

## PROPOSITION DE SUJET DE THESE

**Intitulé : Decoding confidence and uncertainty with EEG**

Référence : **TIS-DTIS-2024-06**  
(à rappeler dans toute correspondance)

**Début de la thèse : 10/2024**

**Date limite de candidature : 31/07/2024**

### Mots clés

Confidence, decision-making, EEG decoding, BCI

### Profil et compétences recherchées

Profil : Engineer, Master in Cognitive Science or related disciplines, Master in physics

Expertise : statistical analyses, programming (Matlab, R, Python)

### Présentation du projet doctoral, contexte et objectif

A PhD position is available at the French Aerospace lab (ONERA) in Salon-de-Provence and the Institut de Neurosciences de la Timone in Marseille (INT), France. The candidate will integrate the Cognitive Engineering and Applied Neurosciences (ICNA) group at the ONERA the Inference in Visual BEhaviour (INVIBE) and will be supervised by Dr. Andrea Desantis (ONERA), Dr Bertille Somon (ONERA), and Dr Guillaume Masson (INT).

The position is part of a European project that aims at creating a training network for PhD students and involves several partners including University College London, l'Ecole Normale Supérieure, Donders Institute and others European research institutions. The project aims at investigating perceptual confidence in humans and the present PhD project will aim at decoding confidence using EEG and eye-tracking and ultimately use BCI to adapt a computer display based on observers' confidence.

Why are we interested in confidence?

Numerous human activities rely on an interaction with automated systems. It is well established that the confidence shown by an operator in his/her own decisions and the decisions taken by an automated system is central to successful interactions. However, confidence can be an issue: for instance, operators can exhibit over-confidence in the control of the machine, leading to a considerable reduction of attention toward the activities of the system. In case of failure of the automated system, this overconfidence can have detrimental effects. Accordingly, it is essential to understand how confidence emerges during human-human and human-machine interactions.

**Collaborations envisagées : Institut de Neurosciences de la Timone (Dr. Guillaume Masson); Donders Institute for Brain, Cognition and Behaviour (Dr. Janneke Jehee); Katholieke Universiteit Leuven (Dr. Kobe Desender)**

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Pour plus d'informations : <https://www.onera.fr/rejoindre-onera/la-formation-par-la-recherche>