Open fMRI post-doc position
on cognitive and psychiatric complications in patients with mild cognitive impairment and neurodegeneration

Professor Olaf Blanke & Professor Dimitri Van De Ville

Swiss Federal Institute of Technology (EPFL), Campus Biotech, Geneva, Switzerland

The Laboratory of Cognitive Neuroscience (Olaf Blanke: https://www.epfl.ch/labs/lnco/) and the Medical Image Processing Lab (Dimitri Van De Ville : https://miplab.epfl.ch/) have a joint open fMRI post-doc position on the early detection of memory and executive deficits and their relationship to hallucinations in patients with mild cognitive impairments and Parkinson’s disease. The position is part of a larger project between both Labs on cognitive decline in neurodegeneration, mild cognitive impairments, and health-related brain changes using cutting-edge signal analysis methods (such as innovation-driven co-activation patterns1; toolbox for co-activation patterns2) and a recently developed neuroengineering platform, including immersive Virtual Reality, robotically-controlled stimulations during fMRI acquisition, psychophysics.

The project aims at investigating how hallucinations in the elderly and in patients with Parkinson’s disease are associated with mild cognitive impairment and dementia, using advanced neurotechnology and brain imaging data analysis in large patient populations. Related previous research from our labs showed that so-called minor hallucinations and cognitive decline in patients with Parkinson’s disease results from brain processes of impaired sensorimotor integration in fronto-temporal cortex and altered connectivity (Berasconi et al., BioRxiv 2020). Computational approaches to probe large-scale network dynamics have linked cingulo-prefrontal regions to clinical risk for psychosis (Zöller et al., Biological Psychiatry: CNNI, 2019). The current project aims at investigating striatal-cortical functional and structural mechanisms in elderly and identify early markers for psychiatric and cognitive vulnerability and decline.

The ideal candidate should have a Master's degree (or equivalent) in engineering, computer science, or physics, hold a PhD in neuroimaging or a related field and be strongly motivated with a keen interest in cognitive-systems neuroscience. Skills in assembling advanced processing pipelines and/or methods development are valued. Experience in PD, MCI, neurodegeneration, or memory is a plus.

Applications and any inquiries should be sent to Fosco Bernasconi (fosco.bernasconi_at_epfl.ch) and include a CV, a publication list, a 3-minute video stating motivations and qualifications, as well as contact details of two referees.

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1 https://c4science.ch/source/iCAPs/
2 https://c4science.ch/source/CAP_Toolbox/