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Research profile

IT and Data Sciences

The digital revolution is transforming society and the economy. A new era of scientific research has emerged, based on richness, manipulation and exploitation of data, one of the pillars of computer science. In these perspectives, scientific advances in a given discipline depend, in part, on how its researchers collaborate with each other and with computer scientists.

This is the concept of the 4th paradigm (http://www.astro.caltech.edu/~george/aybi199/4th_paradigm_book_complete_lr.pdf). The person who will be selected for this position will develop her/his research activities as part of the LIRIS' scientific orientations in data science, data taken in a broad sense (text, image, video, sound ...). These activities may include understanding, integration, modeling, analysis, knowledge discovery, or interaction / visualization. This professor position aims to strengthen the research activities of LIRIS on this research area. This position profile is therefore open and targets research in data science, provided that it fits into one of the LIRIS' teams (see https://liris.cnrs.fr/recherche/poles-et-equipes).

The person who will be selected for this position must have demonstrated a certain approach to carry out industrial transfer activities in «big data» applications in different fields of activity. A significant part of the research carried out at LIRIS extends to the border of the computer discipline, serving important societal issues. Some of our research activities are at the interfaces of engineering, humanities and social sciences, life sciences and environmental sciences.

Teaching profile

Our Computer Science and Information Technology curriculum requires a sound scientific and technical base in 4 major fields: "Software Development", "Information Systems", "Architecture, Systems and Networks" and "Mathematics and Modelling Tools". Our recent staff movements and our initiatives, in particular the redesign of all our teaching models in 2016, are such that our teaching needs are insufficiently covered, which has an impact on all of our training fields. The teaching need is therefore very open, though we have priority needs in data science (management and exploitation of large quantities of data, artificial intelligence and mathematics applied to data processing). We expect the executive recruited to quickly be involved in the management of the department in order to take strategic responsibility for the development of relationships with companies.

Interview

Compulsory scenario

Purpose of the scenario

Perceiving the applicant's teaching ability and his/her ability to adapt to an audience of students at levels L1 to L3 (1st to 3rd year of an undergraduate degree) on a subject related to the role's teaching profile. The subject will be specified in the invitation letter.

Scenario length

It represents approximately 20% of the total interview time. It must last longer than 3 minutes.

Equal treatment of applicants

As the scenario is incorporated into the interview, to ensure that the applicants are treated equally, each applicant's scenario will be conducted exclusively in front of the COS members.

- **Language** : During the interview, the applicant must speak in French with approximately 3 minutes in English (save for exceptional cases justified by the teaching needs).

- In order to strike a balance between training and research, the CAR (Regional Academic Commission) requires interviewed MCF and PR applicants to be informed that they must devote an approximately equal time to the training (including the scenario) and research components during their interview.

Example of how time is divided during the interview: 10 min on the research project, 10 min on the training project including 5 min for the scenario, 15 min of questions (the 3 minutes in English are incorporated into one of the previous parts)

Research laboratory description

The Laboratoire d'InfoRmatique en Image et Systèmes d'information (LIRIS) is a research unit (UMR 5205) affiliated to CNRS, INSA Lyon, Université Claude Bernard Lyon 1, Université Lumière Lyon 2 and Ecole Centrale de Lyon. It includes 330 members. Its main scientific research area is Computer Science, and more generally Sciences & Information Technologies.

A significant part of the research conducted at LIRIS lies at the leading edge of our discipline, looking at major societal issues. Some of our research activities are at the interfaces with engineering, human and social sciences, life sciences and environmental sciences. The laboratory's 6 areas of expertise contribute in a balanced way to optimise our research work. Moreover, the LIRIS maintains numerous links with its social, economic and cultural environment at local, regional and national levels. Interactions with companies are based on collaborative projects.

The LIRIS covers scientific themes organised in 6 areas of expertise and has 14 teams:

- **Computer Vision and Pattern Recognition** (team: IMAGINE)
- **Geometry and modeling** (teams: GEOMOD and M2DISCO)
- **Data Science** (teams: BD, DM2L and GOAL)
- **Services, Distributed Systems, and Security** (teams: DRIM and SOC)
- **Simulation, virtuality, and computational sciences** (teams: BEAGLE, R3AM and SAARA)
- **Interactions and cognition** (teams: SICAL, SMA and TWEAK)

The work of the research teams also has applications in the following areas: Biology and health (modelling of life mechanisms, engineering for health), Ambient intelligence (pervasive and distributed systems, intelligent monitoring, stand-alone systems), Human learning (personalisation, cognitive support, collaborative learning support, serious gaming, digital entertainment), Scientific computing (processing large quantities of data – big data).

Teaching department description

The Computer Science and Information Technology Department trains engineers with multiple skills related to information processing. The education system is designed to support the acquisition of both scientific and technical skills related to engineering, design, and project management. Upon leaving the school, our engineers are operational in various careers (studies, development and software integration, information system architecture, technical expertise, R&D, etc.). Internships and Final Year Projects allow them to broaden their experience in a professional context over a total period of at least 10 months during the "engineer" cycle.