Mission confiée

As part of this research, the goal of this PhD thesis would be to design the passive hybrid BCI which can be used to create a metric which relates to the user’s experience. It is passive because it augments electroencephalography (EEG) with eye tracking data, galvanic skin response (GSR), heart rate (HR) and movement in order to estimate the mental state of the user. It is easy to use and does not disrupt the user’s immersion in their own experience, and uses this information to adapt the application. It represents a significant improvement in BCI due to the emphasis on improved denoising facilitating operation in home environments and the development of robust classifiers capable of taking into account changes in the data.

We leverage our preliminary work in the use of deep learning and geometrical approaches to achieve this improvement in signal quality. The user state classification problem is ambitiously advanced to include recognition of attention, curiosity and memorability which we will address through advanced machine learning, Riemannian approaches and the collection of large representative datasets in co-designed user centred experiments.

Compétences

- EEG signal processing (temporal/spatial filtering, subspace identification, source reconstruction, etc)
- Machine Learning & Pattern Recognition for EEG classification
- Python / Matlab programming
- Skills in rigorous protocol design and running, including data collection
- Able to speak, write and work in an English speaking environment
- Experience with Electroencephalography (EEG) and/or BCI experiments is a strong plus
- Experience and/or skills in cognitive science (in particular psychology and neuroscience) is a strong plus

Avantages

- Subsidized meals
- Partial reimbursement of public transport costs
- Possibility of teleworking 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**

1982€ / month (before taxes) during the first 2 years, 2085€ / month (before taxes) during the third year.

défavorable pour un poste affecté dans une ZRR aurait pour conséquence l'annulation du recrutement.

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