Offer #2022-05389

PhD Position F/M 3-year PhD position in Automatic Argumentation Mining in French Legal Decisions

Contract type : Fixed-term contract

Level of qualifications required : Graduate degree or equivalent

Fonction : PhD Position

About the research centre or Inria department

The Inria Lille - Nord Europe Research Centre was founded in 2008 and employs a staff of 360, including 300 scientists working in sixteen research teams. Recognised for its outstanding contribution to the socio-economic development of the Hauts-De-France région, the Inria Lille - Nord Europe Research Centre undertakes research in the field of computer science in collaboration with a range of academic, institutional and industrial partners.

 The strategy of the Centre is to develop an internationally renowned centre of excellence with a significant impact on the City of Lille and its surrounding area. It works to achieve this by pursuing a range of ambitious research projects in such fields of computer science as the intelligence of data and adaptive software systems. Building on the synergies between research and industry, Inria is a major contributor to skills and technology transfer in the field of computer science.

Context

We invite applications for a 3-year PhD position co-funded by Inria, the French national research institute in Computer Science and Applied Mathematics, and LexisNexis France, leader of legal information in France and subsidiary of the RELX Group.

The position is affiliated with the MAGNET, a research group at Inria, Lille, which has expertise in Machine Learning and Natural
Language Processing, in particular Discourse Processing. The PhD student will also work in close collaboration with the R&D team at
LexisNexis France, who will provide their expertise in the legal domain and the data they have collected.

Assignment

The overall objective of this project is to develop an automated system for detecting argumentation structures in French legal
decisions, using recent machine learning-based approaches (i.e. deep learning approaches). In the general case, these structures take the form of a directed labeled graph, whose nodes are the elements of the text (propositions or groups of propositions, not necessarily
contiguous) which serve as components of the argument, and edges are relations that signal the argumentative connections between them (e.g., support, offensive). By revealing the argumentation structure behind legal decisions, such a system will provide a crucial milestone towards their detailed understanding, their use by legal professionals, and above all contributes to greater transparency of justice.

Main activities

The main challenges of this project start with the creation and release of a large-scale dataset of French legal decisions annotated with argumentation structures. To minimize the manual annotation effort, we will resort to semi-supervised and transfer learning techniques to leverage existing argument mining corpora, such as the European Court of Human Rights (ECHR) corpus, as well as annotations already started by LexisNexis. Another promising research direction, which is likely to improve over state-of-the-art approaches, is to better model the dependencies between the different sub-tasks (argument span detection, argument typing, etc.) instead of learning these tasks independently. A third research avenue is to find innovative ways to inject the domain knowledge (in particular the rich legal ontology developed by LexisNexis) to enrich the representations used in these models. Finally, we would like to

take advantage of other discourse structures, such as coreference and rhetorical relations, conceived as auxiliary tasks in a multi-tasking architecture.

Skills

The successful candidate holds a Master's degree in computational linguistics, natural language processing, machine learning, ideally with prior experience in legal document processing and discourse processing.

Furthermore, the candidate will provide strong programming skills, expertise in machine learning approaches and is eager to work at the interplay between academia and industry.

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 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

Remuneration

1st and 2nd year : 2051 € Gross monthly salary (before taxes)

3rd year : 2158 € gross monthly salary (before taxes)

General Information

- **Theme/Domain** : Data and Knowledge Representation and Processing
  Statistics (Big data) (BAP E)
- **Town/city** : Villeneuve d'Ascq
- **Inria Center** : Centre Inria de l'Université de Lille
- **Starting date** : 2023-03-01
- **Duration of contract** : 3 years
- **Deadline to apply** : 2023-02-16

Contacts

- **Inria Team** : MAGNET
- **PhD Supervisor** :
  Denis Pascal / Pascal.Denis@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

The successful candidate holds a Master's degree in computational linguistics, natural language processing, machine learning, ideally
with prior experience in legal document processing and discourse processing. Furthermore, the candidate will provide strong programming skills, expertise in machine learning approaches and is eager to work at the interplay between academia and industry.

> **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

Applications will be considered until the position is filled. However, you are encouraged to apply early as we shall start processing the applications as and when they are received.
Applications, written in English, should be submitted online and should include:

* Curriculum Vitae (including your contact address, work experience, publications)
* Cover letter indicating your research interests and your motivation
* Contact information for at least 2 referees
Applications should be sent to: Aurélien Bellet, Pascal Denis, and
Mikaella Keller (firstname.lastname@inria.fr).

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.