

# Investigation on the effect of sleep deprivation and circadian rhythm on the dynamic variations of multitasking performance, divided attention and task-related physiological activation.

Université Bretagne Sud / IMT Atlantique



**NICOLAS BAUDIN**  
INTERNSHIPS IN FRANCE INITIATIVE

Name of the hosting institution in France	Université Bretagne Sud (Lorient) / IMT Atlantique (Brest)
Name of the host laboratory / research team	Lab-STICC UMR 6285 / FHOOX Team
Address	17, Boulevard Flandres Dunkerque, 56100 LORIENT
Website	<a href="https://www.labsticc.fr/en/index/">https://www.labsticc.fr/en/index/</a>
Name of the supervisor	Philippe Rauffet / Christine Chauvin / Gilles Coppin
Function	Associate Professor / Full Professor / Full professor
Email	philippe.rauffet@univ-ubs.fr

## Internship offer

Topic of the internship (title)	Investigation on the effect of sleep deprivation and circadian rhythm on the dynamic variations of multitasking performance, divided attention and task-related physiological activation.
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Proposed dates of the internship	<b>Start</b>	01/09/2021	<b>End</b>	28/02/2022
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### Scientific and academic objectives of the internship:

**Context and objectives:** During naval operations, teams must monitor what is happening around (and inside) the ship, for example to avoid collision. This monitoring activity can be multitasking (different objects to follow, different tasks to carry out to evaluate the situation), and can sometimes occur in high demanding situation, depending for instance on ship location (harbour, restricted waters) or traffic density. Sleep deprivation (due to irregular or long work) and circadian rhythm, as well as individuals' chronotype, can impact the performance of this multitasking activity, reducing the ability to sustain attention over time to carry out the activity and speeding up the decrement of operators' arousal or alertness. That could sometimes lead to a loss of common ground, a deteriorated social support or a degraded leadership among the crew. It is therefore important to understand and control this effect of fatigue, to prevent from maritime accidents.

**Detailed mission:** The intern will conduct a 6-month internship. She/He will design then conduct an experiment on a microworld involving a high-demanding multitasking activity during a significant period (at least 30min). Performance, behavioral and physiological data will be collected from participants in different conditions of sleep deprivation or at different hours of the day, to analyze how divided attention, task-related physiological activation and task performance may change over time.

## Industrial partner

Name	Naval Group Research (CEMIS/EIFH)
Role of the industrial partner in the internship project	The industrial partner will provide its expertise in human factors in the naval domain. It will especially contribute to the definition of the requirements and the validation of the experimental scenario
Main contact	Chantal Maïs (Ollioules office, France)
Email	chantal.mais@naval-group.com
Main contact industrial partner's branch in Australia	Margaret Law
Email	margaret.law@pacific.naval-group.com

## Australian partner

Name of the Australian partner institution	University of South Australia (UniSA)
Lab/department/team involved in the collaboration	Behaviour-Brain-Body Research Centre
Main contact in the Australian partner institution	Siobhan Banks
Function	Full Professor
Email	Siobhan.Banks@unisa.edu.au
Outside of this ongoing collaboration, will students from other Australian universities be considered by the hosting institution in France?	No

## Expected profile of applicant

Level of study	Bachelor with honours or Master degree
Discipline	Human Factors, Psychology
Prerequisite knowledge, qualities and skills	Knowledge in human factors, skills in experimental design and statistical analysis
Other specific eligibility criteria	None