Distributed systems

The Computer Science Department is looking for a Professor who can effectively address the teaching of distributed systems. The design of the curriculum should be done with appropriate pedagogical methods and be in line with the state of the art in industry. Due to INSA de Lyon's pedagogical philosophy, these courses will have practical goals and aim for the development of skills in the field of computer engineering. The recruited Professor will play an important role in the animation of the pedagogical team of the computer science department.

The applicant must attest competencies in the fields of distributed systems architecture and middleware.

Flexibility, the ability to listen and collaborate is desirable assets for a successful integration in the Computer Science Department.

Research profile

Big Data

The LIRIS is actively involved in major projects related to the management of large data sets, especially with regards to the «Mastodons» challenges of CNRS, the «LabEx» IMU («Intelligence des Mondes Urbains») and the Great Lyon. The LIRIS today needs a research leader in order to strengthen this activity. The selected candidate will get involved in the interface of the LIRIS with IMU in terms of coordinating the activities of researchers from LIRIS involved in IMU, interface with many requests stemming from other IMU’s partners (research teams, practitioners and industrial partners).

We are looking for a research leader who should display an internationally recognized research activity in the area of large data management. The candidate has to propose a research project in order to integrate one of three research teams of LIRIS: BD (Data Bases), DM2L (Data Mining), DRIM (Data management in distributed systems).
Research Fields
- Informatics
- Database management
- Data mining
- Distributed systems

URL
http://liris.cnrs.fr/

Research laboratory description

LIRIS (Laboratoire d’InfoRmatique en Image et Systèmes d’information) is a research center on Information Science and Technology. LIRIS is affiliated to CNRS (Centre National de Recherche Scientifique) under the label UMR 5205. The laboratory involves 320 researchers from INSA de Lyon, Université Claude Bernard Lyon 1, Ecole Centrale de Lyon, Université Lumière Lyon 2 and CNRS. It is organized in six areas of skills of 20-25 permanents. Each of the 12 research teams belongs to one of these areas:

- **Computer Vision and Pattern Recognition** (IMAGINE and M2DISCO research teams): automatically understanding multimedia data (images, video, digital documents, 3D scenes): acquisition/reconstruction, indexing, modeling, classification or automatic content recognition (objects, actions, concepts). Skills: signal and image processing (filtering, segmentation, feature extraction), machine learning and pattern recognition (connectionist, statistical and structural approaches), information fusion, constraint programming, discrete and continuous optimization

- **Geometry and modeling** (GEOMOD and M2DISCO research teams): computational geometry, discrete geometry, geometric and topological modeling, 3D reconstruction and interactive creation, procedural modeling, geometry processing of meshes and discrete shapes (feature extraction, indexing and retrieval, compression, watermarking, segmentation, visualization), topological modeling

- **Data Science** (BD, DM2L and GRAMA research teams): to provide adequate answers to the explosive deluge of digital data, this research group aims to promote fertilization between different complementary areas of computer sciences related to data modeling, algorithmic, graph theory and combinatorics, data mining and statistical learning or languages and systems for databases.

- **Services, Distributed Systems, and Security** (DRIM and SOC research teams): proliferation, discovery and composition of software and data services deployed over the Internet, quality of service and fault tolerance, security, trust, reputation, content adaptation and personalization, reliable information sharing and dissemination

- **Simulation, virtuality, and computational sciences** (BEAGLE, R3AM and SAARA research teams): this research group aims to acquire, understand, model, simulate and render our environment from the realistic simulation to mathematical modeling continuum. Along the real-virtual continuum, the following skills are acquisition / modeling / interpretation / rendering of scenes, animation, computational biology, artificial evolution, multi-scale models, perception models, reaction / diffusion models in particle systems, augmented reality, computer graphics, artificial life. On the methods plan, the following skills are present: intensive and parallel computing, scientific computing, stochastic methods, self-centered modeling, computer vision, bio-mechanical simulation, multi-physics simulation

- **Interactions and cognition** (GRAMA and SILEX research teams): this research group analyses, designs and develops dynamic digital systems in which agents (human or software systems) interact. The researchers focus both on individual properties of agents, and on properties of the system as a whole. In particular, they are interested in the cognitive abilities of those systems. Skills: knowledge dynamics and traced experience, Computer Environment for Human Learning, interactive systems, multi-agents systems

The laboratory leads research on fundamental issues in these six areas. It also develops know-how with strong impacts on society and closely with the other scientific disciplines (engineering, Humanities and Social Sciences, Environmental Sciences and Life Sciences):

- **Culture and heritage** (digital libraries, critical edition, digitization of ancient documents, archiving, 3D virtual museums…)

- **Environment et urban world**: intelligent building, 3D modeling of the cities, Geographical Information Systems, mobility, transport optimization

- **Biology and health** (data mining, complex systems modeling and analysis, e-health…)

- **Ambient intelligence** (pervasive systems, sensor networks, intelligent video surveillance, secured communicating objects…)

- **Human learning** (personalization, cognitive assistance, collaborative learning…)

- **Digital entertainment** (video games, animated cinema, multimedia data processing…)

- **Big data management**, processing, visualization