



**Offre n°2025-08965**

**Post-Doctoral Research Visit F/M  
Modeling a participant's task engagement  
during brain-computer interface (BCI)  
training using physiological sensors.**

**Type de contrat :** Fixed-term contract

**Niveau de diplôme exigé :** PhD or equivalent

**Fonction :** Post-Doctoral Research Visit

**A propos du centre ou de la direction fonctionnelle**

The Inria Centre at Rennes University is one of Inria's nine centres and has more than thirty research teams. The Inria Centre is a major and recognized player in the field of digital sciences. It is at the heart of a rich R&D and innovation ecosystem: highly innovative PMEs, large industrial groups, competitiveness clusters, research and higher education players, laboratories of excellence, technological research institute, etc.

**Contexte et atouts du poste**

Within the framework of the NIRVANA project, funded by the French National Research Agency (ANR), this post-doctoral position is part of a collaboration between the University of Chieti and Inria. The project focuses on enhancing task engagement during brain-computer interface (BCI) training using physiological sensors.

**Mission confiée**

**Collaboration :**

The recruited person will work in close collaboration with Agustina Fragueiro from University G. d'Annunzio of Chieti-Pescara (Italy) and Claire Cury from the Centre Inria de Rennes, PI of the NIRVANA project. The recruited person will also occasionally work in collaboration with a PhD student, also part of the NIRVANA project.

**Responsibilities :**

The person recruited is responsible for designing and conducting experiments related to EEG and fMRI data acquisition, analyzing physiological signals (EEG, ET, and SC), and developing models for task engagement estimation and neurofeedback target adaptation. She/he will take initiatives to improve data collection protocols, analyzing results, and contributing to the scientific dissemination of findings through conference papers and journal articles.

The recruited person will also be responsible for publishing the data following the RGPD.

## Principales activités

**Main activities:**

- Design and conduct experiments to acquire EEG, eye-tracking (ET), and skin conductance (SC) signals from participants.
- Develop and validate models for estimating task engagement levels using physiological signals.
- Adapt neurofeedback targets based on real-time engagement levels and performance metrics.
- Extract and analyze EEG features related to task engagement.
- Validate methodologies and models using collected datasets and statistical analyses.

**Additional activities:**

- Write documentation and reports on experimental procedures and results.
- Publish findings in conference papers and journal articles.
- Present research progress and results to project partners and at scientific conferences.
- Collaborate with team members to integrate findings into broader project objectives.

## Compétences

**Technical skills and level required:**

- PhD in Neuroscience, Biomedical Engineering, Computer Science, or a related field.
- Experience with EEG, eye-tracking, and physiological signal processing.
- Proficiency in MATLAB, Python, or similar tools for data analysis and modeling.
- Knowledge of machine learning techniques and statistical analysis.

**Languages:**

- Proficiency in English (written and spoken).
- Knowledge of French is a plus.

**Relational skills:**

- Ability to work collaboratively in a multidisciplinary team.
- Strong communication skills for presenting research findings and writing scientific publications.

#### **Other valued appreciations:**

- Experience with neurofeedback systems and real-time data processing.
- Familiarity with MRI data acquisition and analysis.

## **Avantages**

- Subsidized meals
- Partial reimbursement of public transport costs
- Leave: 7 weeks of annual leave + 10 extra days off due to RTT (statutory reduction in working hours) + possibility of exceptional leave (sick children, moving home, etc.)
- Possibility of teleworking (after 6 months of employment) and flexible organization of working hours
- Professional equipment available (videoconferencing, loan of computer equipment, etc.)
- Social, cultural and sports events and activities
- Access to vocational training
- Social security coverage

## **Rémunération**

Monthly gross salary amounting to 2788 euros.

## **Informations générales**

- **Thème/Domaine :** Computational Neuroscience and Medicine  
Biologie et santé, Sciences de la vie et de la terre (BAP A)
- **Ville :** Rennes
- **Centre Inria :** [Centre Inria de l'Université de Rennes](#)
- **Date de prise de fonction souhaitée :** 2025-10-01
- **Durée de contrat :** 2 years
- **Date limite pour postuler :** 2025-08-18

## **Contacts**

- **Équipe Inria :** [EMPENN](#)
- **Recruteur :**  
Cury Claire / [claire.cury@inria.fr](mailto:claire.cury@inria.fr)

## **A propos d'Inria**

Inria est l'institut national de recherche dédié aux sciences et technologies du numérique. Il emploie 2600 personnes. Ses 215 équipes-projets agiles, en général communes avec des partenaires académiques, impliquent plus de 3900 scientifiques pour relever les défis du numérique, souvent à l'interface d'autres

disciplines. L'institut fait appel à de nombreux talents dans plus d'une quarantaine de métiers différents. 900 personnels d'appui à la recherche et à l'innovation contribuent à faire émerger et grandir des projets scientifiques ou entrepreneuriaux qui impactent le monde. Inria travaille avec de nombreuses entreprises et a accompagné la création de plus de 200 start-up. L'institut s'efforce ainsi de répondre aux enjeux de la transformation numérique de la science, de la société et de l'économie.

## L'essentiel pour réussir

There you can provide a "broad outline" of the collaborator you are looking for what you consider to be necessary and sufficient, and which may combine :

- tastes and appetencies,
- area of excellence,
- personality or character traits,
- cross-disciplinary knowledge and expertise...

This section enables the more formal list of skills to be completed and 'lightened' (reduced) :

- "Essential qualities in order to fulfil this assignment are feeling at ease in an environment of scientific dynamics and wanting to learn and listen."
- " Passionate about innovation, with expertise in Ruby on Rails development and strong influencing skills. A thesis in the field of \*\*\*\* is a real asset."

**Attention:** Les candidatures doivent être déposées en ligne sur le site Inria. Le traitement des candidatures adressées par d'autres canaux n'est pas garanti.

## Consignes pour postuler

Please submit online : your resume, cover letter and letters of recommendation eventually

### Sécurité défense :

Ce poste est susceptible d'être affecté dans une zone à régime restrictif (ZRR), telle que définie dans le décret n°2011-1425 relatif à la protection du potentiel scientifique et technique de la nation (PPST). L'autorisation d'accès à une zone est délivrée par le chef d'établissement, après avis ministériel favorable, tel que défini dans l'arrêté du 03 juillet 2012, relatif à la PPST. Un avis ministériel défavorable pour un poste affecté dans une ZRR aurait pour conséquence l'annulation du recrutement.

### Politique de recrutement :

Dans le cadre de sa politique diversité, tous les postes Inria sont accessibles aux personnes en situation de handicap.