Personal and Contact Details

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Professional Profile and Objectives

Scientist dedicated to transitioning to industry.

Independent researcher in cognitive neuroscience specialized in human brain electrophysiology and signal analysis with extensive practical experience in maintaining and running labs and studies to deliver publishable results. Qualified in developing state-of-the-art approaches in brain imaging analysis and methods with proprietary software and high-level general-purpose programming. Seeking to leverage research and project manager expertise for translational and practical objectives.

Experience

Research Staff, HiLIFE - NC, University of Helsinki — Critical Oscillations lab; *08/2021 - 08/2023*
INP - CCNi, University of Glasgow — *08/2019 - 07/2021*

- Organized and managed the newly-established Glasgow lab and research group, then by coordinating with the core members in Helsinki and vice versa.
- Designed, developed and employed tools for quantification and correlation of critical measures of brain activity in large datasets of epileptic patients and control participants.
- Day-to-day inter-disciplinary collaboration with brain imaging physicists, neurologists, IT-experts, data analysts and programmers with niche expertise to maintain the core infrastructure of the study, as well as to contribute to the scientific output.

Research Staff, CCNS, University of Salzburg — Salzburg Brain Dynamics lab; *03/2014 - 03/2019*

- Financial and technical administration and liaison with clinical equipment manufactures for setting up imaging machinery. Consequently, running the new neuro-stimulation division.
- Foundation of a multimodal system of non-invasive neuro-electrophysiology combined with neuro-stimulation for an EU-funded research project.
- Organizer of an international conference, in charge of the technical aspects (audio-visual, presentation software and compatibility, network and internet feed setup, other IT needs).
- Collaboration in a study using machine learning and Bayesian model validation techniques.
- Teaching and mentoring PhD and MSc students.

Research Collaborator, Dartmouth College — Haxby lab; *07/2014 - 09/2016*

- Data acquisition, management, analysis and coordination between research centres for a multimodal machine learning study.

Research Associate, CIMeC, University of Trento — Perception and Attention lab; *10/2011 - 10/2014*

- Representative for a collaboration within the ITPAR project (India-Trento Program for Advanced Research).
- Customer relations in university support offices and student assistance.

Research Collaborator, FIL - UCL — Schwarzkopf lab; *01 - 07/2013*

- Organizer and teacher of an international workshop on software I contributed developing.

Core Skills

Programming, MATLAB, Python, VB, HTML, SPSS, Git, bash scripting.

Computing, Windows and Linux computer environments, services and policies, word processing programs, spreadsheets, databases, browsers, web design, network management, multimedia, image and audio processing.

Data analysis, classical and Bayesian statistics, feature extraction, supervised / unsupervised machine learning, boosting, kernel methods, embedding.

Signal processing, artifact cleaning, filtering, interpolation, beamforming, spectral analysis, control systems, complex analysis, audio and image manipulation.

Research, experimental design, behavioural testing, brain imaging, neuroanatomy, data acquisition, MEG, EEG, tCS, fMRI, eye-tracking, custom-built resampling and permutation tests, modelling, simulation, optimization, scientific figure-making, paper writing, teaching.

Management, research project coordination, grant delivery planning and scheduling, lab leadership, data flow, quality control, organizing international workshops and conferences, customer relations, company liaison, meeting moderation, conference speaker.

Education

Doctoral Degree, cum laude, Cognitive Neuroscience, University of Trento, Italy *10/2014 – 03/2018*

Master Degree, cum laude, Cognitive Neuroscience, University of Trento, Italy *09/2011 - 12/2013*

Bachelor's Degree, cum laude, Cognitive Neuropsychology, La Sapienza, Italy *09/2008 - 07/2011*

Languages

Mother tongue **Italian**

Second Language **English** *(C2)*

Other Languages *Spanish (B2); French (A2); German (A2)*

Publications

Fuscà, M.; Siebenhühner, F.; Wang, S. H.; Myrov, V.; Arnulfo, G.; Nobili, L.; Palva, J. M.; Palva, S. (2023) Brain criticality predicts individual levels of inter-areal synchronization in human electrophysiological data. *Nature Communications, 14*(1), 4736. DOI

Sanchez, G.; Hartmann, T.; Fuscà, M.; Demarchi, G.; Weisz, N. (2020) Decoding across sensory modalities reveals common supramodal signatures of conscious perception. *Proceedings of the National Academy of Sciences, 117*(13). DOI

Rassi, E.; Fuscà, M.; Weisz, N.; Demarchi, G. (2019) Detecting Pre-Stimulus Source-Level Effects on Object Perception with Magnetoencephalography. *Journal of visualized experiments*, *149.* DOI

Fuscà, M.; Neuling, T.; Ruhnau, P.; Weisz, N. (2018) Local network-level integration mediates effects of transcranial Alternating Current Stimulation. *Brain Connectivity, 8*(4). DOI

Ruhnau, P.; Neuling, T.; Fuscà, M.; Herrmann, C.S.; Demarchi, G.; Weisz, N. (2016) Eyes wide shut: Transcranial alternating current stimulation drives alpha rhythm in a state dependent manner. *Scientific Reports*, *6*. DOI

Gregory, S.; Fuscà, M.; Rees, G.; Schwarzkopf, D.S.; Barnes, G. (2016) Gamma frequency and the spatial tuning of primary visual cortex. *Plos One, 11*(6). DOI

Neuling, T.; Ruhnau, P.; Fuscà, M.; Demarchi, G.; Herrmann, C.S.; Weisz, N. (2015) Friends, not foes: MEG as a tool to uncover brain dynamics during tACS. *NeuroImage, 118*. DOI