Junior Professor Chair Project
Call for projects and applications

Research Laboratory in Computer Science:

LIFO, University of Orléans

(*Laboratoire d'Informatique Fondamentale d'Orléans*)

GENERAL PRESENTATION

LIFO, a research laboratory of the University of Orléans, has an open position for a junior professorship in computer science, with a specific focus on data-centric AI. The objective is to streamline the recruitment process for a contract of associate professor at the University of Orléans, ultimately culminating in their appointment as full professor.

The project aims to leverage the favorable environment, characterized by the recent establishment of a university hospital in Orléans and the introduction of a medical school. The objective is to cultivate a cross-cutting research focus within LIFO, specifically emphasizing health as an application domain.

GENERAL EXPLANATION OF THE POSITION

In France, the term "Chaire de Professeur Junior" (CPJ) refers to a prestigious academic position designed to support and promote researchers and academics at the beginning of their careers. This initiative is part of France's efforts to attract and retain talented young academics, providing them with the resources and stability they need to pursue cutting-edge research and make a significant contribution to their respective fields.

A junior professorship is generally a tenure-track position, offering young researchers the opportunity to establish their research program and academic career.

Each successful candidate will sign a research and teaching agreement with the institution, as well as a pre-tenure contract for a period of not less than three years and not more than six years.

The CPJ, sponsored by the National Research Agency (ANR), will receive funding of 200,000 euros for the duration of the chair. This funding can be augmented by additional support from regional sources and other entities. These financial resources will facilitate various aspects of the project, including the support of doctoral students, post-doctoral researchers, and IT contract personal. Additionally, the funds will be allocated to cover project-related expenses such as purchasing equipment and supporting travel and missions.

LEGISLATIVE AND REGULATORY FRAMEWORK

- Article L. 952-6-2 of the French Education Code
- Decree no. 2021-1710 of December 17, 2021 on the junior professorship contract provided for by article L. 952-6-2 of the Education Code
- Information notice from the Ministry : https://www.galaxie.enseignementsup-recherche.gouv.fr/ensup/cand_CPJ.htm

BRIEF PRESENTATION OF THE RESEARCH LABORATORY

LIFO (https://www.univ-orleans.fr/lifo/?lang=en) conducts extensive research across theoretical and applied domains, encompassing five specialized teams focused on graph and complexity, constraints and machine learning, semantics of programming languages and deductive program verification, databases and HPC, and the security of systems and data.

The laboratory stands on a strong scientific and socio-economic footing, contributing significantly at regional, national, and international scales. The current laboratory project is dedicated to support research within individual teams while encouraging stronger collaborations, with a particular emphasis on advancing work in the realms of health and the environment, where the laboratory has already established a substantial presence.

The emergence of data-centric deep learning is unveiling intricate challenges that demand interdisciplinary computational skills. This includes tasks such as data cleaning, management, anonymization, processing, and analysis on large datasets, presenting opportunities for fundamental research in software complexity, algorithms, and reliability. LIFO aims to reinforce this research direction, fostering collaboration primarily between two of the laboratory's teams while remaining receptive to broader interactions.

RESEARCH FOCUS OF THE JUNIOR PROFESSORSHIP PROJET

The project is centered on the synergy between data management and artificial intelligence, aiming to devise tools and methods for the dependable synthesis of knowledge through the analysis and exploration of extensive datasets. This becomes particularly important in light of generative artificial intelligences that produce content without adequate control. Key challenges encompass:

1. **Structuring Heterogeneous Data:** Especially in knowledge graphs, considering quality, consistency, and semantics within the specific application domain.

2. **Intelligent Querying Methods:** Developing methods for querying structured data that effectively integrate database tools with deep learning analysis tools.
3. **Extended Query Language:** Proposing an extended query language tailored for searching complexly related data, with a primary focus on knowledge graphs.
4. **High-Performance Computing (HPC):** Utilizing HPC for data processing to achieve efficient query evaluation.
5. **Explainable, Safe, and Fair Approaches:** Proposing approaches for automatic and interactive data prediction and analysis that are both explainable and adhere to principles of safety and fairness.

Application areas for these themes include health and/or the environment, involving collaborations with CHU of Orléans and BRGM.

REQUIREMENTS AND PROFILE

- PhD in Computer Science.
- Acknowledged scientific proficiency in one or more of the domains specified in the Junior Professor Chair project is anticipated.
- Mastery of the French language is expected to be achieved by the conclusion of the initial contract period.

Any French or international researcher with recognized expertise in the specified scientific fields is eligible to apply for this Chair. The candidate is expected to demonstrate an ability to transcend academic disciplinary boundaries.

EXPECTED RESULTS IN TERMS OF SCIENTIFIC DISSEMINATION

An initial four-year contract is anticipated for the recruited individual, during which the expected outcomes include:

- Conducting cutting-edge research in the field of data-centric AI, with a focus on promoting interdisciplinary collaborations and networking with other research laboratories, both domestically and internationally, to bolster a robust network.
- Making significant contributions to prominent conferences and journals.
- Demonstrating leadership in projects and research coordination: actively spearheading projects and fostering engagement from LIFO colleagues and interaction with other research structures.
- Providing mentorship to emerging researchers: Taking the lead in guiding young researchers, including supervising doctoral theses and actively participating in other doctoral supervisions.
- Engaging actively in LIFO scientific activities: regularly participating in scientific events and activities within the LIFO community. Play a significant role in the laboratory's initiatives aimed at making computer science concepts more accessible to lay audiences.
- Teaching 64 hours each year over the course of 4 years.

APPLICATION SUBMISSION AND CONTACT INFORMATION

Applications for the position should be submitted through the GALAXIE platform of the French Government, where the position will be published. Candidates are required to follow the instructions provided on the platform (see https://www.galaxie.enseignementsup-recherche.gouv.fr/ensup/cand_CPJ.htm).

Before submitting their application, candidates are encouraged to contact our research laboratory by sending their CV to direction.lifo@listes.univ-orleans.fr . Additionally, prospective candidates are warmly invited to schedule a visit to our laboratory, where they can gain further insight into our research environment, potentially present a talk, and engage in discussions with various colleagues. If geographical distance presents a challenge, virtual visits can also be arranged.

DATES (TBA)