

## **PERSONAL INFORMATION**

Family name, First name: Del Vecchio, Maria

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Date and Place of birth: 1986, Latina, Italy

Nationality: Italian

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## **CURRENT POSITION**

Post-Doctoral Fellow at the Institute of Neuroscience, National Research Council of Italy (CNR) Parma, Italy

## **PREVIOUS POSITIONS**

04/2020 - Current Position

Post-doctoral Fellow, CNR, Institute of Neuroscience, Parma, Italy - Human Brain Project SGA3, Grant Agreement 935539, Supervisor Dr. Pietro Avanzini

04/2019 - 03/2020

Fellow, CNR, Institute of Neuroscience, Parma, Italy - Human Brain Project SGA2, Grant Agreement 785907, Supervisor Dr. Pietro Avanzini

03/2019 - 07/2019

Consultant (ergonomics applied to automotive), RE:Lab, Via A. Tamburini 5, 42122 Reggio Emilia, Italy, Supervisor: Prof. Roberto Montanari

11/2016 - 10/2019

PhD program in Neuroscience, University of Modena and Reggio Emilia, Supervisor(s) Prof. Giacomo Rizzolatti, Dr. Pietro Avanzini

02/2015 - 12/2016 Research Engineer, Camlin Italy (former Henesis), Parma, Italy, Supervisor: Dr. Luca Ascari

01/2014 - 12/2014

Marie-Sklodowska Curie Fellowship, VTT, Technical Research Center, Tampere, Finland, iCareNet, European Union's Seventh Framework Programme FP7 (2007-2013) under REA Grant Agreement 264738. Supervisor: Prof. Mark Van Gils

03/2013 - 07/2013

Erasmus Placement Scholarship, HEIG-VD, Haute École d'Ingenierie et de Gestion du Canton de Vaud, Yverdon-les-Bains, Vaud, Switzerland. Supervisor: Prof. Enrico Maria Staderini

## **TEACHING ACTIVITIES**

- Informatics and programming. Attendees: High-school teachers (50 hours) - I.P.S.I.A Galvani-Iodi, Via della Canalina 21, 42123 Reggio Emilia, Italy

## **RESPONSIBILITIES**

- From October 2020: IT Manager of the Parma Unit of the Institute of Neuroscience, CNR

## **MEMBERSHIPS OF SCIENTIFIC SOCIETIES**

- Società Italiana di Psicofisiologia e Neuroscienze Cognitive (SIPF)

## REVIEWER ACTIVITY

Neuroscientific and Psychological journals including the following: Cerebral Cortex, Brain Research, Frontiers in Psychology, Journal of Neurophysiology, Experimental Brain Research, Expert Systems with Applications, Philosophical Transaction B, Neuroimage

## MAJOR COLLABORATION

Collaboration with Centro Munari of the Ospedale Niguarda Ca' Granda, Milano (Prof Giorgio Lo Russo, Dott.ssa Ivana Sartori): study of the cognitive functions by means of intracranial EEG. Collaborations with University of Turin (Prof. Francesca Garbarini, Dr. Carlotta Fossataro), University of Milan (Dr. Andrea Pigorini, Prof. Marcello Massimini), University of Brescia (Prof. Nicola Lopomo), INSERM Grenoble (Prof. Olivier David) and Universitat Pompeu Fabra (Prof Gustavo Deco).

## RESEARCH INTERESTS

System neuroscience, cognitive neuroscience, motor cognition, embodied cognition, mirror neurons, touch, sensory awareness, consciousness.

## EDUCATION

March 19, 2020: PhD *cum laude* in Neuroscience, University of Modena and Reggio Emilia, Supervisor(s) Prof. Giacomo Rizzolatti, Dr. Pietro Avanzini  
October 1, 2013: M.Sc. in Medical Engineering at the University of Rome Tor Vergata, Supervisor(s) Dr. Andrea Malizia, Prof. Enrico Maria Staderini, Prof. Pasqualino Gaudio  
November 17, 2010: B.Sc in Medical Engineering at the University of Rome Tor Vergata, Supervisor(s) Prof. Elena Daprati

## BOOKS:

Del Vecchio M. 2021: *I neuroni specchio nel tempo*, Diabasis, Parma. ISBN-10: 8881039699

## APPLICATION AS PI FOR THE FOLLOWING GRANTS (funded):

Bial Foundation Grant Program 2022/2023: "Manipulating consciousness: the role of attention and arousal on conscious perception", total granted 29.500 euros

## APPLICATION AS PI FOR THE FOLLOWING GRANTS (not funded):

Ministry of Health 2021/2022: NEURONESS. Novel neuromodulation approaches for enhancing sensorimotor awareness in neurological disorders (MDV was unit PI for CNR IN-PARMA)

## PUBLICATIONS ON JOURNALS (IF updated to 2021):

### 2022

Zauli, F.M., **Del Vecchio, M.**, Russo, S., Mariani, V., Pelliccia, V., D'Orio, P., Sartori, I., Avanzini, P., Caruana, F. The web of laughter. Frontal and limbic projections of the Anterior Cingulate Cortex revealed by CCEP from sites eliciting laughter. *Philosophical Transaction B*  
IF 6.237 Five years IF 7.828  
DOI: <https://doi.org/10.1098/rstb.2021.0180>

Pelliccia V., **Del Vecchio M.**, Avanzini P., Revay M., Sartori I., Caruana F. 70 Years of Human Cingulate Cortex Stimulation. Functions and dysfunctions through the lens of electrical stimulation. *Journal of Clinical Neurophysiology*  
IF 2.177 Five years IF 1.775

**Del Vecchio, M.**, De Marco, D., Pigorini, A., Fossataro, C., Cassisi, A., & Avanzini, P. Vision of haptics tunes the somatosensory threshold (2022). *Neuroscience Letters*.  
IF 3.197 Five years IF 2.813  
DOI: <https://doi.org/10.1016/j.neulet.2022.136823>

Mercier, M. R., Dubarry, A. S., Tadel, F., Avanzini, P., Axmacher, N., Cellier, D., **Del Vecchio M.**, ... & Oostenveld, R. (2022). Advances in human intracranial electroencephalography research, guidelines and good practices. *NeuroImage*, 119438.

IF 7.4 Five years IF 6.556

DOI: <https://doi.org/10.1016/j.neuroimage.2022.119438>

Parmigiani S., Mikulan E., Russo S., Sarasso S., Zauli F.M., Rubino A., Cattani A., Fecchio M., Giampiccolo D., Lanzone J., D'Orio P., **Del Vecchio M.**, Avanzini P., Nobili L., Sartori I., Massimini M., Pigorini A. Simultaneous stereo-EEG and high-density scalp EEG recordings to study the effects of intracerebral stimulation parameters. *Brain Stimulation*, 15(3), 664-675.

IF 8.995 Five years IF 5.023

DOI: <https://doi.org/10.1016/j.brs.2022.04.007>

Rizzi, M., Sartori, I., **Del Vecchio, M.**, Zauli, F. M., Berta, L., Lizio, D., ... & Avanzini, P. (2021). Tracing in Vivo the Dorsal Loop of the Optic Radiation: Convergent Perspectives From Tractography and Electrophysiology Compared to a Neuroanatomical Ground Truth. *Brain Structure and Function*

IF 3.270 Five years IF 4.093

DOI:<https://doi.org/10.1007/s00429-021-02430-5>

Vecchiato, G., **Del Vecchio, M.**, Ambeck-Madsen, J., Ascari, L., Avanzini, P. (2022). EEG-EMG coupling as a hybrid method for steering detection in car driving settings. *Cognitive Neurodynamics*, 1-16.

DOI: <https://doi.org/10.1007/s11571-021-09776-w>

IF 5.082, Five years IF 3.77

## **2021**

Di Liberto, G. M., Barsotti, M., Vecchiato, G., Ambeck-Madsen, J., **Del Vecchio, M.**, Avanzini, P., Ascari, L. (2021). Robust anticipation of continuous steering actions from electroencephalographic data during simulated driving. *Scientific reports*, 11(1), 1-10.

DOI: <https://doi.org/10.1038/s41598-021-02750-w>

IF 4.38, Five years IF 5.134

**Del Vecchio, M.**, Fossataro, C., Zauli, F. M., Sartori, I., Pigorini, A., d'Orio, P., ... & Avanzini P.(2021). Tonic somatosensory responses and deficits of tactile awareness converge in the parietal operculum. *Brain*, 144(12), 3779-3787.

DOI: <https://doi.org/10.1093/brain/awab384>

IF 13.501, Five years IF 14.250

Angelini, M., **Del Vecchio, M.**, Lopomo, N. F., Gobbo, M., & Avanzini, P. (2021). Perspective-dependent activation of frontoparietal circuits during the observation of a static body effector. *Brain Research*, 1769, 147604.

DOI: <https://doi.org/10.1016/j.brainres.2021.147604>

IF 3.252 Five years IF 3.028

**Del Vecchio, M.** (2021). Don't tell anyone: the importance of no-report paradigms in neuroscience of consciousness. *Journal of Neurophysiology*, 125(5), 1577-1579.

DOI: <https://doi.org/10.1152/jn.00569.2020>

IF 2.714, Five years IF 2.709

## **2020**

Caruana, F., Avanzini, P., Pelliccia, V., Mariani, V., Zauli, F., Sartori, I., **Del Vecchio M.**, Lo Russo G., Rizzolatti, G. (2020). Mirroring other's laughter. Cingulate, opercular and temporal contributions to laughter expression and observation. *Cortex*, 128, 35-48.

DOI: <https://doi.org/10.1016/j.cortex.2020.02.023>

IF 4.027 Five years IF 3.569

**Del Vecchio, M.**, Caruana, F., Sartori, I., Pelliccia, V., Zauli, F. M., Russo, G. L., ... & Avanzini, P. (2020). Action execution and action observation elicit mirror responses with the same temporal profile in human SII. *Communications biology*, 3(1), 1-8.

DOI: <https://doi.org/10.1038/s42003-020-0793-8>

IF 6.268 Five years IF -

**Del Vecchio, M.**, & Avanzini, P. (2020). La Recherche du Temps Perdu: Timing in Somatosensation. Commentary: Somatosensation in the Brain: A Theoretical Re-evaluation and a New Model. *Frontiers in Systems Neuroscience*, 14.

DOI: <https://dx.doi.org/10.3389%2Ffnsys.2020.597755>

IF 3.289 Five years IF -

## **2019**

Vecchiato, G., **Del Vecchio, M.**, Ascari, L., Antopolskiy, S., Deon, F., Kubin, L., ... & Avanzini, P. (2019). Electroencephalographic time-frequency patterns of braking and acceleration movement preparation in car driving simulation. *Brain research*, 1716, 16-26.

DOI: <https://doi.org/10.1016/j.brainres.2018.09.004>

IF 3.252 Five years IF 3.028

**Del Vecchio, M.**, Caruana, F., Sartori, I., Pelliccia, V., Russo, G. L., Rizzolatti, G., & Avanzini, P. (2019). Ipsilateral somatosensory responses in humans: the tonic activity of SII and posterior insular cortex. *Brain Structure and Function*, 224(1), 9-18.

DOI: <https://doi.org/10.1007/s00429-018-1754-6>

IF 3.270 Five years IF 4.093

## **CONFERENCE PAPERS**

Vecchiato, G., **Del Vecchio, M.**, Antopolskiy, S., Bellotti, A., Colucciello, A., Marchenkova, A., ... & Avanzini, P. (2020, February). Alpha and Beta EEG desynchronizations anticipate steering actions in a driving simulation experiment. In *International Conference on Intelligent Human Systems Integration* (pp. 260-265). Springer, Cham.

## **ABSTRACTS**

Mikulan, E., Theoharis, A., Russo, S., Zauli, F. M., Sartori, I., Parmigiani, S., Sarasso S., **Del Vecchio M.**, Avanzini P., & Pigorini, A. (2021). Scalp EEG prediction of intracranial high-frequency responses to median nerve stimulation: insights from simultaneous recordings. *Brain Stimulation: Basic, Translational, and Clinical Research in Neuromodulation*, 14(6), 1640-1641.

## **PATENTS**

Ambeck-Madsen, J., Ascari, L., Kubin, L., Mastroleo, M., **Del Vecchio, M.**, & Ugolotti, R. (2021). *U.S. Patent Application No. 16/635,077*.

Ambeck-Madsen, J., Sakata, I., Ascari, L., Vecchiato, G., **Del Vecchio, M.**, Deon F., ... & Rizzolatti, G. (2021). *U.S. Patent Application No. 16/635,789*.

## **VISITING**

10-29 October 2021, Visiting at UPF (Center of Brain and Cognition Universitat Pompeu Fabra), Barcelona, Spain, Supervisor: prof Gustavo Deco

Founded by Short Term Mobility Program, Consiglio Nazionale delle Ricerche

9-21 December 2019, Short Visiting at INSERM (Institut National de la santé et de la recherche médicale), Grenoble, France Supervisor: prof Olivier David

## **CONFERENCES AND SYMPOSIA**

### Oral presentations

Pigorini A., Mikulan E.P. **Del Vecchio M.**, **Symposium**: Revisiting the neural correlates of conscious perception via the combination of intracranial and high-density EEG. **Title**: Manipulating consciousness: the role of stimulus amplitude, attention and task-relevance on conscious perception (symposium organizer and speaker, SIPF Annual Congress 9-11 November 2023, Siena, Italy).

**Del Vecchio M.**, Zauli F.M, Sartori I., Caruana F., Pigorini A., Kringelbach M., Deco G., Avanzini P. *Tonicity* as a marker of sensory awareness across modalities: convergence from computational models and intracranial recordings (oral communication, SIPF Annual Congress 2022, 15-17 September, Udine, Italy)

**Del Vecchio M.**, Fossataro C., Zaul F.M., Sartori I., Pigorini A., D'Orio P., Abarrategui B., Russo S., Mikulan E.P., Caruana F., Rizzolatti G., Garbarini F., Avanzini P. Tonic somatosensory responses and deficits of tactile awareness converge in the parietal operculum. (oral communication, congresso nazionale SINP X edizione, 19-20 November 2021, Modena, Italy)

Vecchiato G., **Del Vecchio M.**, Ambeck-Madsen J., Ascari L., Avanzini P. EEG-EMG coupling anticipates steering in simulated driving (The International Neuroergonomics Conference, 2021 11-16 Munich, Germany, online)

**Del Vecchio M.**, Fossataro C., Zaul F.M., Sartori I., Pigorini A., D’Orio P., Abarrategui B., Russo S., Mikulan E.P., Caruana F., Rizzolatti G., Garbarini F., Avanzini P. Tonic somatosensory responses and deficits of tactile awareness converge in the parietal operculum. (oral communication, First International Women in Neuroscience Parma Workshop: The sense of Touch, 30-1 October 2021, Parma, online, available at: <https://www.youtube.com/watch?v=fhPMOBYaMOk>)

Arnulfo G., **Del Vecchio M.**, Pigorini A., Fornia L. **Symposium:** An intracranial insight on sensori-motor awareness. **Title:** The somatosensory perception through stereo-EEG: from tonic activity to awareness of touch (symposium speaker, SIF Annual Congress 7-9 September 2021, Milan, online)

**Del Vecchio M.** Fossataro C., Zauli F.M., Sartori I., Pigorini A., D’Orio P., Caruana F., Rizzolatti G., Garbarini F. & Avanzini P. The neural correlates of tactile awareness (online oral communication, Human Brain Project Tea and Slides 7<sup>th</sup> edition available at: <https://www.youtube.com/watch?v=FfjJS-LEhLw>)

**Del Vecchio M.**, Caruana F., Sartori I., Pelliccia V., Lo Russo G., Rizzolatti G., Avanzini P. The role of SII in action observation (oral communication, Workshop of Brain and Behavioral Evolution in Primates, Erice (TP), Italy, 25-29 September 2019)

#### Poster presentations

**Del Vecchio M.**, De Marco D., Cassisi A., Avanzini P., Vision of haptics tunes somatosensory threshold (poster presentation, SIPF Annual Congress 2021, 30-2 October 2021, Palermo, Italy)

**Del Vecchio M.**, Caruana F., Sartori I., Pelliccia V., Lo Russo G., Rizzolatti G., Avanzini P. The role of SII in action observation (poster, 25 OHBM, Rome, Italy, 9-13 September 2019)

**Del Vecchio M.**, Caruana F., Sartori I., Pelliccia V., Lo Russo G., Rizzolatti G., Avanzini P. The missing piece of somatosensory evoked potentials: difference between activation and phase resetting according to a stereo-EEG perspective (poster, SFN San Diego, USA, 3-7 November 2018)

Vecchiato G., **Del Vecchio M.**, Ascari L., Deon F., Kubin L., Ambeck-Madsen J., Avanzini P., Rizzolatti G. Electroencephalographic correlates of braking and acceleration events during simulated car driving (poster, 13<sup>th</sup> International Conference for Cognitive Neuroscience, Amsterdam, Netherlands, 5-8 August 2017)

#### Other

Chair of the session: *Bodies & Politics*, AISC (Italian Association of Cognitive Science), Parma 22-24 June 2022

Maria Del Vecchio