

## Research profile

### Distributed Big Data, Distributed Services

Given the challenges introduced by the digital world in all domains and the exceptional growth of produced data volumes, new approaches based on new computing models (e.g. MapReduce) or on services that can configure the access and manipulation environments of such distributed and heterogeneous data have started to emerge.

Numerous scientific and technological challenges still need to be addressed in order to produce techniques and tools that are scalable and can ensure acceptable flexibility levels. The profile of this position falls within the context described and relates to at least one of the following research areas:

1. Modelling of distributed services, verification of interaction properties between distributed services, security of service-based complex systems,
2. Management and access to distributed and linked data.

## Teaching profile

### Tools and methods of Software Engineering, Advanced Programming

The successful applicant will teach modules in the following topics: Tools and Methods of Software Engineering, Algorithms and Programming, Computers Architectures, Networks and Systems. Diversified teaching competences are therefore required in modeling (UML, MERISE), analyze and design methods, database (Oracle, SQL Server, MySQL, etc.), programming languages (Java, C, etc.), and system oriented programming.

Skills and experience with Software Engineering tools and programming environments as well as the ability to teach in English would be highly appreciated. The teaching will be in 'DUT' (a Diploma of Higher Education in computing) and 'Licences Professionnelles' (1 year apprenticeship & top up degree) DEVOPS, ESSIR and SID.

The recruited applicant will participate actively in the running of the Computer Science Department, will have to assume administrative responsibilities and collective charges. Participation in innovative educational projects and actions to increase the success of students, particularly those with technological Baccalauréates, would be appreciated.

## 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 327 researchers from INSA 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 14 research teams belongs to one of these areas:

- **Computer Vision and Pattern Recognition** (IMAGINE research team): 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, water-

Workplace:

LIRIS

Director:

**Mohand-Saïd Hacid**  
00 33 (0)4.72.43.27.74  
00 33 (0)6.17.02.27.20

[mohand-said.hacid@liris.cnrs.fr](mailto:mohand-said.hacid@liris.cnrs.fr)

URL

<http://fst-informatique.univ-lyon1.fr/>

L'audition des candidats comprendra une mise en situation professionnelle selon les modalités suivantes :

- Une leçon sur un sujet imposé de niveau 1<sup>er</sup> cycle ;
- Durée de présentation : 10 à 15 minutes ;
- Non publique.

L'organisation de la mise en situation sera indiquée sur la convocation à l'audition.

Teaching Department:

IUT - Département Informatique

Workplace:

Université Claude Bernard Lyon 1

Contact:

**Anne Corrigan**  
00 33 (0)6 81 20 71 50  
[anne.corrigan@univ-lyon1.fr](mailto:anne.corrigan@univ-lyon1.fr)

URL

<http://liris.cnrs.fr/>

marking, segmentation, visualization), topological modeling

- **Data Science** (BD, DM2L and GOAL 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** (SICAL, SMA and TWEAK 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