

## **Offre de stage de Master / Master Internship offer**

Date of the offer: June2024

### **Tuteur du stage et Laboratoire d'accueil / Internship supervisor and Host laboratory:**

Laboratoire / Lab : Lyon Neuroscience Research Centre (PsyR2)

Duration: 2-6 months

Encadrant du stage / Supervisor for the internship: Jacqueline Scholl, CRCN Inserm, jacqueline.scholl@inserm.fr

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Site internet de l'équipe / Team Website : <https://sites.google.com/view/jacqueline-scholl/home> and <https://www.psy2team.com>

Langues parlées dans l'équipe / Languages spoken in the lab: English and French

### **Project descriptions**

#### **Project 3: Capturing moment to moment processes of meditation**

Background:

Everyone experiences emotionally challenging situations ('problems'). Response strategies can most broadly be categorized into solving the problems or regulating the emotions (e.g. when situational resolution is not possible or to aid the situational resolution). Clinically, emotional awareness and emotion regulation are affected across many disorders, in particular mood disorders like bipolar or borderline disorder (Derks et al. 2017). They are also the target of psychological and meditation/mindfulness-based therapies. How well someone can regulate their emotions can be characterized in their propensities to use (mal)adaptive strategies. Here, we will focus on a less examined aspect of good emotion regulation, emotional creativity, building on previous work on non-emotional creativity (Lopez-Persem 2023). That is, moving away from identifying a single best emotion regulation strategy, but rather considering how appropriate the strategy is given the goal, ones' skills and how flexibly people can generate new strategies when faced with failures of strategies to achieve the goal ('novelty'). To illustrate, in daily life, situations are often not just one-off (e.g. being cut-off in traffic) but require persistence and change of strategy as solving/regulation attempts fail (e.g. conflict at work). In this framework, understanding agents' goals is crucial. Previously, emotion regulation research has often simply assumed the goal was to 'feel better'. However, from decision research we know people have different goals (e.g. a need to succeed, social or altruistic goals, gathering information). This might lead them to change their emotions for instrumental goals (e.g. to increase productivity at work through anger or to get social support through sadness).

Typically, emotion regulation is measured using questionnaires that ask participants to report their behaviour in general (e.g. “I control my emotions by not expressing them”), showing emotional pictures and asking participants to apply different regulation strategies or measuring the naturally occurring neural dynamics of their emotions (Gross et al. 2014). While clearly important, in real life, emotional problems often arise to specific personal situations (e.g. a distressing email), rather than to hypothetical scenarios outside a personal context. Similarly, in real-life a crucial aspect of emotion regulation is what strategy a person *chooses* to apply (depending on their current goals), rather than just how well they can apply a strategy when asked to do so. Here we will therefore go further devising a task that can provide behavioural measures in naturalistic situations capturing emotional dynamics across timescales. For this, we will build on my previous work capturing emotions during naturalistic tasks (Trier et al. 2023, reviews: Kolling & Scholl 2024, Scholl & Klein-Flügge 2018) and finding that meditation techniques are differentially linked to emotional abilities and psychiatric symptoms (Palmer et al. 2023). Crucially, this allows establishing causal dynamics between regulation strategies and outcomes (goals), even beyond what participants may themselves intuit. This means that the appropriateness and novelty of regulation strategies can be measured objectively.

#### Project:

The student will design a novel task capturing moment-to-moment processes while people regulate their emotions in a self-determined way. The task will be framed as ‘meditation’, i.e. giving participants a goal cognitive state (e.g. self compassion) that they need to achieve through regulation of their emotions. Moment-to-moment states will be indicated by participants through visual ratings. The student will develop computational models (time lagged regression models) analysing the causal effects of emotion regulation strategies.

This project is well suited for a student with either a computational background or prior experience with coding. A strong interest in learning computational modelling of behaviour is crucial. Interest in meditation or another form of psychological intervention could be advantageous to help with idea generation for the task design, but not required.

#### References

Derks YPMJ, Westerhof GJ, Bohlmeijer ET. A Meta-analysis on the Association Between Emotional Awareness and Borderline Personality Pathology. *Journal of Personality Disorders*. 2017 Jun;31(3):362–84.

Gross JJ, Jazaieri H. Emotion, emotion regulation, and psychopathology: An affective science perspective. *Clinical psychological science*. 2014;2(4):387–401.

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Kolling N, Scholl J (2024) On the role of behavioural modes during temporally extended decision making and their neural substrates. *Current Opinion in Behavioral Sciences* 58: 101404 doi: 10.1016/j.cobeha.2024.101404

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Trier HA, O'Reilly J, Spiering L, Ma SM, Kolling N, Rushworth MFS\*, Scholl J\* (in revision) Emotions and individual differences shape foraging under threat. Preprint: 10.31234/osf.io/v6u3y