



Job vacancy #2022-04457

Embodied dialogue System Research Engineer: Multimodal Dialogue that achieves both Task and Social Goals in Human-Computer dialogue

Contract type : Fixed-term contract

Renewable contract : Yes

Level of qualifications required : Graduate degree or equivalent

Fonction : Temporary scientific engineer

Level of experience : From 3 to 5 years

Context

The objective of this project is to build embodied conversational agents (also known as ECAs, or virtual humans, chatbots, or multimodal dialogue systems) that have the ability to engage their users using language and nonverbal behavior, both social and task talk, where the social talk serves to improve task performance. In order to achieve this objective, we model human-human conversation using deep learning methods, integrate the models into ECAs, and then evaluate their performance.

The research engineer chosen for this project will work in a multi-disciplinary team to develop a state of the art Embodied Conversational Agent system (including using existing code) that can engage in natural conversations with people. It will be demonstrated on a large screen at Inria (and also in other venues), and also used for human-computer interaction experiments.

Assignment

1. The engineer chosen for this project should have a broad range of skills including at least several of the following:
2. Strong programming skills, particularly in python and java, in order to manage and build upon our existing conversational agents code base. Ideal candidates should have prior experience in building multimodal real-time machine learning pipelines.
3. Implementing modules for speech recognition, intention recognition, dialogue management, and natural language generation, adapting some off-the-shelf products, and developing others.
4. Interfacing the dialogue system modules with competence modules such as intelligent tutors or recommendation systems.
5. Working with architectures that include nonverbal behavior recognition as well as speech recognition, and with architectures that include an animated agent implemented in Unity for nonverbal behavior generation.

For more information on the project, potential candidates should look at the SARA (Socially-Aware Robot Assistant) website at <http://articulab.hcii.cs.cmu.edu/projects/sara/> and read some of the publications associated with the project, here <http://articulab.hcii.cs.cmu.edu/publications/>

Main activities

Main activities :

- Clean datasets collected by other members of the team
- Build models of human behavior
- Improve the existing pipeline of the conversational agent and develop new modules
- Develop some Wizard of Oz modules for human-computer interaction experiments with the agent

Skills

Technical skills and level required: Solid competence in deep learning applied to dialogue systems, Solid competence in multimodal systems, advanced competence in programming in languages such as Python and Java, and use of tools such as Tensorflow and Pytorch.

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.

Other valued and appreciated: Background in one or several of the following: cognitive science, linguistics, conversational analysis, sociolinguistics, social cognition, learning science, social robotics

Benefits package

- 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

Remuneration

The remuneration is based on the diploma and the experience

General Information

- **Town/city** : Paris
- **Inria Center** : [Centre Inria de Paris](#)
- **Starting date** : 2023-05-01
- **Duration of contract** : 1 year
- **Deadline to apply** : 2023-12-31

Contacts

- **Inria Team** : AT-PRO
- **Recruiter** :
Cassell Justine / justine.cassell@inria.fr

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.

The keys to success

Passion for interdisciplinary research, at the nexus of AI and the Social Sciences, ability to work as part of a multi-disciplinary team with cognitive scientists and computer scientists.

Warning : you must enter your e-mail address in order to save your application to Inria. Applications must be submitted online on the Inria website. Processing of applications sent from other channels is not guaranteed.

Instruction to apply

In order to apply, please send:

- (1) a cover letter (lettre de motivation) describing your relevant experience,
- (2) a CV, and
- (3) the names and contact information of 3 people who can write letters of reference for you.

PLEASE NOTE: WE WILL NOT ACCEPT ANY LETTERS OF RECOMMENDATION SENT TO US BY THE CANDIDATE - YOU MUST ONLY SEND CONTACT INFORMATION FOR YOUR REFEREES.

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). Authorisation 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.

