# CURRICULUM VITAE ET STUDIORUM

# **Davide Cappon Balos**

#### Personal information

First name and surname Davide Cappon Balos

Place and Date of birth Trieste (Ts), 5th February 1984

Citizenship Italy

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#### **Education**

November 2014 – present -University of Padova, Italy. PhD

**Project:** Understanding mechanisms of non invasive brain stimulation in healthy and pathological adult brain

July 2013 - University of Padova, Italy.

MSc Master's degree in Neuroscience and neuropsychological rehabilitation

Thesis: "Non-invasive brain stimulation: 1)HD-tDCS: a TMS study to investigate focal cortical excitability.2) tACS: a TMS study to investigate modulation of motor cortex excitability after 15 Hz stimulation on the premotor cortex.3) tACS: a study to investigate a frequency-dependent modulation of automatic and unconscious control of motor action."

Supervisor: Prof. John Rothwell

Co-supervisor: Prof.ssa Patrizia Bisiacchi

Final grade: 110/110 Summa cum laude

January—June 2013-University College London
Division of Psychology and Language Sciences Full-time Graduate Affiliate Student

May 2010 -University of Trieste, Italy.

BSc (Hons) Bachelor's degree in Science and psychological techniques

June 2005 - Trieste

Technical High school degree "Istituto Tecnico Nautico TOMASO DI SAVOIA DUCA DI GENOVA" of Trieste, Italy.

- Statistical Parametric Mapping for MEG-EEG course.Wellcome Trust Centre for Neuroimaging. Institute of Cognitive Neuroscience, University College of London, 33 Queen Square, London. 13-14 May 2013.
- **.TMS course,** lectured by Dr. Lara Bardi. Department of General Psychology, University of Padova. May 2012.
- **.EEG-ERP course,**lectured by Dr. Giorgia Cona, Department of General Psychology, University of Padova. May 2014.
- **.Virtual Reality course**, lectured by Dr. Claudio Carlesso. Department of General Psychology, University of Padova. March April 2012.
- **.Brain Vision course**, lectured by Dr. Daniela Guzzon, Department of General Psychology, University of Padova. February 2012.
- **.E-Prime course**, lectured by Dr. Department of General Psychology, University of Padova. March,2012.

#### **Research interests**

- Human Cortical Physiology;
- Cognitive aspects of motor control and learning;
- Neurorehabilitation of human motor control;
- •To understand cortical plasticity induced and manipulated by means of non-invasive brain stimulation in healthy and pathological adult brain;
- •To understand the relation between induced synaptic plasticity and cognitive plasticity, and how plasticity can be represented at cognitive level in a "cognitive functional network";
- •The combination of brain stimulation techniques with cognitive rehabilitation, functional brain imaging data and other techniques for more effective neuro-modulatory therapeutic intervention.

## **Work Experience**

November 2014- present

Research project Parkinson's disease patients (Parkinson's Uk)

Fondazione Ospedale San Camillo IRCCS Venezia, Italia

and Institute of Neurology University College of London

Combination of non invasive brain stimulation and cognitive training in Parkinson's Disease MCI.

January 2013 - June 2013 University College London (UCL).

Visiting research student at the Sobell Department of Motor Neuroscience and Movement Disorders, Institute of Neurology, University College of London, U.K

Supervisor: Prof. John Rothwell

Practical and theoretical training in non-invasive brain stimulation techniques, including TMS, tDCS, tACS and associated neurophysiological measures. Techniques: (TMS, tDCS, tACS, HD-tDCS),Motor evoked potentials (MEPs) analysis;

Main activities: literature review, data collection and analysis for research projects concerning the investigation of:

- 1) HD-tDCS and focal cortical excitability
- 2) the modulation of motor cortex by tACS
- 3) frequency-dependent modulation of automatic and unconscious control of motor action

March 2012 – January 2013 University of Padova Internship at the Lifespan Cognitive Neuroscience Lab, Department of General Psychology, University of Padova.

Supervisor: Prof.ssa Patrizia Bisiacchi

Co-Supervisors: Dr. Elias Casula, Dr. Vincenza Tarantino

*Main activities*: data collection for research project investigating cerebral connectivity and reactivity at rest and during cognitive processes through TMS-EEG-EMG co-registration.

Techniques: EEG; TMS; Motor evoked potentials recorded (MEPs).

May 2009 - May 2010 University of Trieste.

Internship at the Social Psychology Lab, Department of Psychology, University of Trieste.

Supervisor: Prof. Patrizia Romito; Dr. Lucia Beltramini

## **Teaching**

27 th November 2013—MSc Applied Cognitive Psychology—course of Cognitive Neuropsychology— University of Padova. Single lesson: Non Invasive Brain Stimulation.

27 th January 2015—MSc Applied Cognitive Psychology—course of Cognitive Neuropsychology— University of Padova. Single lesson: Non Invasive Brain Stimulation.

# Awards

2012 Student contest winner of ERASMUS FELLOWSHIP for study at the University College of London (UCL). Division of Psychology and Language Science.

Full Time graduate affiliate student taught January 2013 – June 2013

2012 Veneto Education Regional Scholarship, Academic Merit.

## Language Skills

- 1- Italian (mother language).
- 2- English (very good written and spoken).
- 3-Spanish (good).

PS: English experience in Australia from September 2010 to July 2011(10 months).

UPPER LEVEL CERTIFICATE in SUN PACIFIC COLLEGE, Cairns, Queensland, Australia.

# Methods and techniques in cognitive neuroscience

## Electrophysiological techniques and analyses:

- Transcranial Magnetic Stimulation (TMS);
- Transcranial Direct Current Stimulation (tDCS);
- •Transcranial Alternating Current Stimulation(tACS);
- High Definition transcranial Direct Current Stimulation (HD-tDCS);
- •Electroencephalography (EEG);
- •Quantitative Electroencephalography (EEG);
- •Electromyography (EMG).

## Utilization of software relevant for research in psychology and psychobiology:

- E-Prime:
- **.**R;
- MatLab;
- .EEGLab;
- Signal;
- Brainsight Neuronavigation system.

## **PUBLICATIONS**

 Cappon, D., D'Ostilio, K., Garraux, G., Rothwell, J. C., Bisiacchi, P. (2016). Effects of 10Hz and 20Hz transcranial alternating current stimulation on automatic motor control. Brainstimulation, Basic, Translational and Clinical Research in Neuromodulation. (4.7 Impact Factor). DOI: 10.1016/j.brs.2016.01.001

- 2. Cappon, D., Jahanshahi, M., Bisiacchi, P. (2016). Value and efficacy of transcranial direct current stimulation in the rehabilitation of neurocognitive disorders: A critical review. *Frontiers in Neuroscience, Neurodegeneration.* (3.7 Impact Factor). (Accepted)
- 3. Cappon, D., D'Ostilio, K., Garraux, G.,Rothwell, J. C. & Bisiacchi, P. (2015). Cortical modulation of automatic facilitation and inhibition by 10Hz and 20Hz transcranial alternating current stimulation (tACS). *Brainstimulation, Basic, Translational and Clinical Research in Neuromodulation.* (4.4 Impact Factor). Volume 8, Issue 2, Pages 356. DOI: 10.1016/j.brs.2015.01.149
- 4. Ciocca, M., Cappon, D., Priori, A., & Rothwell, J. (2014). P262: High-definition transcranial direct current stimulation (HD-tDCS): a TMS study to investigate focal motor cortex (M1) excitability. *Clinical Neurophysiology.* (3.10 Impact Factor). 125, S118. DOI: 10.1016/S1388-2457(14)50383-5

## **CONFERENCES**

- 1. Cappon, D., Goljahani, A., Bisiacchi, P. (2016).Influence of transcranial alternating current stimulation on brain oscillations:an EEG based study.Cognitive Neuroscience Society (CNS) Annual Meeting,New York,April 2-5,2016.
- Cappon, D., Goljahani, A., Bisiacchi, P. (2015). Interazione tra stimolazione cerebrale non invasiva transcranica(tACS) e oscillazioni cerebrali: studio quantitativo delle caratteristiche di reattivit

   dei ritmi EEG. Congresso annuale Societ

   Italiana di Neuropsicologia, Padova, Novembre 27-28, 2015.
- 3. Cappon, D., D'Ostilio, K., Garraux, G.,Rothwell, J. C. & Bisiacchi, P. (2014). Cortical modulation of automatic facilitation and inhibition by 10hz and 20hz transcranial alternating current stimulation (tACS). The 1st International Brain Stimulation Conference, Singapore Expo Convention and Exhibition Centre, Singapore, March 2-4, 2015. (oral presentation)
- 4. Cristina Ruaro, Davide Cappon, Alessandra Codemo, Maria Elisabetta Perin, Donata Gollin, Marcella Vitiello, Patrizia Bisiacchi, Carlo Gabelli(2015).Deep-TMS associata a Cognitive Activation Therapy (CAT) nella malattia di Alzheimer (AD): esperienza clinica su 5 pazienti. 15° Congresso Nazionale Associazione Italiana Psicogeriatria, Firenze, Aprile 16-18, 2015.
- Ciocca, M., Cappon, D., Priori, A., & Rothwell, J. (2014). P262: High-definition transcranial direct current stimulation (HD-tDCS): a TMS study to investigate focal motor cortex (M1) excitability. The 30th International Congress of Clinical Neurophysiology (ICCN) of the IFCN, Berlin, March 19-23, 2014.
- 6. Cappon, D., D'Ostilio, K., Garraux, G., Bisiacchi, P., & Rothwell, J. C. (2014). Effect of transcranial alternating current stimulation on automatic and unconscious control of

movement. The 32nd European Workshop on Cognitive Neuropsychology, Bressanone, January 26-31, 2014.

7. Ciocca, M., Cappon, D., Muthalib, M., Bisiacchi, P., Priori A., and Rothwell, J.C. (2013). HD-tDCS: a pilot TMS study to investigate focal cortical excitability.Magstim neuroenhancement conference and workshop.Oxford,UK, May 4-5, 2013.