



## MASTER 2 Fundamental and Clinical Neurosciences

### Internship proposal 2024-2025

*(internship from January to June 2025)*

#### Host laboratory:

Laboratoire d'Étude des Mécanismes Cognitifs (UR EMC)  
Université Lumière Lyon 2  
5 avenue Pierre Mendès France, 69676 Bron Cedex

#### Host team:

[Mémoire, Émotion et Attention \(MEA\)](#)

#### Internship supervisors:

PLANCHER, Gaën – Maîtresse de conférences, HDR (University lecturer) –  
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#### Project title:

EEG correlates of working memory in aphantasia

#### Project summary:

Aphantasia is a condition in which people report having no mental images. Interestingly, recent work suggests that aphantasics perform as well as typical imagers on most cognitive tasks, including visual working memory (WM) tasks. However, the neural correlates of mental imagery (MI) and visual working memory are well documented, thanks in particular to recent studies using multivariate pattern analyses (MVPA). These analyses make it possible to decode the neural representations associated with cognitive functions and behavioural tasks. Using MVPA, studies have shown that sensory regions and networks are involved in both MI and WM. In this respect, aphantasia represents a challenge: how can aphantasics perform tasks that are supposed to rely on MI networks? The present project aims to use MVPA and state-of-the-art machine learning analyses on EEG and behavioural data to study the temporal dynamics and neural correlates of aphantasia during MI and WM.

### 3-5 recent publications:

Labaronne, M., Ferreri, L., & Plancher, G. (2023). How do Intentions Modulate the Effect of Working Memory on Long-Term Memory? *Psychonomic Bulletin & Review*. doi: 10.3758/s13423-023-02381-4.

Labaronne, M., Caclin, A., & Plancher, G. (under review). Neural Oscillations of Attentional Refreshing and Verbal Rehearsal and Their Modulation By Long-Term Memory Content. *Journal of Cognitive Neuroscience*.

Malleret, G., Salin, P, Mazza, S., & Plancher, G. (under review). Working Memory Forgetting: Bridging Gaps Between Human and Animal Studies. *Neuroscience and Biobehavioral Reviews*.

Purkart, R., Delem, M., Cavalli, E., Ranson, V., Andrey, C., Versace, R, & Plancher, G, (2024 submitted at Cognition). Are There Unconscious Visual Images in Aphantasia? Development of an Implicit Priming Paradigm. Available at SSRN: <http://dx.doi.org/10.2139/ssrn.4755823>

Chainay, H., Ceresetti, R., Pierre-Charles, C., & Plancher, G. (2023). Modulation of Maintenance and Processing in Working Memory by Negative Emotions. *Memory & Cognition*. doi: 10.3758/s13421-023-01428-0.