

# Carlotta Lega

DEPARTMENT OF NEUROSCIENCE, BIOMEDICINE AND MOVEMENT SCIENCE  
UNIVERSITY OF VERONA

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## **CURRENT POSITION**

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March 2017 Post-doctoral research fellow  
Department of Neuroscience, Biomedicine and Movement Science  
University of Verona, Italy

Supervisors: Prof. Leonardo Chelazzi  
Prof. Luigi Cattaneo

## **EDUCATION**

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Jan 2013 Ph.D. in *Experimental Psychology, Linguistics and Cognitive Neurosciences*  
Dec 2016 Department of Psychology, University of Milano-Bicocca, Italy  
**Thesis title:** *Moving in tune: neuro-functional mechanisms mediating auditory-motor associations*  
Supervisor: Prof.ssa Zaira Cattaneo

2012 MsC, Clinical and Developmental Psychology and Neuropsychology  
University of Milano-Bicocca, Milan, Italy.  
**Thesis title:** *Musical expertise and the representation of peripersonal space*  
Supervisor: Prof.ssa Zaira Cattaneo

2010 BSc, Psychological Sciences  
University of Milan-Bicocca, Milan, Italy  
**Thesis title:** *Plasticità cerebrale in soggetti musicisti*  
Supervisor: Professor Zaira Cattaneo

2012 Postgraduate course, *Theory and Practice of Musical Cognition: didactic, psychology and neuroscience*  
University of Pavia  
Academy "Teatro alla Scala"

2010 Master degree in piano at the Conservatory "Vittadini"  
Pavia, Italy

## **VISITING POSITION and RESEARCH INTERNSHIPS**

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- Sept 2014 - *Visiting Ph.D Student*  
Aug 2015 McGill University, Montreal, Canada  
BRAMS, International Laboratory for Brain, Music and Sound Research  
Supervisor: Robert J. Zatorre, Virginia Penhune
- Jun 2016 *Course*  
Brain Stimulation and Imaging Meeting  
Geneve (Switzerland)
- May 2015 *Course*  
3<sup>rd</sup> North America Meeting on Brain Stimulation and Neuroimaging  
Montreal, Canada
- Sept 2012 - *Internship*  
Sept 2013 University of Pavia, Department of Brain and Behavioural Science  
Supervisor: prof. Tomaso Elia Vecchi
- Feb 2013 *Course*  
NWG Practical Course Transcranial Magnetic and Electrical Stimulation  
(TMS/tDCS/tACS/tRNS)  
University Medical Center Gottingen  
Georg-August-University, Germany

## **SUMMER SCHOOLS**

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*“What the face can reveal about social and cognitive processes”*. 16-20 June 2014, University of Milan – Bicocca, Cinisello Balsamo (MI), Italy.

*Helsinki Summer School in Cognitive Neuroscience*. Aug 2013. University of Helsinki, Institute of Behavioural Science, Cognitive Brain Research Unit (CBRU), Helsinki

## **AWARDS and FELLOWSHIPS**

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- Jan 2013 - *Doctoral Scholarship*  
Dec 2016 Department of Psychology, University of Milan - Bicocca, Milan, Italy
- Dec 2013- *Two-years grant funded by Fondazione Cariplo (€ 4.000).*  
Dec 2015 Research project: “Pitch and grasp the sound! Action planning dances on pitch dimension”.  
University of Milano-Bicocca

Nov 2016 IBRO (International Brain Research Organization) International Travel Grant in the amount of €1800 to attend the international conference 'Neuroscience and Music VI - Music, Sound and Health' (Boston USA, 15 - 18 June 2017)

## **PUBLICATIONS**

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**Lega, C.**, Stephan, M. A., Zatorre, R. J., & Penhune, V. (2016). Testing the Role of Dorsal Premotor Cortex in Auditory-Motor Association Learning Using Transcranial Magnetic Stimulation (TMS). *PloS one*, *11*(9), e0163380.

Stephan, M. A., Brown, R., **Lega, C.**, & Penhune, V. (2016). Melodic Priming of Motor Sequence Performance: The Role of the Dorsal Premotor Cortex. *Frontiers in neuroscience*, *10*.

**Lega, C.**, Vecchi, T., D'Angelo, E., & Cattaneo, Z. (2016). A TMS investigation on the role of the cerebellum in pitch and timbre discrimination. *Cerebellum & ataxias*, *3*(1), 1.

Rinaldi, L., **Lega, C.**, Cattaneo, Z., Girelli, L., & Bernardi, N. F. (2016). Grasping the sound: Auditory pitch influences size processing in motor planning. *Journal of Experimental Psychology: Human Perception and Performance*, *42*(1), 11.

Ferrari, C., **Lega, C.**, Tamietto, M., Nadal, M., & Cattaneo, Z. (2015). I find you more attractive... after (prefrontal cortex) stimulation. *Neuropsychologia*, *72*, 87-93.

Cattaneo, Z., **Lega, C.**, Ferrari, C., Vecchi, T., Cela-Conde, C. J., Silvanto, J., & Nadal, M. (2015). The role of the lateral occipital cortex in aesthetic appreciation of representational and abstract paintings: A TMS study. *Brain and cognition*, *95*, 44-53.

Ferrari, C., **Lega, C.**, Vernice, M., Tamietto, M., Mende-Siedlecki, P., Vecchi, T., ... & Cattaneo, Z. (2014). The Dorsomedial Prefrontal Cortex Plays a Causal Role in Integrating Social Impressions from Faces and Verbal Descriptions. *Cerebral Cortex*, bhu186.

Cattaneo, Z., **Lega, C.**, Gardelli, C., Merabet, L. B., Cela-Conde, C. J., & Nadal, M. (2014). The role of prefrontal and parietal cortices in esthetic appreciation of representational and abstract art: A TMS study. *NeuroImage*, *99*, 443-450.

**Lega, C.**, Cattaneo, Z., Merabet, L. B., Vecchi, T., & Cucchi, S. (2014). The effect of musical expertise on the representation of space. *Frontiers in human neuroscience*, *8*.

Cattaneo, Z., **Lega, C.**, Cecchetto, C., & Papagno, C. (2014). Auditory deprivation affects biases of visuospatial attention as measured by line bisection. *Experimental brain research*, *232*(9), 2767-2773.

Cattaneo, Z., Schiavi, S., **Lega, C.**, Renzi, C., Tagliaferri, M., Boehringer, J., ... & Vecchi, T. (2014). Biases in spatial bisection induced by viewing male and female faces. *Experimental psychology*, *61*(5), 368.

Cattaneo, Z., **Lega, C.**, Boehringer, J., Gallucci, M., Girelli, L., & Carbon, C. C. (2014). Happiness takes you right: the effect of emotional stimuli on line bisection. *Cognition & emotion*, *28*(2), 325-344.

Cattaneo, Z., **Lega, C.**, Flexas, A., Nadal, M., Munar, E., & Cela-Conde, C. J. (2013). The world can look better: enhancing beauty experience with brain stimulation. *Social cognitive and affective neuroscience*, nst165.

**Lega, C.**, Cucchi, S., Vecchi, T. E., & Cattaneo, Z. (2013). L'influenza dell'esperienza musicale sulla rappresentazione dello spazio peripersonale. *Giornale Italiano di Psicologia*, 40(2), 409-416.

Cattaneo, Z., **Lega, C.**, Vecchi, T., & Vallar, G. (2012). Listening to white noise counteracts visual and haptic pseudoneglect. *Perception*, 41(11), 1395-8.

## **CHAPTERS IN BOOKS**

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Cattaneo, Z., Devlin, J. T., **Lega, C.**, & Vecchi, T. Il contributo della stimolazione cerebrale alla comprensione dell'organizzazione del linguaggio. *LA RICERCA SPERIMENTALE SUL LINGUAGGIO: ACQUISIZIONE*, 69.

## **CONFERENCE PRESENTATIONS**

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**Lega, C.**, Stephan, M. A., Zatorre, R.J. & Penhune, V. (2016). Testing the role of dorsal premotor cortex in auditory-motor association learning using Transcranial magnetic stimulation (TMS). Organization for Human Brain Mapping (OHBM), June, Geneva, Switzerland. Poster

**Lega, C.**, Stephan, M., Zatorre, R., Penhune, V. (2015). Investigating the role of the dorsal premotor cortex in the formation of auditory-motor associations: a preliminary TMS study. 19th Conference of the European Society for Cognitive Psychology (ESCOP), September, Cyprus. Poster

Ferrari, C., **Lega, C.**, Vernice, M., Tamietto, M., Mende-Siedlecki, P., Todorov, A., & Cattaneo, Z. (2014). The dorsomedial prefrontal cortex plays a causal role in integrating social impressions from faces and verbal descriptions. 20th Annual Meeting of the Italian Association of Psychology, section of Experimental Psychology, 16-18 September, Pavia, Italy. Poster

Ferrari C., **Lega C.**, Vernice M., Tamietto M., Mende-Siedleki P., Vecchi T., Todorov A., Cattaneo Z. (2014). The dorsomedial prefrontal cortex plays a causal role in integrating social impression from faces and verbal descriptions. 9th FENS Forum of Neuroscience, July 5-9, Milano, Italy. Poster

Cattaneo, Z., Vecchi, T., **Lega, C.**, Ferrari, C., Silvanto, J., Cela-Conde, C., & Nadal, M. (2015). The lateral occipital cortex plays a causal role in aesthetic appreciation of figurative paintings. 21st Annual Meeting of the Organization for Human Brain Mapping, June 14 – 18, Honolulu, USA. Poster

Cattaneo, Z., Ferrari C., **Lega C.**, VerniceM., Tamietto M., Mende-Siedleki P., Todorov A., Vecchi T. (2015). The DMPFC plays a casual role in integrating social impression from faces and

verbal description: A TMS study. International Convention of Psychological Science, March 12-14, Amsterdam, The Netherlands. Poster

**Lega C**, Bernardi NF, Ancona N, Cattaneo Z, Girelli L, Rinaldi L. (2014). Musical expertise modulates the spatial organization of pitch representation. *THE NEUROSCIENCES AND MUSIC - V Cognitive Stimulation and Rehabilitation*, 29 May - 1 June, Dijon, France. Poster

Rinaldi L., **Lega C**, Cattaneo Z, Girelli L., Bernardi NF. (2014). Pitch and Grasp the Sound! Motor planning dances on pitch dimension. *THE NEUROSCIENCES AND MUSIC - V Cognitive Stimulation and Rehabilitation*, 29 May - 1 June, Dijon, France. Poster

**Lega C**, Rinaldi L, Cattaneo Z, Girelli L., Bernardi NF. (2014). Pitch and Grasp the Sound! Motor planning dances on pitch dimension. *9<sup>th</sup> FENS Forum of Neuroscience*, July 5-9, Milano, Italy. Poster

**Lega C.**, Cattaneo, Z., Cecchetto, C, Papagno, C. Auditory deprivation affects biases of visuospatial attention as measured by line bisection. *Cognitive Science Arena for Beginners*. Brixen (Italy), May 2014. Oral presentation

**Lega C.**, Cattaneo, Z., Cecchetto C., Cucchi S., Papagno C., Vecchi, T. Effects of intense musical training and deafness on spatial attention: evidence from line bisection. *ESCAP (European Society for Cognitive Psychology)*. Budapest (Hungary), August 2013. Poster

**Lega C.**, Cattaneo, Z., and Vecchi, T. Il genere dei volti influenza l'attenzione: uno studio di bisezione. *AIP Associazione Italiana di Psicologia*. Roma (Italy), April 2013. Oral presentation

**Lega C.**, Cattaneo, Z., Cucchi, S. and Vecchi, T. The effect of music on the representation of space. *Cognitive Science Arena for Beginners*. Brixen (Italy), February 2013. Oral presentation

**Lega C.**, Cattaneo, Z., Cucchi, S. and Vecchi, T. The effect of music on the representation of peripersonal space. *12<sup>th</sup> International Conference on Music Perception and Cognition (ICMPC) / 8<sup>th</sup> Triennial Conference of the European Society for the Cognitive Science of Music (ESCOM)*. Thessaloniki (Greece), July 2012. Poster

## **TECHNICAL SKILLS**

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Non-invasive Brain Stimulation Techniques: Transcranial Magnetic Stimulation (TMS) and Transcranial Direct Current Stimulation (tDCS)

Basic knowledge of Motion Capture Techniques

Reaction times based experiments building softwares: E-prime, Opensesame.

Data analysis packages: SPSS, R

## REFERENCES

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