A propos du centre ou de la direction fonctionnelle

Grenoble Rhône-Alpes Research Center groups together a few less than 800 people in 39 research teams and 8 research support departments.

Staff is localized on 5 campuses in Grenoble and Lyon, in close collaboration with labs, research and higher education institutions in Grenoble and Lyon, but also with the economic players in these areas.

Present in the fields of software, high-performance computing, Internet of things, image and data, but also simulation in oceanography and biology, it participates at the best of international scientific achievements and collaborations in both Europe and the rest of the world.

Contexte et atouts du poste

Group: The work will be carried out in the mOeX team common to INRIA LILIS. mOeX is dedicated to study knowledge evolution through adaptation. It gathers researchers which have taken an active part these past 15 years in the development of the semantic web and more specifically ontology matching and data interlinking.

This work is part of an ambitious program towards what we call cultural knowledge evolution partly funded by the MAI Knowledge communication and evolution chair and may be carried out in collaboration with international partners.

Mission confiée

By performing tasks, agents acquire knowledge that can be used in other contexts for other tasks. We aims at understanding how several agents performing, collaboratively or competitively, different tasks for achieving different goals, may acquire better knowledge.

Cultural knowledge evolution deals with the evolution of knowledge representation in a group of agents. For that purpose, cooperating agents adapt their knowledge to the situations they are exposed to and the feedback they receive from each other. This framework has been clarified in the context of evolving natural languages [Steels, 2012]. We have applied it to ontology alignment repair, i.e. the improvement of incorrect alignments [Euzenat, 2014, 2017]. We have shown that cultural repair is able to converge towards successful communication through improving the objective knowledge quality.

In most of the work so far, agents are designed for dealing with one single task. Hence, their knowledge is shaped for this particular task. However, pursuing several goals at once, and performing different tasks to that end, would benefit from developing non-specialised (multi-purpose) knowledge. It is expected that agents developing such knowledge would have more facility to address different tasks.

On the other side of the spectrum, we may consider societies of complementary and very specialised agents. This includes the competition of several agents able to perform the same specific task. Such societies are more specifically considered by economic approaches, in particular game theory.

As an example, one may consider agents pursuing different goals for subsisting: being fed and in good health. This involves various tasks such as growing food, producing medicine and providing care. In turns, this involves other tasks such as extracting matters, moving matter, manufacturing medicine, moving manufactured products such as food and medicine, training nurses, etc. To achieve their goals, all agents may be a gardener, a cook, a nurse, a nurse trainer and a transporter. Skills developed for transporting people, may be reused for transporting food and vice-versa, knowledge developed for training gardeners, may be reused for training pharmacists. However, in other societies agents may specialise into gardening, caring or teaching and the best at each task may be selected in a competitive market.

This thesis proposal thus considers two different dimensions together: on the one hand, whether agents are expected to perform one or several tasks; on the other hand, whether they work collaboratively, independently or competitively.

We consider cultural knowledge evolution in such a context with the aim to understand the impact of such an organisation on the knowledge developed by each agent and by the society as a whole. Knowledge may be considered under the light of its contribution to reaching the agents’ goals or for its own value, such as its correctness and completeness. Knowledge may also be measured at the level of the society. For instance, one may want to measure the degree at which the wealth is shared. In addition, we want to assess are the differential benefits of each approach: this may be short-term efficiency or long-term resilience.

These problems may be treated both theoretically or experimentally

References:


Informations générales

- Thème/Domaine : Représentation et traitement des données et des connaissances
- Infrastructure (TIC) (BAP E)
- Ville : Montbonnot
- Centre Inria : CRI Grenoble - Rhône-Alpes
- Date de prise de fonction souhaitée : 2020-10-01
- Durée de contrat : 3 ans
- Date limite pour postuler : 2020-07-05

Contacts

- Equipe Inria : MDE
- Directeur de thèse : Euzenat Jérôme / jerome.euzenat@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 200 équipes-projets agiles, en général communes avec des partenaires académiques, impliquent plus de 3500 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 180 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

We are looking for a candidate interested in multi-agent modelling and simulation in relation with knowledge representation. Curiosity for social models and methodologies may also be a useful point.

Consignes pour postuler

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.

Informations supplémentaires

- Type de contrat : CDD
- Niveau de diplôme exigé : Bac + 5 ou équivalent
- Fonction : Doctorant

Informations complémentaires

- Directeur de thèse :
  - Euzenat Jérôme / jerome.euzenat@inria.fr

Documents supplémentaires

Compétences
Qualification: Master or equivalent in computer science.

Recherchées skills:
- Curiosity and openness.
- Interaction with other researchers.
- Autonomous researcher.
- Taste for experimentation.
- Knowledge of multi-agent simulation and/or game theory not required but a plus.
- Innovative.

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
1st and 2nd year: 1,982 euros brut / month
3rd year: 2,085 euros brut / month