Curriculum vitae

Francesca Saviola, PhD

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Education and positions

Feb 2023 - present	Postdoc, University of Brescia, Italy (PI: Prof. Roberto Gasparotti) The fellowship covers projects on neurotoxicity and neurological disorders aiming at brain plasticity mapping through MRI/MRS for clinical biomarkers.
Nov 2018 - Nov 2022	PhD candidate (*cum laude*), Center for Mind/Brain Sciences, University of Trento, Italy (PI: Prof. Jorge Jovicich) *Title: Human brain functional dynamic connectivity: challenges and potentials in health and disease studies* The thesis offers new insights into functional time-varying connectivity estimates and their relationship with in-vivo neuro-metabolism by including novel applications in healthy controls and several brain disorders.
Sept 2021 - Dec 2021	Visiting research fellow, MIPLab, EPFL, Lausanne, Switzerland (PI: Prof. Dimitri Van De Ville)
Oct 2018 - May 2019	Visiting research fellow, University of Roehampton, London, UK (PI: Prof. Paul Allen)
Sept 2016 - Oct 2018	MSc Cognitive Science, Cognitive Neuroscience track (*summa cum laude*), University of Trento, Italy
Summer 2015	Harvard Summer Program in Mind/Brain Sciences. Harvard MBB and University of Trento, Italy
Oct 2012 - Nov 2015	BSc Psychiatric rehabilitation techniques, University of Milan, Italy

Personal grants and awards

2022, 2020, 2019	ISMRM Educational stipend. Budget: 575 USD
2021	ISMRM Research Exchange Grant entitled “Investigating in-vivo human brain dynamic connectivity with fast fMRI”. Budget: 5000 USD
2020	Travel grant “Fondazione Paolina Locarelli-Irion”. Budget: 1000 EUR
2019	AIRMM Grant for Young Researchers at ISMRM, the Italian Chapter, Milan
2019	Best Poster Award at ISMRM, The Italian Chapter, Milan, 2019 with
2018-2022	ISMRM Dipartimento di Eccellenza, Four-years PhD Fellowship, Italian Ministry of Education, University and Research. Budget: 60000 EUR
2018	"Ilenia Graziola" Award, Department of Psychology and Cognitive Science and FBK, University of Trento. Budget: 500 EUR
2018	Best Poster Award at ISMRM, Italian Chapter, Padova
2018	Erasmus+ scholarship for post graduate internship. Budget: 2880 EUR
2016	Scholarship for excellence at the University of Milan. Budget: 6000 EUR

Teaching and Supervision

2021- 2022	Supervisor 3 MSc internships (Asia Ferrari, Irene Bellin, Mesude Okhan)
2020 - 2021	Supervisor 3 MSc Thesis (Corinne Mazzucato, Donna Gift Cabalo, Laura Beghini)
2019 - 2020	Supervisor 1 MSc Thesis (Beatrice Federica Luciani)
2018- 2020	Teaching assistant at University of Trento *Fundamental Hands on Functional Neuroimaging Analysis*, MSc in Cognitive Science

Peer reviewed publications and preprints

- Moretto, M., Luciani, B.F., Zigiotto, L., **Saviola, F.,** et al., (2024) Resting state functional networks in gliomas: validation with Direct Electric Stimulation of a new tool for planning brain resections, Neurosurgery (in press)
- **Saviola, F.,** Zigiotto, L., Jovicich, J., Sarubbo, S., (2024) Predicting attention deficits and functional recovery after glioma resection through functional executive networks: insights from dynamic properties. Journal of Neurology, Neurosurgery and Psychiatry (submitted)
- Rabini, G., Meli, C., Prodomi, G., Speranza, C., Anzini, F., Funghi, G., Pierotti, E., **Saviola, F.,** et al. (2024) Tango and Physiotherapy interventions in Parkinson's Disease: a pilot study on efficacy outcomes on motor and cognitive skills, Scientific Reports (under review)
- Cassone, B., **Saviola, F.,** et al. (2024). TR (acking) individuals down: exploring the effect of temporal resolution in resting state functional MRI fingerprinting. Human Brain Mapping (under review)
- **Saviola, F.,** Deste, G., et al. (2023). The Effect of Physical Exercise on People with Psychosis: A Qualitative Critical Review of Neuroimaging Findings. Brain Sciences 13 (6), 923.
- Pertichetti, M., Corbo, D., Belotti, F., **Saviola, F.,** et al. (2023). Neuropsychological Evaluation and Functional Magnetic Resonance Imaging Tasks in the Preoperative Assessment of Patients with Brain Tumors: A Systematic Review. Brain Sciences 13 (10), 1380.
- Rabini, G., Funghi, G., Meli, C., Pierotti, E., **Saviola, F.,** et al. (2023). Functional alterations in resting state networks for Theory of Mind in Parkinson's disease. European Journal of Neuroscience, e16145.
- Zigiotto L., Amorosino G., **Saviola F.,** et al. (2023) Spontaneous Unilateral Spatial Neglect recovery after brain tumor resection: a multimodal diffusion and rs fMRI case report. Journal of Neuropsychology
- **Saviola, F.,** Tambalo, S., et al. (2022). Head motion correction shapes functional network estimates: evidence from healthy and Parkinson's disease cohorts. bioRxiv , 2022 12.
- **Saviola, F.,** Zigiotto, L., et al. (2022). The role of the default mode network in longitudinal functional brain reorganization of brain gliomas. Brain Structure and Function, 1 15.
- Garrison, J. R., **Saviola, F .,** et al. (2021). Modulating medial prefrontal cortex activity using real time fMRI neurofeedback: Effects on reality monitoring performance and associated functional connectivity. NeuroImage , 245, 118640.
- **Saviola, F.,** Bellani, et al. (2020) First episode psychosis: Structural covariance deficits in salience network correlate with symptoms severity. Journal of Psychiatric Research
- Kozhuharova, P., **Saviola, F.,** et al. (2020). High schizotypy traits are associated with reduced hippocampal resting state functional connectivity. Psychiatry Research: Neuroimaging 111215.
- **Saviola, F.,** Pappaianni, E., et al. (2020). Trait and state anxiety are mapped differently in the human brain. Scientific Reports , 10(1-11).
- Morgenroth, E., **Saviola, F.,** et al. (2020). Using connectivity based real time fMRI neurofeedback to modulate attentional and resting state networks in people with high trait anxiety. NeuroImage: Clinical, 102191.
- Kozhuharova, P., **Saviola, F.,** et al. (2019). Neural correlates of social cognition in populations at risk of psychosis: A systematic review. Neuroscience & Biobehavioral Reviews.

Papers at conference proceedings (selection)

- **Saviola F.,** Tambalo S., Beghini L., Jovicich J. (2022). Working memory load effects studied with interleaved fMRI fMRS GABA edited MEGA PRESS at 3T, 30th ISMRM, International meeting, London [Power pitch]
- Beghini L., **Saviola F.,** Tambalo S., Jovicich J., (2022) Detection of GABA dynamics with edited functional MR spectroscopy at 3 Tesla: a comparison of modelling strategies, ISMRM, International meeting, London [Poster presentation]
- Beghini L., **Saviola F.,** Tambalo S., Jovicich J., (2022) Optimization of interleaved fMRI-fMRS GABA protocol at 3 T, 30th ISMRM, International meeting, London [Power pitch]

- **Saviola F.,** Tambalo S., Beghini L., Ferrari A., Cassone B., Van De Ville D., Jovicich J. (2023) Excitation-inhibition balance is dynamically influenced by cognitive load level, ISMRM, Current Issues in Brain Function Workshop, Padova [Poster presentation]
- **Saviola F.,** Zigiotto L., Jovicich J., Sarubbo S. (2024) Functional dynamic patterns of executive networks predict postoperative attentive outcome in glioma patients ISMRM, International meeting, Singapore [Power pitch]

Scientific and technical skills

Neuropsychological cognitive battery assessment

Neuroimaging:

- MR Protocol optimization (1H-MRS, fMRI, DWI) in 3T and 1.5T MR scanners (Siemens, Philips)
- Experimental design (MATLAB, Psychtoolbox)
- Signal and data processing
    - Task-based fMRI data analysis (FSL, AFNI, SPM)
    - Resting-state fMRI and functional connectivity analysis (FSL, SPM)
    - DWI and structural connectivity analysis (FSL, MrTrix, TrackVis)
    - Structural MRI and morphometry (SPM, FSL, FreeSurfer)
    - Quantitative and functional 1H-MRS (LCModel, for spectral editing: Gannet and Osprey)

Statistics: R, SPSS, MATLAB

Programming: MATLAB, Bash

Collaborations

Collignon Olivier, Institute of Psychology, Louvain-la-Neuve, Belgium: Brain connectivity plasticity.
Sarubbo Silvio, "S.Chiara" Hospital, Trento APSS, Italy: Brain connectivity in gliomas.
Dimitri Van De Ville, Neuro-X Institute, EPFL, Geneva, Switzerland: Dynamic functional connectivity.
Paul Allen, IOPPN, King's College London, London, UK: Brain connectivity in psychosis.
Jorge Jovicich, CIMeC, University of Trento, Italy: MR methods, acquisition and analysis.
Cesar Caballero-Gaudes, BCCBL , San Sebastián, Spain: MRI methods and physiological denoising.
Megan Horton, ISMMS, New York, USA: Brain connectivity in metal exposure.

Other academic activities and outreach

- Peer-reviewing for high-impact scientific journals (Translational Psychiatry, Frontiers in Psychiatry, Human Brain Mapping and Brain Sciences).
- Member of the ISMRM Society (MRS, Brain Function SG).
- Member of the organization committee of the 2022 fMRS Member-Initiated Symposium.