2023-06513 – Research Engineer Position in Social Cognition F/M: Neural correlates of social skills in middle childhood

Contract type: Fixed-term contract
Renewable contract: Yes
Level of qualifications required: Graduate degree or equivalent
Function: Temporary scientific engineer

Context
Social interaction among children is crucial for the proper development of cognitive and social skills. However, how children acquire the ability to form social bonds with their peers remains poorly understood. One possibility for exploring this phenomenon is to simultaneously measure the brain activity of two children during social interaction, a technique that is called hyperscanning. Managing the hyperscanning apparatus and analyzing the results using newer machine learning approaches will be the job of the research engineer hired for this position.

Assignment
The engineer chosen for this project should have a broad range of skills including at least several of the following:

- Creative skills to build adapt scientific tasks so that they can be used by children, in ways that permit successful brain recordings.
- Experience with managing neuroscience experiments with children, including the use of the PsychoPy software.
- Background in hyperscanning methods, particularly with functional Near-Infrared Spectroscopy (fNIRS).
- Experience in neuroimaging data analysis, using machine learning tools for temporally-sensitive data, such as Random Forests, LSTM, etc.
- Interest in developmental psychology, education science, psycholinguistics, and/or embodied conversational agents.

S/he will work in a multi-disciplinary team to design a new scientific task that encourages children to engage in natural conversations. S/he will carry out experiments and will analyze the results. S/he will collaborate with other researchers in the group to apply results to the understanding of social skills in children, and how to best support them.

Main activities
- Design scientific tasks
- Carry out experiments
- Analyze their results
- Apply results to understanding of social cognition in middle childhood

Skills
Technical skills and level required: Solid knowledge in neuroscience, background in neuroimaging techniques (e.g. fNIRS, EEG), and competence in programming in Python with machine learning experience. Experience with NIRS Aurora and Hyperscan software is a plus.

Languages: French, English

Relationship skills: Ability to work in a team, and collaborate with others from different disciplines and backgrounds. Ability to work independently. Ability to manage other team members.

Theoretical background in one or several of the following field is desirable: cognitive science, linguistics, sociolinguistics, psychology, computer science, or computational neuroscience.

Benefits package
- Subsidised 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 and flexible organization of working hours (after 12 months of employment)
- Professional equipment available (videoconferencing, loan of computer equipment, etc.)
- Social, cultural and sports events and activities
- Access to vocational training

Remuneration
The remuneration will be established according to the profile and the experience of the candidate.