

CV LUCIA MENCARELLI

❖ Section A: Personal information, education & training

Personal Information	
Name	Lucia
Surname	Mencarelli
Citizenship	Italian
E-mail	lucia.mencarelli@unier.it
Education	
Ph.D.	22/06/2021
Ph.D. title	Neuroscience
<i>Institution</i>	<i>University of Siena - Department of Medicine, Surgery and Neuroscience – Siena – Italy</i>
Dissertation theme	Non-invasive brain stimulation in humans: from image-guided targeting to clinical application
Degree equivalent M.Sc.	08/11/2016
Degree title	Neuroscience and neuropsychological rehabilitation (2 years degree)
<i>Institution</i>	<i>University of Bologna - Faculty of Psychology</i>
Thesis theme	Critical temporal windows in the integration of emotional information in the superior temporal sulcus: a TMS- priming study.
Degree equivalent B.Sc.	11/07/2014
Degree title	Behavioral Sciences and social relationships (3 years degree)
<i>Institution</i>	<i>University of Bologna - Faculty of Psychology</i>
Thesis theme	The perception of biological movement
Internship (for professional qualification in psychology)	
Description	<i>Cognitive Functions and Non-invasive Brain Stimulation</i>
Dates	01/11/2016 - 31/10/2017
Areas of activity	<ul style="list-style-type: none"> - Investigation of high cognitive functions such as memory, attention, fluid intelligence, and working memory using Non-Invasive Brain Stimulation (NIBS) as TMS (Transcranial Magnetic Stimulation) and tES (Transcranial Electrical Stimulation). - Use of functional magnetic resonance (fMRI) to evaluate the modulation of brain networks during cognitive tasks or resting state in healthy subjects and tumor patients. - Treatment of patients with obsessive-compulsive disorder (OCD) using rTMS protocol. - Conduction of quantitative meta-analysis.
<i>Institution</i>	<i>University of Siena - Department of Medicine, Surgery and Neuroscience – Siena – Italy</i>
Supervisors	<i>Prof. Simone Rossi, Dr.ssa Barbara Pucci</i>

Section B: Scientific roles and university positions

Position	Post-doctoral Research Fellow
Time	12/01/2024 to date
<i>Institution</i>	Fondazione Istituto G.Giglio, <i>Cefalù (PA), Italy</i>
Research project themes	<ul style="list-style-type: none"> - Brain synchronization to treat early-stage Alzheimer's Disease (BrainSync-AD) project, funded by the European Union through the PNRR (National Recovery and Resilience Plan) with project code PNRR-POC-2022-12376021
Supervisor	Dr. Chiara Cupidi
Position	Post-doctoral Research Fellow
Time	01/01/2020 to date
<i>Institution</i>	IRCCS Fondazione Santa Lucia, <i>Via Ardeatina 354, Roma, Italy</i>
Research project themes	<ul style="list-style-type: none"> - Investigating the long-term effects of precuneus repetitive transcranial magnetic stimulation (rTMS) in patients with Alzheimer's disease: a randomized controlled clinical trial funded by grants of the Brightfocus Foundation (A2019523S) and the Italian Ministry of Health (Ricerca Corrente 2018). - Examining the long-term effects of alternating current stimulation (tACS) of the frontotemporal network in patients with frontotemporal dementia supported by the Alzheimer's Drug Discovery Foundation (ADDF), the Association for Frontotemporal Dementia (AFTD), and Treat FTD Fund via GA – 201902 – 2017902 - Studying new biomarkers (based on TMS-EEG) for the diagnosis of Alzheimer's disease. - Investigating new biomarkers (based on TMS-EEG) for the diagnosis of frontotemporal dementia. - Analyzing the neurophysiological effects of simultaneous administration of repetitive transcranial magnetic stimulation and alternating current electrical stimulation on the dorsolateral frontal cortex and precuneus. - Digital twins for model-driven non-invasive electrical brain stimulation, funded by the European Union's Horizon 2020 research and innovation program under grant agreement No 101017716.
Supervisor	Prof. Giacomo Koch
Position	Internship Tutor in Statistics
Time	03/2024 – 07/2024
<i>Institution</i>	University of Roma 'Tor Vergata', <i>Rome, Italy</i>
<i>Supervisor</i>	Prof. Elias Casula, Prof. Elisa Cavicchiolo
Position	Academic Tutor in General Psychology (MPS/01)
Time	11/2022 – 03/2023
<i>Institution</i>	University of Roma 'Tor Vergata', <i>Rome, Italy</i>
Supervisor	Prof. Silvia Picazio

Position	Visiting Student
Time	01/09/2019 – 01/09/2020
<i>Institution</i>	Berenson Allen Center For Non-Invasive Brain Stimulation <i>Harvard Medical School, Boston (MA, USA)</i>
Research project themes	<ul style="list-style-type: none"> - Feasibility and Safety of Multisensory Stimulation in Alzheimer's Disease - Gamma induction for Amyloid clearance in Alzheimer's disease - Perturbation physiological biomarker for neuropsychiatric disease - Strengthening Human Adaptive Reasoning and Problem Solving (SHARP)
Supervisor	Prof. Emiliano Santarnecchi
Position	Research assistant (as Ph.D. student)
Time	01/11/2017 – 31/12/2020
Doctoral title	Neuroscience
<i>Institution</i>	<i>University of Siena - Department of Medicine, Surgery and Neuroscience – Siena – Italy</i>
Project themes	<ul style="list-style-type: none"> - Modulation of brain oscillation and network dynamics using Non-invasive brain stimulation - Statistical and behavioral data analysis - Discussion, creation, and testing of new experimental designs - Write literature reviews and scientific articles - fMRI and EEG pre-processing and analysis
Supervisor	Prof. Simone Rossi

❖ **Section C – Editorial roles, awards, grants, honours**

<i>Editorial roles</i>	
Review Editor	Journal Year
	Traslational Neuroscience From 2024
Review Editor	Journal Year
	MDPI Journals From 2022
<i>Awards, grants, honorary fellowships</i>	
Contribution Award	Best Scientific Contribution at the 11th Winter Seminar on Dementia and Neurodegenerative Disorders
Date	2024
Institution	<i>Italian Society of Neurology (SIN)</i>
Reward Contribution	Reward contributions for researchers and research fellows to strengthen their professional condition
Date	2022
Institutions	<i>Regione Lazio</i>
	Total amount: 2000€
PhD Thesis Award	“Best Ph.D. thesis” in Neuropsychology
Date	19/11/2022
Institution	<i>Italian Society in Neuropsychology (SINP)</i>
	Total amount: 500€
Contribution Award	Best Scientific Contribution at ‘XXVIII Congresso Nazionale SIPP’
Date	2019
Institution	<i>Italian Society of Physiology and Neuroscience</i>

❖ Section D – Scientific publications (journal articles)

Articles in scientific *peer-reviewed* journals

(H-index:11 – citation in Scopus: 374)

1. Mencarelli, L., Torso, M., Borghi, I., Assogna, M., Pezzopane, V., Bonni, S., ... & Koch, G. (2024). Macro and micro structural preservation of grey matter integrity after 24 weeks of rTMS in Alzheimer's disease patients: a pilot study. *Alzheimer's Research & Therapy*, 16(1), 1-9. (IF: 7.9)
2. Mancuso, M., Mencarelli, L., Abbruzzese, L., Basagni, B., Zoccolotti, P., Scarselli, C., ... & Rossi, S. (2024). Modulation of Corticospinal Excitability during Action Observation in Patients with Disorders of Consciousness. *Brain Sciences*, 14(4), 371. (IF: 2.7)
3. Romanella, S. M., Mencarelli, L., Burke, M. J., Rossi, S., Kaptchuk, T. J., & Santarnecchi, E. (2023). Targeting neural correlates of placebo effects. *Cognitive, Affective, & Behavioral Neuroscience*, 23(2), 217-236. (IF: 2.9)
4. Romanella, S. M., Mencarelli, L., Seyedmadani, K., Jillings, S., Tomilovskaya, E., Rukavishnikov, I., ... & Santarnecchi, E. (2023). Optimizing transcranial magnetic stimulation for spaceflight applications. *npj Microgravity*, 9(1), 26. (IF: 3.28)
5. Casula, E. P., Borghi, I., Maiella, M., Pellicciari, M. C., Bonni, S., Mencarelli, L., ... & Koch, G. (2023). Regional precuneus cortical hyperexcitability in Alzheimer's disease patients. *Annals of Neurology*, 93(2), 371-383. (IF: 10.42)
6. Maiella, M., Casula, E. P., Borghi, I., Assogna, M., D'Acunto, A., Mencarelli, L., ... & Koch, G. (2022). Simultaneous transcranial electrical and magnetic stimulation boost gamma oscillations in the dorsolateral prefrontal cortex. *Scientific Reports*. (IF: 4.99)
7. Casula, E. P., Pellicciari, M. C., Bonni, S., Borghi, I., Maiella, M., Assogna, M., Mencarelli, L. ... & Koch, G. (2022). Decreased Frontal Gamma Activity in Alzheimer Disease Patients. *Annals of Neurology*, 92(3), 464-475. (IF: 10.42)
8. Mencarelli, L., Romanella, S. M., Di Lorenzo, G., Demchenko, I., Bhat, V., Rossi, S., & Santarnecchi, E. (2022). Neural correlates of N-back task performance and proposal for corresponding neuromodulation targets in psychiatric and neurodevelopmental disorders. *Psychiatry and Clinical Neurosciences*. (IF: 12.14)
9. Burke, M. J., Romanella, S. M., Mencarelli, L., Greben, R., Fox, M. D., Kaptchuk, T. J., ... & Santarnecchi, E. (2022). Placebo effects and neuromodulation for depression: a meta-analysis and evaluation of shared mechanisms. *Molecular Psychiatry*, 27(3), 1658-1666. (IF: 13.43)
10. Mencarelli, L., Monti, L., Romanella, S., Neri, F., Koch, G., Salvador, R., ... & Santarnecchi, E. (2022). Local and Distributed fMRI Changes Induced by 40 Hz Gamma tACS of the Bilateral Dorsolateral Prefrontal Cortex: A Pilot Study. *Neural plasticity*, 2022. (IF: 3.59)

11. Neri, F., Cappa, S. F., Mencarelli, L., Momi, D., Santarnecchi, E., & Rossi, S. (2021). Brain functional correlates of episodic memory using an ecological free recall task. *Brain sciences*, 11(7), 911. (IF: 3.17)
12. Santarnecchi, E., Egiziano, E., D'Arista, S., Gardi, C., Romanella, S. M., Mencarelli, L., ... & Rossi, A. (2021). Mindfulness-based stress reduction training modulates striatal and cerebellar connectivity. *Journal of Neuroscience Research*, 99(5), 1236-1252. (IF: 4.43)
13. Santarnecchi, E., Momi, D., Mencarelli, L., Plessow, F., Saxena, S., Rossi, S., ... & Pascual-Leone, A. (2021). Overlapping and dissociable brain activations for fluid intelligence and executive functions. *Cognitive, Affective, & Behavioral Neuroscience*, 21(2), 327-346. (IF: 3.28)
14. Mantovani, A., Neri, F., D'Urso, G., Mencarelli, L., Tatti, E., Momi, D., ... & Rossi, S. (2021). Functional connectivity changes and symptoms improvement after personalized, double-daily dosing, repetitive transcranial magnetic stimulation in obsessive-compulsive disorder: a pilot study. *Journal of Psychiatric Research*, 136, 560-570. (IF: 4.79)
15. Mandalà, M., Baldi, T. L., Neri, F., Mencarelli, L., Romanella, S., Ulivelli, M., ... & Rossi, S. (2021). Feasibility of TMS in patients with new generation cochlear implants. *Clinical Neurophysiology*, 132(3), 723-729. (IF: 3.59)
16. Mencarelli, L., Menardi, A., Neri, F., Monti, L., Ruffini, G., Salvador, R., ... & Santarnecchi, E. (2020). Impact of network-targeted multichannel transcranial direct current stimulation on intrinsic and network-to-network functional connectivity. *Journal of neuroscience research*, 98(10), 1843-1856. (IF: 4.43)
17. Mencarelli, L., Biagi, M. C., Salvador, R., Romanella, S., Ruffini, G., Rossi, S., & Santarnecchi, E. (2020). Network mapping of connectivity alterations in disorder of consciousness: towards targeted neuromodulation. *Journal of clinical medicine*, 9(3), 828. (IF: 4.81)
18. Neri, F., Mencarelli, L., Menardi, A., Giovannelli, F., Rossi, S., Sprugnoli, G., ... & Santarnecchi, E. (2020). A novel tDCS sham approach based on model-driven controlled shunting. *Brain stimulation*, 13(2), 507-516. (IF: 8.95)
19. Mencarelli, L., Neri, F., Momi, D., Menardi, A., Rossi, S., Rossi, A., & Santarnecchi, E. (2019). Stimuli, presentation modality, and load-specific brain activity patterns during n-back task. *Human brain mapping*, 40(13), 3810-3831. (IF: 4.80)
20. Sprugnoli, G., Monti, L., Lippa, L., Neri, F., Mencarelli, L., Ruffini, G., ... & Santarnecchi, E. (2019). Reduction of intratumoral brain perfusion by noninvasive transcranial electrical stimulation. *Science advances*, 5(8), eaau9309. (IF: 14.84)
21. Santarnecchi, E., Sprugnoli, G., Tatti, E., Mencarelli, L., Neri, F., Momi, D., ... & Rossi, A. (2018). Brain functional connectivity correlates of coping styles. *Cognitive, Affective, & Behavioral Neuroscience*, 18(3), 495-508. (IF: 2.66)

Proceedings articles presented at international conferences

(with ISBN code & peer review process)

1. Mencarelli, L., Borghi, I., Bonni, S., Assogna, M., Pezzopane, V., Di Lorenzo, F., ... & Koch, G. (2023). Structural and functional connectivity changes in AD patients after 24 weeks of precuneus rTMS: preliminary results. *Brain Stimulation: Basic, Translational, and Clinical Research in Neuromodulation*, 16(1), 242. 19-22 February 2023, Lisbon
2. Mencarelli, L., Borghi, I., Bonni, S., Assogna, M., Pezzopane, V., Di Lorenzo, F., ... & Koch, G. Structural and functional connectivity changes in patients with Alzheimer's disease after six months of repetitive transcranial magnetic stimulation over precuneus (2022). *Presented at the 32nd International Congress of Clinical Neurophysiology, September 4th-8th, Geneve.*

Poster and Oral Communications

at National and International Congresses, Conferences & Symposiums

[not included above]

1. Mencarelli, L., Borghi, I., Bonni, S., Assogna, M., Pezzopane, V., Di Lorenzo, F., ... & Koch, G. Macro- and micro-structural preservation of grey matter integrity after 24 weeks of rTMS in Alzheimer's disease patients. (2024) *Presented at the 11th Winter Seminar on Dementia and Neurodegenerative Disorders, February 14th-16th, Brixen.*
2. Mencarelli, L., Borghi, I., Bonni, S., Assogna, M., Pezzopane, V., Di Lorenzo, F., ... & Koch, G. Macro- and micro-structural preservation of grey matter integrity after 24 weeks of rTMS in Alzheimer's disease patients. (2023) *Presented at the XXXI SIPF Congress, November 9th-11th, Siena.*
3. Mencarelli, L., Monti, L., Romanella, S., Neri, F., Koch, G., Salvador, R., ... & Santarnecchi, E. Local and distributed fMRI changes induced by 40 Hz gamma tACS of the bilateral dorsolateral prefrontal cortex: a pilot study. (2022) *Presented at the XXIX SIPF Congress, September 30th-October 2nd, Palermo.*
4. Mencarelli, L., Mantovani, A., Neri, F., D'Urso, G., Tatti, E., Momi, D., ... & Rossi, S. Functional connectivity changes and symptoms improvement after personalized, double-daily dosing, repetitive transcranial magnetic stimulation in obsessive-compulsive disorder: A pilot study. (2020) *Presented at the XXIII SIPF Congress, November 20th- 28th, Virtual Meeting.*
5. Mencarelli, L., Menardi, A., Neri, F., Monti, L., Ruffini, G., Salvador, R., ... & Santarnecchi, E. Impact of network-targeted multichannel transcranial direct current stimulation on intrinsic and network-to-network functional connectivity. (2018) *Presented at the XXVI SIPF Congress, November 15th- 17th, Torino*

❖ **Section E – Scientific Research Responsibilities:
Leadership & Participation in Research Units, Programs and Consultancies**

International research programs and projects with international institutions.	
From January 2021 to date	<p>Collaborator on “Digital twins for model-driven non-invasive electrical brain stimulation (NEUROTWIN)” Project</p> <p>This project aims to develop advanced brain models that characterize individual pathology, predict the physiological effects of transcranial electromagnetic stimulation, and use them to design optimal brain stimulation protocols for Alzheimer's disease. For more information please see the website: https://www.neurotwin.eu/</p> <p>The NEUROTWIN Project includes colleagues from across the university and organization who conduct research in the field of Brain Stimulation, Animal and Human Neurophysiology, Brain dynamics, Computational modeling, hybrid brain modeling, multichannel tES optimization and technology, and Alzheimer’s disease.</p> <p>The project has been funded by the European Union’s Horizon 2020 research and innovation program under grant agreement No 101017716 for a total of € 4 485 736,25.</p>
From January 2021 to date	<p>Collaborator on “Gamma-Induction in FrontoTemporal Dementia Trial (GIFTeD)” Project</p> <p>This project aims to examine the long-term effects of alternating current stimulation (tACS) of the frontotemporal network in patients with frontotemporal dementia. This is an interventional, multi-site, randomized, double-blind, placebo-controlled study of tACS in patients with FTD. The enrollment involves two sites: IRCCS Santa Lucia Foundation and Massachusetts General Hospital (Sponsor).</p> <p>The project has been funded by the Alzheimer's Drug Discovery Foundation (ADDF), the Association for Frontotemporal Dementia (AFTD), and Treat FTD Fund via GA – 201902 – 2017902.</p>

Collaborator on “Gamma induction for Amyloid clearance in Alzheimer disease” Project

From September
2019 to
September 2020

The purpose of this study is to see if multiple daily sessions of non-invasive brain stimulation can affect brain activity to decrease the amount of amyloid and tau in people with AD as compared to Sham (placebo) stimulation. The type of brain stimulation that will be used is called transcranial alternating current stimulation (tACS). This study investigates different doses of tACS (2-4 weeks) and assesses safety. The hope is that tACS will decrease the amount of amyloid and tau and improve memory and thinking in people with AD.

The enrollment involves Massachusetts General Hospital (Sponsor).

The project has been funded by NIH for a total of \$ 694,006.

**Research projects
with Italian public institutions**

Collaborator on “Brain synchronization to treat early-stage Alzheimer Disease - BrainSync-AD” project

From January
2024 to date

The central hypothesis of BrainSync-AD project is that multisession gamma tACS may represent an innovative therapeutic strategy driving brain synchronization in AD with long-lasting effects. We postulate that potentiation of oscillatory activity in the gamma range through tACS will lead to an improvement in memory and cognition in AD, and reverting the ongoing pathological process.

The enrollment involves two sites: ASST Spedali Civili Brescia and Fondazione Istituto G.Giglio.

The project has been funded by the European Union through the PNRR (National Recovery and Resilience Plan) with project code PNRR-POC-2022-12376021 for a total of € 726.000.

❖ Section F – Scientific affiliations and editorial collaborations

Affiliations to scientific associations	<p>Dr Mencarelli is - or has been affiliated - with the following scientific associations:</p> <ul style="list-style-type: none">• SIPF (since 2017) The Italian Society of Neurophysiology and Neuroscience
Editorial roles & reviewer contributions	<ul style="list-style-type: none">- Dr Mencarelli is currently serving as Review editor for the Translational Neuroscience Journal in Frontiers in Neuroscience- Dr Mencarelli is regularly invited to provide <i>peer-to-peer</i> reviewing the MCPI scientific journals

❖ **Section G - Relevant teaching and supervision experiences**

Teaching Experience / Mentoring/ M.Sc. Thesis Supervision Experience	
From March 2024 to July 2024	<p>Internship Tutor in the course “Statistics” at the graduate course in ‘General, Developmental, Gender and Social Behavior Psychology’ at the Department Of Medicine And Surgery, University of Rome 'Tor Vergata'.</p> <p>Role description: laboratory associate. My role involves elucidating the functionalities of Jamovi, from basic data input to advanced analysis techniques, ensuring students develop a comprehensive understanding of its capabilities. Through clear explanations, hands-on practice, and troubleshooting sessions, I empower students to harness the power of Jamovi for their academic and research pursuits.</p> <p>Teaching hours: 60.</p>
From November 2022 to March 2023	<p>Academic Tutor in the course “General Psychology” at the graduate course in ‘General, Developmental, Gender and Social behavior Psychology’ at the Department Of Medicine And Surgery, University of Rome 'Tor Vergata'.</p> <p><i>Role description:</i> Provide academic support and guidance to students. Assist students with understanding course material, preparing for exams, and improving study skills. Adapt teaching methods to meet individual student needs and learning styles. Facilitate group study sessions and workshops to enhance student comprehension and collaboration.</p>
From January 2017 to June 2021	<p>Member of the M.Sc. supervisory teams at the Department of Medicine, Surgery, and Neuroscience at the University of Siena</p> <p>Role: co-supervisor of master's degree candidates in Medicine and Surgery</p> <p>The topics of the thesis usually relate to topics of Non-invasive brain stimulation, neurological disorders, dementia, dynamic and functional connectivity</p> <p>Four MSc theses have been supervised from 2017 to 2021</p>

