

## Internship Proposal Academic Year 2018-2019

### 1. Host team :

Research Unit (e.g. Department or Institute) : ICM, U1127/UMRS 975/UMR 7225

Research Unit Director : Alexis Brice

Research Team Director : Richard Levy

Team name : FrontLab

Address :

INSTITUT DU CERVEAU ET DE LA MOELLE EPINIERE

HOPITAL PITIE-SALPETRIERE

47 BOULEVARD DE L'HOPITAL

CS 21414

75646 PARIS CEDEX 13

Supervisor of the Research Intern for this project : Emmanuelle Volle

Telephone : 0157274158

E-mail : [emmavolle@gmail.com](mailto:emmavolle@gmail.com)

### 2. Internship project title:

***Creativity mechanisms to overcome obvious ideas: Defixation or no fixation?***

### 3. Internship Description :

The mechanisms allowing to solve problems and generate new ideas by overcoming habitual ideas and obvious thinking paths are not understood. The literature on creativity has named fixation or fixedness as a spontaneous or implicit process that induce an activation of strongly associated concepts to a given situation that prevents the activation of more original ideas. The mechanisms allowing to avoid this fixation to solve problems and generate new ideas are not understood.

One possible mechanism is the active inhibition of fixated ideas. Psychological studies have consistently reported a link between creative abilities and inhibition. Inhibition is essential to suppress automatic and habitual thoughts, allowing for the generation of more original ones. The concept of cognitive inhibition gathers a set of active control processes allowing to suppress automatic or habitual but inappropriate behavior in a given context, maintain attention focus despite distractors. On the other hand, theoretical models of creativity also postulate that creativity depends on individual properties of semantic associations (connexions between our element of knowledge), with more creative people having more relaxed and less rigid semantic associations. According to this view, creative people have less rigidity in semantic associations, allowing to widen the search space and activate remote associates. In this case, more creative people may have less fixation induced by a given context or problem, decreasing the need to involve inhibitory control to overcome fixation.

**Master de Sciences, Technologies, Santé**  
**Mention Biologie Intégrative et Physiologie**  
**Parcours : Neurosciences**  
Responsable : Professeur Régis Lambert

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The question we want to address in this project is whether creative abilities are explained by higher cognitive inhibition capacities allowing to overcome fixation (“defixation”), or by less susceptibility to fixation due to a more flexible semantic network structure (“no fixation”), or both.

The project will include several behavioural cognitive experiments combining word association tasks and creativity tasks, possibly coupled with EEG.