Postdoctoral Scholar Position in Social Cognition F/M: Neural correlates of social skills in middle childhood

2023-06514 - Post-Doctoral Research Visit F/M

**Contract type:** Fixed-term contract

**Renewable contract:** Yes

**Function:** Post-Doctoral Research Visit

**Level of qualifications required:** PhD or equivalent

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**Context**

The ArticuLabo research group at Inria Paris is seeking a highly motivated postdoctoral researcher to join a multidisciplinary team developing an exciting and ambitious research program at the intersection of social neuroscience and artificial intelligence. Specifically, we are developing ways to use hyperscanning techniques to better understand how children in middle childhood use language and nonverbal behavior to build and manage social relationships with peers. The results inform the design of innovative embodied conversational agents (ECAs) capable of helping children learn.

Recently, an ever-growing number of neuroimaging studies have shown that specific brain areas, such as the temporo-parietal junction, superior temporal sulcus, and prefrontal cortex, show evidence of synchronization (i.e., inter-brain or neural synchrony) in people who are engaged in joint social interactions. This observation results from the use of hyperscanning, a technique that allows the simultaneous recording of several brains.

**Assignment**

We are looking for someone with experience in neuroimaging of social cognition who can contribute meaningfully to this new era of hyperscanning research. Particularly, we are seeking someone who can assist in the design of rigorous naturalistic hyperscanning paradigms which investigate social phenomena such as collaboration, rapport, learning, and performance, and the analysis of the resulting data, preferably using newer machine learning analytic tools. In addition to investigating understudied phenomena of social cognition, these findings will eventually be utilized to improve a virtual peer—a conversational agent that builds bonds with children in the service of learning.

The project will involve investigating the neural mechanisms underlying social cognition in real-time interactions of child peer dyads aged 5–12 years old using fNIRS hyperscanning. The ideal candidate will have experience with fNIRS data acquisition and analysis, as well as strong programming skills in Python and experience in developmental psychology, cognitive science, learning science, and/or linguistics.

**Main activities**

The successful candidate will work closely with the principal investigator and other members of the research team to design, supervise and contribute meaningfully to research, conduct experiments, analyze data, and prepare manuscripts for publication in high-impact journals.

**Skills**

**Qualifications:**

- PhD in neuroscience, psychology, cognitive science, or a related field
- Experience with neuroscience data
- Experience in multidisciplinary cognitive science, social cognition in middle childhood, learning science, and/or developmental psychology
- Experience with scientific experiments involving children
- Familiarity with or interest in hyperscanning experimental design
- Strong programming skills preferably in Python and machine learning toolkits
- Experience with functional neuroimaging (preferably fNIRS and hyperscanning) and/or advanced time-series and/or multimodal data analysis and statistics
- Experience mentoring trainees and/or project management skills
- Excellent written and verbal communication in English and organizational skills
- Ability to work independently and as part of a team

**Bonus Qualifications:**

- Experience with PsychoPy, MNE, MNE-NIRs, and/or HyPYP
- Knowledge of French would be a significant plus but is not required
- Knowledge of machine learning methods to develop innovative methods of analysis
- Interest in neuro-AI to contribute to the implementation of powerful conversational agents

**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, parental leave, etc.)

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**General Information**

- **Theme/Domain:** Language, Speech and Audio
- **IT Technical and production engineering (BAP E)**
- **Inria Center:** Centre Inria de Paris
- **Starting date:** 2023-08-01
- **Duration of contract:** 3 years
- **Deadline to apply:** 2023-12-31

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**Contacts**

- **Inria Team:** COML
- **Recruiter:** Casselle Justine / justine.cassell@inria.fr

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**About Inria**

Inria is the French national research institute dedicated to digital science and technology. It employs 2,600 people. Its 200 agile project teams, generally run jointly with academic partners, include more than 3,500 scientists and engineers working to meet the challenges of digital technology, often at the interface with other disciplines. The Institute also employs numerous talents in over forty different professions. 900 research support staff contribute to the preparation and development of scientific and entrepreneurial projects that have a worldwide impact.

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**Instruction to apply**

This is a full-time position for up to three years. To apply for this postdoctoral scholar position, please upload to the Inria JobIn system a:

- An up-to-date CV
- A letter of motivation describing your experience and interests
- The names and contact information of 3 people who can write recommendations for you (please note that letters of recommendation will not be accepted—only names of recommenders that we will contact).

Contacts: Jade Jenkins / jade.jenkins@inria.fr and Justine Casselle / justine.cassell@inria.fr
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.

Defence Security:
This position is likely to be situated in a restricted area (ZRR), as defined in Decree No. 2011-1425 relating to the protection of national scientific and technical potential (PPST). Authorization to enter an area is granted by the director of the unit, following a favourable Ministerial decision, as defined in the decree of 3 July 2012 relating to the PPST. An unfavourable Ministerial decision in respect of a position situated in a ZRR would result in the cancellation of the appointment.

Recruitment Policy:
As part of its diversity policy, all Inria positions are accessible to people with disabilities.