

Department of Neuroscience
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CURRICULUM VITAE ET STUDIORUM Giorgia Cona



Personal information

First name and surname **Giorgia Cona**
Place and Date of birth **Verona (VR), 13th June 1984**
Citizenship **Italian**
Skype **giorgia cona**

Actual Position

04/2015 – Present
One-year post-doc fellowship at the Department of Neuroscience, University of Padua
Research project: Cognition for surgery. Surgery for cognition. The functional neuroanatomy of calculation.
Supervisor: Carlo Semenza

Professional Experience

03/2013 – 02/2015
Two-years post-doc fellowship at the Department of General Psychology, University of Padua
Research project: Neural correlates of intention retrieval: the effects “focality and “predictability” of the cue.
Supervisor: Patrizia Bisiacchi
Main activities: Investigation of neurocognitive mechanisms underlying prospective memory by means of event-related potentials (ERPs) technique and using a meta-analytic approach of

neuroimaging data (fMRI, PET).

01/2012 –12/2012

One-year post-doc fellowship at the Department of General Psychology, University of Padua

Research project: Intra- and inter-individual variability in behavioral and electrophysiological studies: a modelling approach

Supervisor: Patrizia Bisiacchi

Main activities: Investigation of age-related differences in neural underpinnings of prospective memory and control processes (ERP studies).

02/2011 – 07/2011

Research experience at the Department of Psychology of Toronto (University of Toronto) and Baycrest Centre for Geriatric Health

Supervisor: Morris Moscovitch

Research project: Neural correlates of prospective memory.

Technique: Event-related potentials (ERPs)

01/2009 – 01/2010

Post-lauream Internship at the Department of Medicine, University of Padua

Supervisor: Sami Schiff

Research project: Cognitive and electrophysiological changes in healthy aging and in patients with minimal hepatic encephalopathy

Technique: Event-related potentials (ERPs); Spectral EEG analysis; Neuropsychological tools

12/2007 – 05/2008

Internship at the Department of General Psychology, University of Padua

Supervisors: Carlo Umiltà; Barbara Treccani

Main activities: Development of a study on neural mechanisms underlying inhibition and facilitation components and sequential modulations of Simon effect.

Technique: TMS, MEPs

01/2006 - 07/2006

Internship at the Department of General Psychology, University of Padua

Supervisor: Luciano Stegagno; Marta Bortoletto

Main activities: Data collection and analysis for a research project concerning the investigation of Readiness Potential in healthy aging and Parkinson disease.

Technique: Movement-related potentials

Education

04/2012 University of Padua

PhD. in Psychobiology at the Department of General Psychology

Research project: Cognitive and electroencephalographic markers of normal and pathological aging

Supervisor: Prof. Patrizia Bisiacchi

10/2008 University of Padua

Master's degree in Experimental Psychology and Cognitive Behavioural Neuroscience

Thesis: "The Simon effect studied by means of single-pulse Transcranial Magnetic Stimulation."

Supervisor: Prof. Carlo Umiltà
Co-supervisor: Dr. Barbara Treccani
Final grade: 110/110 cum laude

10/2006 University of Padua

Bachelor's degree in Cognitive and Psychobiological Sciences

Thesis: "The readiness potential before auto-initiated voluntary movements of mouth and finger."

Supervisor: Prof. Luciano Stegagno
Co-supervisor: Dr. Marta Bortoletto
Final grade: 110/110 cum laude

07/2003 Verona

Scientific High School degree "G. Galilei"
Final grade: 100/100

External collaborations

- Department of Psychology, University of Toronto, CA.
- Departamento de Psicología Experimental, Universidad de Granada, Granada, Spain.
- Department of Psychology, University of Geneva, Geneva, CH.
- Department of Psychosis Studies, King's College Health Partners, King's College London, UK.

Membership

Member of:

- Associazione Italiana di Psicologia (AIP)

Teaching and Supervisions

10/2015: Advanced course for scientific research (corso CARS) on "Analysis of EEG signal with EEGLab" (20 hours). DPG, University of Padua.

03/2015: Course for PhD students of the 'Scienze Psicologiche' course on EEG and ERP analysis (12 hours), DPG-DPSS-FISPPA, University of Padua

2010-2015: Guided lessons for the following courses (University of Padua):

- Neuropsychology of Aging (*Cultore della materia*)
- Human electroencephalography and evoked potentials in research and clinical diagnosis

2014: Advanced course for scientific research (corso CARS) on "Analysis of EEG signal with EEGLab" (20 hours). DPG, University of Padua.

2014: Psychophysiological aspects of Exercise and Sport (24 hours) – Enaip association.

2013: Advanced course for scientific research (corso CARS) on "Analysis of EEG signal with EEGLab" (20 hours). DPG, University of Padua.

2009 – PRESENT: Supervisor of Master's thesis and mentoring of internship students.

Awards

- July 2015 – Travel award from AIP society (for the presentation 'Age-related differences in electrophysiological correlates of prospective memory' - Aging & Cognition conference, Dortmund).
- September 2012 – Young Researcher Award – AIP (Associazione Italiana di Psicologia)
- September 2010 – Young Researcher Award – ISHEN Symposium

Review activity

Ad-hoc reviewer for:

- Neuroscience & Biobehavioral Reviews
- Neurobiology of Aging
- Cerebral Cortex
- Cortex
- Cognitive, Affective, and Behavioral Neuroscience
- European Journal of Neuroscience
- Biological Psychology
- Neuroscience Letter
- International Journal of Psychophysiology
- Frontiers in Human Neuroscience
- Clinical Interventions in Aging
- Memory

Review Editor for Frontiers in Psychology

Research interests

- Cognitive and neural changes in healthy and pathological aging
- Neurocognitive mechanisms of prospective memory
- Investigation of neural bases of motor preparation and motor imagery by means of TMS
- Neurocognitive mechanisms underlying the interplay between emotion and cognition
- Neural bases of inhibition, executive control and mental rotation

Language Skills

- 1- Italian (mother tongue)
- 2- English (very good written and spoken)

Methods and techniques: Expertise

Electrophysiological techniques and analyses:

- Electroencephalogram (EEG)
- Event-related Potentials (ERPs)
- Motor-evoked potentials (MEPs)
- Partial Least Square Analysis (PLS; McIntosh & Lobaugh, 2004)
- Spectral analysis (FFT)
- Low Resolution Electromagnetic Tomography (LORETA; Pascual-Marqui et al., 1994)

Transcranial Magnetic Stimulation (TMS)
TMS-EMG co-registration
transcranial Direct Current Stimulation (tDCS)

Software relevant for research in psychology and psychobiology:

EEGlab + Matlab
Brain Vision Analyzer
Statistica,
SPSS
Brainsight Neuronavigation system
E-prime
Micromed System Plus Analyzer
Adobe Photoshop

Courses

- **Workshop: Non-invasive Electrical Brain Stimulation (tDCS, tACS, tRNS) Basic and Applied.** Brescia September 13th, 2013.
- **MRI course** (20 hours). Data collection and data analysis with SPM.
- **TMS Summer School.** Institute of Cognitive Neuroscience- UCL. London 19-30 May, 2009.
- **Neuro-engineering course (fMRI course)**, lectured by Dr. Alessandra Bertoldo. Information Engineering Department, University of Padova. March – April, 2008.
- **TMS course**, lectured by Dr. Demis Basso. Department of General Psychology, University of Padova. November, 2007.

Publications

- **Cona, G.,** Treccani, B., Umiltà, C.A (*accepted*). Is cognitive control automatic? New insights from transcranial magnetic stimulation. *Psychonomic Bulletin & Review*. doi: 10.3758/s13423-016-1023-8
- **Cona, G.,** Cavazzana, A., Paoli, A., Marcolin, G., Grainer, A., & Bisiacchi, P. S. (2015). It's a Matter of Mind! Cognitive Functioning Predicts the Athletic Performance in Ultra-Marathon Runners. *PloS one*, 10(7), *e0132943*.
- **Cona, G.,** Scarpazza, C., Sartori, G., Moscovitch, M., Bisiacchi, P.S. (2015). Neural bases of prospective memory: A meta-analysis and the “Attention to Delayed Intention” hypothesis. *Neuroscience and Biobehavioral Reviews*, 52, 21–37. doi:10.1016/j.neubiorev.2015.02.007
- **Cona, G.,** Kliegel, M., & Bisiacchi, P. S. (2015). Differential effects of emotional cues on components of prospective memory: an ERP study. *Frontiers in Human Neuroscience*, 9, 1–15. doi:10.3389/fnhum.2015.00010.

- **Cona, G.,** Arcara, G., Tarantino, V., & Bisiacchi, P. S. (2015). Does predictability matter? Effects of cue predictability on neurocognitive mechanisms underlying prospective memory. *Frontiers in Human Neuroscience*, 9. doi:10.3389/fnhum.2015.00188.
- **Cona, G.,** Bisiacchi, P. S., & Moscovitch, M. (2014). The Effects of Focal and Nonfocal Cues on the Neural Correlates of Prospective Memory: Insights From ERPs. *Cerebral Cortex*, 24, 2630–2646. doi: 10.1093/cercor/bht116.
- Correa, Á., **Cona, G.,** Arbula, S., Vallesi, A., & Bisiacchi, P. (2014). Neural dissociation of automatic and controlled temporal preparation by transcranial magnetic stimulation. *Neuropsychologia*, 65, 131–136. doi:10.1016/j.neuropsychologia.2014.10.023.
- Bisiacchi, P., **Cona, G.,** Tarantino, V., Schiff, S., Montagnese, S., Amodio, P., & Capizzi, G. (2014). Assessing inter- and intra-individual cognitive variability in patients at risk for cognitive impairment: the case of minimal hepatic encephalopathy. *Metabolic Brain Disease*, (Mci). doi:10.1007/s11011-014-9529-0.
- Schiff, S., D'Avanzo, C., **Cona, G.,** Goljahani, A., Montagnese, S., Volpato, C, Gatta, A., Sparacino, G., Amodio, P., Bisiacchi, P. (2014). Insight into the relationship between brain/behavioural speed and variability: evidence from minimal hepatic encephalopathy. *Clinical Neurophysiology*, 125(2), 287-297.
- **Cona, G.,** Montagnese, S., Bisiacchi, P.S., Gatta, A., Amodio, P., & Schiff, S. (2013). Early markers of neural dysfunction and compensation: A model from minimal hepatic encephalopathy. *Clinical Neurophysiology*. <http://dx.doi.org/10.1016/j.clinph.2013.10.048>
- **Cona, G.,** Bisiacchi, P.S., Amodio, P., & Schiff, S. (2013). Age-related decline in attentional shifting: Evidence from ERPs. *Neuroscience Letters*, 556, 129-134.
- **Cona, G.,** Arcara, G., Amodio, P., Schiff, S., Bisiacchi, P.S. (2013). Does executive control really play a crucial role in explaining age-related cognitive and neural differences? *Neuropsychology*, 27(3), 378-389.
- **Cona, G.,** Arcara, G., Tarantino, V., & Bisiacchi, P. S. (2012). Age-related differences in the neural correlates of remembering time-based intentions. *Neuropsychologia*, 50(11), 2692–2704.
- **Cona, G.,** Arcara, G., Tarantino, V., & Bisiacchi, P. S. (2012). Electrophysiological correlates of strategic monitoring in event-based and time-based prospective memory. *PLoS ONE*, 7(2), e31659.
- Bisiacchi, P.S., **Cona, G.,** Schiff, S., & Basso, D. (2011). Modulation of a fronto-parietal network in event-based prospective memory: An rTMS study. *Neuropsychologia*, 49(8), 2225–32.
- Montagnese, S., **Cona, G.,** Schiff, S., Maresio, G., Gatta, A., Merkel, C., Amodio, P. (2010). The Hunter and the Pianist: Two Hepatic Encephalopathy Tales. *J Clin Gastroenterol*. 45(6), 563-6.

- Amodio, P., Ridola, L., Schiff, S., Montagnese, S., Pasquale, C., Nardelli, S., Pentassuglio, I., Trezza, M., Marzano, C., Flaiban, C., Angeli, P., **Cona, G.**, Bisiacchi, P., Gatta, A., Riggio, O. (2010). Improving the inhibitory control task to detect minimal hepatic encephalopathy. *Gastroenterology* 139(2), 510-518.

Papers under review

- Cona, G., Marino, G., Semenza, C. Repetitive TMS of the SMA facilitates mental rotation performance: Evidence for a role of SMA in cumulative processes.
- Cona, G., Panozzo, G., Semenza, C. The role of dorsal premotor cortex in mental rotation: A transcranial magnetic stimulation study.
- Marcolin, G., Grainer, A., Reggiani, C., Bisiacchi, P.S., **Cona, G.**, Petrone, N, Paoli, A. Static and dynamic postural changes after a mountain ultra-marathon of 80km and 5500 D+.
- Terranova, C., Tagliabue, M., **Cona, G.**, Gianfranchi, E., Vidotto, G., Di Pietra, L., Snenghi, R., Ferrara, S.D. (*under review*). Neurocognitive and behavioral markers in DUI recidivists

Published Abstracts

- Correa, Á., **Cona, G.**, Arbula, S., Vallesi, A., & Bisiacchi, P. (2014). TMS on Prefrontal Cortex Influences Temporal Orienting but not Preparation Guided by Rhythms. *Procedia-Social and Behavioral Sciences*, 126, 40.
- Arcara, G., **Cona, G.**, Tarantino, V., Bisiacchi, P. (2011). Neural correlates of Prospective Memory: a comparison between a Time-based and an Event-based task. *Psychophysiology*, Abstract for the 51st Annual Meeting in Boston. S34.
- Schiff S., D'Avanzo C., **Cona G.**, Sparacino G., Bisiacchi P, Amodio P. (2009). Single-trial analysis explains reduction of P300 amplitude in cirrhotic patients. *Psychophysiology*, Abstract for the 49th Annual Meeting in Berlin. S92.

Invited presentations

- December, 2015. In 'Cognitive Aging Lab', University of Geneva. Title: 'Neurocognitive mechanisms of Prospective Memory: the AtoDI model'.
- April, 2015: Aging & Cognition conference, Dortmund. Title: '*Age-related differences in electrophysiological correlates of prospective memory*'.
- March, 2012: Brain Awareness Week, Department of General Psychology, Padua. Title presentation: '*Memory for the future*'.

- October, 2013: CIRMANMEC conference, Department of Medicine, Padua. Title presentation: *'Neurocognitive alterations in healthy and pathological aging evidenced in Inhibitory Control Task.'*
- November, 2013: Geneva Aging Series 2 – GAS2, Department of Psychology, Geneva. Title presentation: *'Neural basis of executive function and time processing in aging.'*

Conferences

- **Cona, G.,** Panozzo, G., Semenza, C. (2016). The role of dorsal premotor regions in mental rotation: A TMS study. Thirty-fourth European Workshop on Cognitive Neuropsychology, Brixen, 24th -39th January.
- **Cona, G.,** Scarpazza, C., Sartori, G., Bisiacchi, P.S. (2015). Meccanismi neurali differenti sono alla base di intenzioni prospettive associate a stimoli focali e non focali: Una meta-analisi di studi di neuroimaging. Società Italiana di Neuropsicologia (SINP). 27-28 November.
- **Cona, G.,** Cavazzana, A., Bisiacchi, P. (2015). 'Mens sana in corpore sano': Cognitive functioning predicts race performance in ultra-marathon runners. ESCOP, 17-20 September.
- **Cona, G.,** Kliegel, M., Hering, A., Bisiacchi, P. (2015). 'Age-related differences in electrophysiological correlates of prospective memory'. Aging & Cognition conference, Dortmund, 23-25 April.
- **Cona, G.,** Scarpazza, C., Sartori, G., Moscovitch, M., Bisiacchi, P.S. (2015). Neurocognitive mechanisms underlying Prospective Memory: The "Attention to Delayed Intention" (AtoDI) model. Thirty-third European Workshop on Cognitive Neuropsychology, Brixen, 25th -30th January.
- **Cona, G.,** Scarpazza, C., Sartori, G., Moscovitch, M., Bisiacchi, P.S. (2014). Neural bases of prospective memory: A meta-analysis and the "Attention to Delayed Intention" hypothesis. 4th International Conference of Prospective Memory. 26th-30th May.
- **Cona, G.,** Arcara, G., Tarantino, V., & Bisiacchi, P. S. (2013). L'influenza del tipo di stimolo sui meccanismi neuro-cognitivi necessari al recupero dell'intenzione. (*The influence of the features of the cue on the neural-cognitive mechanisms associated with intention retrieval*). Associazione italiana di Psicologia (AIP). September 16-18.
- **Cona, G.,** Arcara, G., Amodio, P., Schiff, S., Bisiacchi, P.S. (2013). Age-related changes in neural correlates of executive control. Thirty-first European Workshop on Cognitive Neuropsychology, Brixen, 20th -25th January.
- **Cona, G.,** Bisiacchi, P.S., Montagnese, S., Amodio, P., & Schiff, S. (2012). Indici di disfunzione e compensazione neurale: nuove informazioni dall'encefalopatia epatica minima. (*Indexes of neural dysfunction and compensation: new insights from minimal hepatic encephalopathy*). Società Italiana di Neuropsicologia (SINP). November 9-10. Rome

- **Cona, G.**, Arcara, G., Tarantino, V., & Bisiacchi, P. S. (2012). Quali sono i meccanismi neurali alla base delle difficoltà degli anziani nel ricordare di compiere intenzioni future? (*Which are the neural mechanisms underlying the difficulties of older individuals in accomplishing future intentions?*). Associazione italiana di Psicologia (AIP). September 20-23.
- Bisiacchi, P., Tarantino, V., **Cona, G.**, & Arcara, G. (2011). The role of predictability in prospective memory. The European Society for Cognitive Psychology (ESCO). September 29 – October 2.
- Arcara, G., **Cona, G.**, Tarantino, V., Bisiacchi, P. (2011). Neural correlates of Prospective Memory: a comparison between a Time-based and an Event-based task. Psychophysiology, Abstract for the 51st Annual Meeting SPR in Boston. S34. September 14-18.
- Schiff, S., **Cona, G.**, Montagnese, S., Flaiban, C., Bisiacchi, P., Amodio, P., (2010). Electrophysiological correlates of the inhibitory control task (ICT) in patients with cirrhosis: inhibition or stimulus categorization defect? 14 th ISHEN Symposium. Canada, September 14-18.
- Schiff, S., **Cona, G.**, D'Avanzo, C., Sparacino, G., Bisiacchi, P., Amodio, P., (2010). Intra-individual variability of behavioural and P300 responses in cirrhotic patients. 14th ISHEN Symposium. Canada, September 14-18.
- **Cona, G.**, Cavalletti, M., Montagnese, S., Amodio, P., Bisiacchi, P., Schiff, S., (2010). Correlati elettrofisiologici dei cambiamenti cognitivi legati all'età. Atti del XVI Congresso AIP Sezione Sperimentale, Bologna, 2-3 Settembre.
- Schiff, S., **Cona, G.**, D'Avanzo, C., Sparacino, G., Bisiacchi, P., Amodio, P., (2010). Variabilità intra-individuale dei tempi di reazione e P300 in pazienti con cirrosi epatica. Atti del XVI Congresso AIP Sezione Sperimentale, Bologna, 2-3 Settembre.
- Cavalletti, M., Schiff, S., **Cona, G.**, Arcara, G., Montagnese, S., Amodio, P., Mapelli D., (2010). ERPs e Iowa Gambling Task in soggetti con problematiche alcohol-relate. Atti del XVI Congresso AIP Sezione Sperimentale, Bologna, 2-3 Settembre.
- Bisiacchi, P., **Cona, G.**, Tarantino, V., Bianchin, M., Arcara, G. (2010). Electrophysiological correlates of time-based prospective memory. 3rd International Conference on Prospective Memory, Vancouver, July 28-30.
- Tarantino, V., **Cona, G.**, Bianchin, M., Bisiacchi, P., (2010). Monitoring mechanisms in time- and event- based prospective memory. 3rd International Conference on Prospective Memory, Vancouver, (BC, Canada), July 28-30.
- Basso, D., **Cona, G.**, Schiff, S., & Bisiacchi, P.S. (2010). Modulation of associative regions activity underlying prospective memory: a rTMS study. 3rd International Conference on Prospective Memory, Vancouver (BC, Canada), July 28-30.
- **Cona, G.**, Basso, D., Schiff, S., Bisiacchi, P. (2010). Differential effect of rTMS on fronto-parietal network in a prospective memory task. 16th Annual Meeting of the Organization for Human Brain Mapping, June 6-10.

- Bisiacchi, P., **Cona, G.**, Flaiban, C., Amodio, P., Schiff S. (2010). Cognitive alterations in cirrhotic patients with minimal hepatic encephalopathy investigated with the Inhibitory Control Test. INS 38th Annual Meeting. February 3-6, Acapulco.
- **Cona, G.**, Bisiacchi, P., D'Avanzo, C., Sparacino, G., Amodio, P., Schiff, S. (2010). "Small" P300 in patients with hepatic encephalopathy: low amplitude or latency jittering? Twenty-Seventh European Workshop on Cognitive Neuropsychology, Brixen, 24-29 January 2010.
- Schiff, S., D'Avanzo, C., **Cona, G.**, Sparacino, G., Bisiacchi, P., Amodio P. (2009) Single-trial analysis explains reduction of P300 amplitude in cirrhotic patients. Psychophysiology, Abstract for the 49th Annual Meeting in Berlin. S92.
- **Cona, G.**, Treccani, B., Milanese, N., Sellaro, R., Umiltà C. (2009). Cortical activation processes of Simon effect and their sequential modulation do not depend on the effective response execution: a TMS study. (Processi di attivazione corticale alla base dell'effetto Simon e la loro modulazione sequenziale non dipendono dall'esecuzione della risposta: uno studio di stimolazione magnetica transcranica). Atti del XV Congresso AIP Sezione Sperimentale, Chieti, 24-26 Settembre.
- Tarantino, V., **Cona, G.**, Bianchin, M., Bisiacchi, P. (2009). Intention monitoring in event- and time-based prospective memory tasks. (Il monitoraggio dell'intenzione in compiti di memoria prospettica basata sull'evento e sul tempo). Atti del XV Congresso AIP Sezione Sperimentale, Chieti, 24-26 Settembre.
- **Cona, G.**, Treccani, B., Milanese, N., Umiltà, C. A. (2009). Processes of response facilitation and inhibition in the Simon task. A single-pulse transcranial magnetic stimulation (TMS) study. Concepts, Actions, Objects, Rovereto, 22-25 April.
- Treccani, B., Milanese, N., **Cona, G.**, Umiltà, C. A. (2008). Response facilitation and inhibition processes in the Simon task. A single-pulse transcranial magnetic stimulation (TMS) study. (Processi di facilitazione ed inibizione della risposta nel compito Simon. Uno studio di stimolazione magnetica transcranica). Atti del XIV Congresso AIP Sezione Sperimentale, Padova, 18-20 Settembre 2008.