MASTER 2 Fundamental and Clinical Neurosciences

Internship proposal 2026-2027

(internship from January to June 2027)

Host laboratory: Lyon Neuroscience Research Center (CNRS UMR 5292 - Inserm U1028), Centre Hospitalier Le Vinatier - Bâtiment 462, 95 boulevard Pinel, 69675 Bron.

Host team: EDUWELL Team, CRNL, https://www.crnl.fr/fr/equipe/eduwell

Internship supervisors:

- Antoine Lutz, PhD, HDR, director of Research INSERM, and co-team leader at the CRNL, antoine.lutz@inserm.fr
- Eugénie Lanchou, graduate student, eugenie.lanchou@inserm.fr

Project title: Electrophysiological Study of Non-Dual Meditation and Its Impact on the Self and Emotion Regulation

Project summary:

Non-dual meditation practices, as cultivated in the Dzogchen and Mahamudra contemplative traditions, aim to disrupt habitual cognitive patterns and cultivate a mode of awareness in which the distinction between subject and object is experientially weakened. Neurophysiological studies of experienced practitioners have reported alterations in EEG activity during these states, particularly modulations in beta and gamma frequency bands over electrodes located above the right temporoparietal junction, although these findings remain preliminary. A more integrative approach is therefore needed to relate these neural dynamics to first-person experience, in line with a neurophenomenological framework. This project aims to investigate these questions in relation to self-processing, bodily ownership and agency, as well as emotion regulation.

This study is part of an international collaboration involving the University of Virginia (USA) and EPFL (Switzerland). In September 2026, a one-week meditation retreat will involve experienced non-dual practitioners performing tasks probing self-consciousness (full-body illusion [FBI] and peripersonal space [PPS]) and emotion regulation (death anxiety/denial paradigm), while EEG and physiological recordings are acquired simultaneously. A matched control group will also be recruited in 2026.

The internship will focus on EEG analyses of the emotion regulation task. As the data will already have been collected, the student will primarily conduct EEG and event-related potential (ERP) preprocessing and analyses.

3-5 recent publications :

Fucci, E., O. Abdoun, A. Caclin, A. Francis, J. D. Dunne, M. Ricard, R. J. Davidson, and A. Lutz. 2018. "Differential Effects of Non-Dual and Focused Attention Meditations on the Formation of Automatic Perceptual Habits in Expert Practitioners." Neuropsychologia 119:92–100. doi: 10.1016/j.neuropsychologia.2018.07.025

C Timmermann, PR Bauer, O Gosseries, A Vanhaudenhuyse, F Vollenweider, S Laureys, T Singer, E Antonova, A Lutz.(2023) A Neurophenomenological Approach to Non-Ordinary States of Consciousness: Hypnosis, Meditation and Psychedelics. Trends in Cognitive Sciences 27(2):139-159 (IF 24,482). https://doi.org/10.1016/j.tics.2022.11.006

Blanke O, Slater M, Serino A (2015): Behavioral, Neural, and Computational Principles of Bodily Self-Consciousness. Neuron 88: 145–166.