visually-guided saccades. *Brain Research*, 1136 (1), 122-131.

## Other Publications

1. L. Panizza, P. Mauri, V. Mazza, C. Miniussi, **D. Brignani** (2016). tES effects in a short-term memory task depend on participants' age. *Neuropsychological Trends*, 20, 107.

2. M. Mancini, M.C. Pellicciari, D. Brignani, P. Mauri, C. De Marchis, C. Miniussi, S. Conforto (2015). Automatic artifact suppression in simultaneous tDCS-EEG using adaptive filtering. *Conf Proc IEEE Eng Med Biol Soc*, 2015:2729-32. doi: 10.1109/EMBC.2015.7318956.
3. P. Mauri, C. Miniussi, M. Balconi, **D. Brignani** (2014). Bursts of high frequency random noise stimulation (tRNS) increase arousal in a discriminative reaction time task. *Neuropsychological Trends*, 16, 107.
4. S. Pagano, E. Fait, A. Monti, **D. Brignani**, V. Mazza (2014). Neural correlates of age-related changes during multiple object processing. *Perception*, 43 Supplement, 125.
5. S. Savazzi, S. Mele, **D. Brignani**, C. Bagattini (2013). Is the contralesional hemisphere hyperactivated in neglect? *Journal of cognitive neuroscience*, Supplement, 234.
6. P. Mauri, **D. Brignani**, M. Ruzzoli, C. Miniussi (2012). Is transcranial alternating current stimulation effective in modulating brain oscillations? *Neuropsychological Trends*, 12, 66.
7. P. Mauri, M. Ruzzoli, C. Miniussi, **D. Brignani** (2012). Electrophysiological correlates of contrast perception. *Perception*, 41 Supplement, 220.
8. **D. Brignani**, M. Ruzzoli, L. Laghetto, C. Miniussi (2011). Entrainment and cognitive processes. *Archives Italiennes de Biologie*, 149 (3), S6.
9. **D. Brignani**, M. Ruzzoli, L. Laghetto, C. Miniussi (2011). The induction of alpha frequencies across visual areas impairs detection but not discrimination. *Perception*, 40 Supplement, 159.
10. **D. Brignani**, M.C. Pellicciari and C. Miniussi (2010). Effects of transcranial direct current stimulation on electroencephalography activity. *Neuropsychological Trends*, 8, 81-83.
11. **D. Brignani**, C. Maioli, P.M. Rossini and C. Miniussi (2006). Visuospatial working memory: an event-related-potentials study. *Journal of Psychophysiology*, Vol. 20, 2:95-96.
12. C. Miniussi, **D. Brignani**, P.M. Rossini (2006). Modulation of cortical oscillatory EEG activities by Transcranial Magnetic Stimulation. *Acta Physiologica*, Congresso della Società Italiana di Fisiologia, 25-27 Settembre, Vol. 188 Suppl 652.
13. **D. Brignani**, D. Guzzon, C.A. Marzi and C. Miniussi (2006). Attentional orienting triggered by different central cues: an ERPs study. *Atti del 12<sup>th</sup> Human Brain Mapping meeting (HBM)*, Firenze, 11-15 Giugno. *NeuroImage* Vol 31, Supplement 1, 26 M-PM.

## Talks upon invitation

- D. Brignani. Functional role of brain oscillations: new horizons for cortical connectivity. Summer School: Integrazione di metodi e tecniche per la ricerca, la clinica e la riabilitazione in psicofisiologia e neuroscienze, Catholic University of the Sacred Heart, Milano, 22-26 June 2015.
- D. Brignani. Functional importance of brain oscillations. XXII Congresso Società Italiana di Psicofisiologia, Firenze, 27 November 2014.
- D. Brignani. Transcranial alternating current stimulation (tACS). Theoretical and practical course on Transcranial Electrical Stimulation (tDCS, tACS, tRNS), Brescia, 25-26 September 2014.
- D. Brignani. tES combination with neuroimaging techniques. Theoretical and practical course on Transcranial Electrical Stimulation (tDCS, tACS, tRNS), Brescia, 25-26 September 2014
- D. Brignani. Transcranial alternating current stimulation (tACS). Theoretical and practical course “New frontiers of the cognitive neuroscience research: from neuromodulation to NIRS”, Brescia, 26-28 June 2014.
- D. Brignani. tES combination with neuroimaging techniques. Theoretical and practical course “New frontiers of the cognitive neuroscience research: from neuromodulation to NIRS”, Brescia, 26-28 June 2014.
- D. Brignani. Transcranial alternating current stimulation (tACS). Theoretical and practical course on Transcranial Electrical Stimulation (tDCS, tACS, tRNS). Brescia, 8 July 2013.
- D. Brignani. Entrainment e processi cognitivi. XIX Congresso Società Italiana di Psicofisiologia, Brescia, 16 November 2011.

D. Brignani. Effects of transcranial direct current stimulation on electroencephalographic activity. Workshop: New prospects of transcranial electrical stimulation (tES): from bench to bed side, Brescia, 12 November 2010.

D. Brignani. Attentional orienting induced by arrows and eye-gaze. Psychophysic of Attention, Padova, 15 October 2007.

## **Honors and Awards**

“Award best poster” at the Rovereto Attention Workshop, Rovereto, Italy, 11-13 October 2007.

Prize “best young researcher” at the Congresso dell’Associazione Italiana di Psicologia (AIP) – Sezione Sperimentale, Como, Italy, 17-19 September 2007.

Research Fellow: “Mild Cognitive Impairment: clinical, genetic, neurobiological characteristics and diagnostic criteria”. Cognitive Neuroscience Unit, IRCCS "San Giovanni di Dio - FBF" Brescia, Italy for the years 2003-2004.

## **Fundings**

Principal Investigator of the project “Novel tailored network-based rTMS treatments in Alzheimer's disease: an integrated multi-imaging approach”, funded by the Italian Ministry of Health (Progetti di Ricerca Giovani Ricercatori – Ricerca Finalizzata 2016: GR-2016-02364718).

Group leader for the project “Brain and cognitive dynamics of multiple-object processing in normal aging, MCI and Alzheimer disease”, funded by the Italian Ministry of Health (GR-2010-2314972).

Principal Investigator for the project “Improvement of cognitive plasticity through transcranial electric stimulation” funded by AFaR for the years 2011 and 2012.

Principal Investigator for the project “Electric stimulation and cortical excitability: an electroencephalographic investigation” funded by AFaR for the year 2010.

## **Scientific events organization**

Theoretical and practical course on Transcranial Electrical Stimulation (tDCS, tACS, tRNS), Brescia, 25-26 September 2014.

Theoretical and practical course “New frontiers of the cognitive neuroscience research: from neuromodulation to NIRS”, Brescia, 26-28 June 2014.

Workshop on “Non-invasive Electrical Brain Stimulation (tDCS,tACS, tRNS). Basic and Applied Research”, Brescia, 30 September 2013.

Theoretical and practical course on Transcranial Electrical Stimulation (tDCS, tACS, tRNS). Brescia, 8 July 2013.

## **Reviewing Activity**

Expert for the evaluation of Research Quality (VQR) 2011-2014, Italian National Agency for the Evaluation of Universities and Research Institutes (ANVUR), Rome, Italy (<http://www.anvur.org>).

Ad hoc reviewer for: Journal of Neuroscience, Journal of Neurophysiology, Neuropsychologia, Psychophysiology, Journal of Cognitive Neuroscience, Human Brain Mapping, Neuroimage, Biological Psychology, Experimental Brain Research, NeuroReport, Brain Topography, Neuroscience Research, Cortex, Gerontology, Scientific Reports, Neurobiology of Aging., Alzheimer’s Association.

## **Membership**

Società Italiana di Psicofisiologia e Neuroscienze Cognitive (SIPF)

## **More than 50 talks and poster presentations at national and international conferences**