Guido Barchiesi

CONTACT INFORMATION

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MAIN RESEARCH AREAS

Brain stimulation, cortico-cortical connectivity (double coil stimulation), action observation, motor control, motor performance, action understanding, embodied cognition, motor system plasticity, facial motor system, Moebius syndrome.

PROFESSIONAL EXPERIENCE

Oct 2019 – Now	Post-doc fellowship at IRCCS Istituto Centro San Giovanni Di Dio Fatebenefratelli, Brescia, Italy
Mar 2016 – Aug 2019	Post-doc fellowship at CCNS, University of Salzburg, Austria
Jan 2013 – Dec 2015	Post-doc fellowship at CIMEC, (Center for Mind and Brain Sciences, Rovereto, Italy).

EDUCATION

Dec 2012	PhD in Cognitive and Brain Sciences, CIMeC, Thesis title: “Motor Resonance Meets Motor Performance: a neurocognitive study with transcranial magnetic stimulation”.
Nov 2009 - Nov 2012	PhD studies in the field of Cognitive neuroscience at CIMeC Doctoral School in Cognitive and Brain Sciences (3 years program). Tutor: Luigi Cattaneo, MD.
May 2009	Master in psychology at the University of Trieste (curriculum neuropsychology), in collaboration with University of Parma, neuroscience department. Thesis title: “Area 46: grammatical or semantic selectivity? A pilot study” (110/110 cum Laude). Tutors: Prof. Patrizia Tabossi, Prof. Giovanni Buccino and Prof. Laura Ballerini.

Sep, 2006	Bachelor in psychology at the University of Trieste (curriculum psychobiology). Thesis title: "Phonemics errors in reading within Wernicke aphasia" (110/110 cum laude) Tutor: Prof. Carlo Semenza.
Feb - Jul 2006	Internship (500 hours) at the hospital "Azienda Ospedaliera Universitaria Ospedali Riuniti" (Trieste), department of rehabilitation medicine. Tutor: Dr. Antonella Zadini.

SELECTION OF INTERNATIONAL COLLABORATIONS

Prof. Giacomo Rizzolatti, (University of Parma), Prof. Thomas Brochier, (University of Marseille), Prof. Arthur Glenberg, (Arizona State University), Prof. Luigi Cattaneo (University of Verona)

PUBLICATIONS

1. **Barchiesi, G**, Demarchi, G, Wilhelm, FH, Hauswald, A, Sanchez, G, Weisz, N. (2020), Head magnetomyography (hMMG): A novel approach to monitor face and whole head muscular activity. *Psychophysiology*. 2020; 57:e13507. https://doi.org/10.1111/psyp.13507

2. De Pisapia, N., **Barchiesi, G.,** Jovicich, J., & Cattaneo, L. (2019) The role of medial prefrontal cortex in processing emotional self-referential information: a combined TMS/fMRI study. *Brain Imaging and Behavior* 13, 603–614 (2019). https://doi.org/10.1007/s11682-018-9867-3.

3. Parmigiani, S., Zattera, B., **Barchiesi, G.,** & Cattaneo, L. (2018) Spatial and temporal characteristics of set-related inhibitory and excitatory inputs from the dorsal premotor cortex to the ipsilateral motor cortex assessed by dual-coil transcranial magnetic stimulation. *Brain Topography*, 31:795–810 https://doi.org/10.1007/s10548-018-0635-x

4. **Barchiesi, G**. & Cattaneo, L. (2015) Motor resonance meets motor performance, *Neuropsychologia (69), 93-104.*

5. Cattaneo, L. & **Barchiesi, G.** (2015) The auditory space in the motor system. *Neuroscience, DOI:10.1016/j.neuroscience.2015.07.053*

6. Parmigiani, S., **Barchiesi. G.,** Cattaneo, L. (2015) The dorsal premotor cortex exerts a powerful and specific inhibitory effect on the ipsilateral corticofacial system: a dual-coil transcranial magnetic stimulation study, *Experimental Brain Research, DOI:10.1007/s00221-015-4393-7*

7. Cattaneo, L., Maule, F., Tabarelli, D., Brochier, T., & **Barchiesi, G**. (2015). Online repetitive transcranial magnetic stimulation (TMS) to the parietal operculum disrupts haptic memory for grasping. *Human Brain Mapping. DOI: 10.1002/hbm.22915.*

8. Ubaldi, S., **Barchiesi, G.**, Cattaneo, L. (2015) Bottom-Up and Top-Down Visuomotor Responses to Action Observation. *Cerebral Cortex*, 25*(4)*: 1032–1041, https://doi.org/10.1093/cercor/bht295.

9. Cattaneo, L., Maule, F., **Barchiesi, G.,** Rizzolatti, G. (2013) The motor system resonates to the distal goal of observed actions: testing the inverse pliers paradigm in an ecological setting. *Experimental Brain Research. 231(1):37-49. doi: 10.1007/s00221-013-3664-4.*

10. Avanzini, P., Fabbri-Destro, M., Campi, C., Pascarella, A., **Barchiesi, G.,** Cattaneo, L., Rizzolatti, G. (2013) Spatiotemporal dynamics in understanding hand-object interactions. *Procedings of the National Academy of Sciences USA*, *110(40):15878-85. doi: 10.1073/pnas.1314420110*.

11. Maule, F., **Barchiesi, G.,** Brochier, T., Cattaneo, L. (2013) Haptic Working Memory for Grasping: the Role of the Parietal Operculum. *Cerebral Cortex. doi: 10.1093/cercor/bht252*

12. Arfeller, C., Schwartzbach, J., Ubaldi, S., Ferrari, P., **Barchiesi, G.**, Cattaneo, L. (2012) Whole-Brain Haemodynamic After-Effects of 1-Hz Magnetic Stimulation of the Posterior Superior Temporal Cortex During Action Observation. *Brain Topography, doi: 10.1007/s10548-012-0239-9.*

13. **Barchiesi, G.**, Cattaneo, L. (2012) Early and Late Motor Responses to Action Observation. *Social Cognitive and Affective Neuroscience, doi:10.1093/scan/nss049.*

14. **Barchiesi, G**., Wache, S., Cattaneo, L. (2012) The Frames of Reference of the Motor-Visual Aftereffect. *PLoS ONE 7(7), e40892.doi:10.1371/journal.pone.0040892.*

15. Cattaneo, L., & **Barchiesi, G**. (2011) Transcranial Magnetic Mapping of the Short-Latency Modulations of Corticospinal Activity from the Ipsilateral Hemisphere during Rest. *Front Neural Circuits, 5, 14*.

16. Cattaneo, L., **Barchiesi, G.**, Tabarelli, D., Arfeller, C., Sato, M., & Glenberg, A. M. (2011) One's motor performance predictably modulates the understanding of others' actions through adaptation of premotor visuo-motor neurons. *Social Cognitive and Affective Neuroscience, 6(3), 301-310*.

17. Cattaneo, L., Fasanelli, M., Andreatta, O., Bonifati, D. M., **Barchiesi, G.**, & Caruana, F. (2011) Your Actions in My Cerebellum: Subclinical Deficits in Action Observation in Patients with Unilateral Chronic Cerebellar Stroke. *Cerebellum, DOI 10.1007/s12311-011-0307-9.*

ABSTRACTS & PRESENTATIONS

Barchiesi, G. Demarchi, G., Wilhelm F, & Weisz N. Myomagnetography localizing facial muscular contraction through MEG, ESCAN meeting 2018

Barchiesi, G. Demarchi, G., & Weisz N. How motor pre-selection influences brain activity related to the observation of others' actions, ESCAN meeting 2018

Barchiesi, G. Demarchi, G., & Weisz N. Myomagnetography localizing facial muscular contraction through MEG, Tübingen Systems Neuroscience Symposium 2018

Barchiesi, G. Demarchi, G., Wilhelm F, & Weisz N. Myomagnetography localizing facial muscular contraction through MEG, SAMBA Salzburg 2017

Malfatti, G., Monaco, S., **Barchiesi, G.**, Cattaneo, L., & Turella, L**.** (2016) Do dorsolateral and dorsomedial pathways interact? Investigating parieto-frontal connectivity during a prehension task: a TMS-fMRI study. Journal of Vision September 2016, Vol.16, 676. doi:10.1167/16.12.676

Barchiesi, G., Parmigiani, S., Zattera, B & Cattaneo, L. Assessment of cortico-cortical connectivity between premotor and motor cortices by means of combined peripheral nerve electrical stimulation and transcranial magnetic stimulation. International conference of brain stimulation, 2016, Gottingen.

Barchiesi, G., Cattaneo, L. (2014) Interactions between motor simulation and voluntary action pre-selection. A TMS study. *Neuropsychological Trends, 16/2014*.

Cattaneo L., **Barchiesi, G.,** Zuanazzi, A. (2014) Inter-hemispheric interactions between brain stimulation procedures in a highly lateralized brain function *Neuropsychological Trends, 16/2014*.

Ubaldi, S., Zuanazzi, A., **Barchiesi, G.,** Cattaneo, L. (2014) Rule-dependent and stimulus-dependent visuomotor mappings: combined repetitive TMS/fMRI studies of functional connectivity of the lateral prefrontal and parietal cortices *Neuropsychological Trends, 16/2014*

Barchiesi, G., Cattaneo, L. Motor Resonance meets Motor Performance, CogEvo Workshop, 2014, Rovereto, Italy.

Barchiesi, G., Ubaldi, S., Maule, F., Graziosi, V., Cattaneo, L., Motor Resonance meets Motor Performance, Magstim Neuroscience Conference, 2012, Oxford, UK.

Barchiesi, G., Ubaldi, S., Maule, F., Graziosi, V., Cattaneo, L., Motor Resonance meets Motor Performance, Tübingen Summer School, 2012, Tübingen, Germany.

Barchiesi, G., Ubaldi, S., Maule, F., Graziosi, V., Cattaneo, L., Motor Resonance meets Motor Performance, Concepts, Actions and Objects (CAOS), 2012, Rovereto, Italy.

Barchiesi, G., Cattaneo, L. (2011) Early and Late Motor Modulation To Action Observation. Archives Italiennes De Biologie, 143, 3.

Maule, F., **Barchiesi., G.** Cattaneo, L. (2011) Physiological and anatomical investigations on cortico-cortical connections between the parietal operculum and the motor cortex in humans Archives Italiennes De Biologie, 143, 3.

Cattaneo, L., **Barchiesi, G.** (2011) Investigating function and structure in the ventral premotor cortex. 14th European Congress on Clinical Neurophysiology and 4th International Conference on Transcranial Magnetic and Direct Current Stimulation, S195, Rome, Italy.

De Pisapia, N., **Barchiesi,G**., Jovicich, H., Cattaneo., L. A combined TMS and fMRI study on the role of medial prefrontal cortex during self-referential processing. Concepts, Actions and Objects (CAOS), 2011, Rovereto, Italy.

Barchiesi,G., Cattaneo, L. What you see is not what you do but only after a while. Concepts, Actions and Objects (CAOS), 2011, Rovereto, Italy.

Cattaneo, L., **Barchiesi, G.**, Tabarelli, D., Arfeller. C. Motor-Visual cross-modal aftereffects and their neurophysiological basis in action observation, TMS summer school, Oxford, UK, 2010 (Poster Prize winner)

Cattaneo, L., **Barchiesi, G**. Investigating function and structure in ventral premotor cortex. The systems neuroscience of primate hand function: models, mechanisms, rehabilitation and mirror systems, FENS Winter school, 2011, Obergurgl.

Barchiesi, G., Cattaneo, L. Mapping the acts on different effectors in ventral premotor cortex. The systems neuroscience of primate hand function: models, mechanisms, rehabilitation and mirror systems, FENS Winter school, 2011, Obergurgl.

FUNDING

March 2017- 2019 FWF Lise Meitner fund of research (161.220 €)

ORAL PRESENTATIONS

"Motor Resonance Meets Motor Performance", D-Day, CIMeC 2012.
"Early and Late Motor Modulation To Action Observation". SIPF, Società Italiana di Psicofisiologia, 2011.

INVITED ORAL PRESENTATIONS

"Motor Resonance meets Motor Performance, University of Vienna, 3.05.2018
"Motor responses to action observation: a dual-route account", Università Statale di Milano (Milan), 14.12.2015

WORKSHOPS and SUMMER SCHOOLS

30 Sep 2013 Non-invasive Electrical Brain Stimulation (tDCS, tACS, tRNS): Basic and Applied Research", University of Brescia, Italy.

19-23 Mar 2012 Tübingen summer school "Methods to study the brain in action", Tübingen. University

28-29 Jun 2010 Magstim/University of Oxford TMS Summer School, Oxford University

TEACHING EXPERIENCE

2016 – 2019 Cognitive Neuroscience course: lectures on mirror neurons (number of registered attendants ~360)

2016 – 2019 Cognitive Neuroscience Methods course (VU fMRT, M/EEG & Co: Grundlagen und praktische Anwendung): Lecture on transcranial magnetic stimulation, theory and hands on sessions. (number of registered attendants: 41)

Mar – May 2015	PAS program (Percorso Abilitante Speciale): Series of lectures on the "Anatomy and physiology of the motor system" (number of attendants: 5)
28 Jan – 2 Feb 2013	International Doctorate for Experimental Approaches to Language and Brain (IDEALAB) Winter School 2013: Neuroimaging and computational approaches to the study of language. CeRIN, center for neurocognitive rehabilitation (number of attendants: between 10 and 20) (Students evaluations have not been collected or they have been collected for the whole course in which I taught only one module.)

STUDENTS SUPERVISED/COSUPERVISED

Viola Herberger, master student, faculty of psychology, CCNS, Salzburg
Christian Bako, master student, faculty of psychology, CCNS, Salzburg
Carolina Bonmassar, master student, faculty of cognitive sciences, CIMEC, Rovereto

LANGUANGES

Italian, German (A1/A2), English

TECHNICAL ABILITIES

Neuroscience	Transcranial Magnetic Stimulation, EMG data analysis, Magnetoencephalography
Software	E-Prime, Signal, Spike
Programming	MATLAB, Arduino IDE, Fieldtrip toolbox, Psychophysics toolbox.