Teaching profile

Industrial Informatics, Information Systems, Computer Networks

The teacher will make the link between the different courses in Computer Science planned in 3rd and 4th year (Computer networks, Databases, XML, HCI, Information Systems, Data Warehousing ...).

He (she) will introduce the various communication channels in a company’s information system in a course on Architecture of industrial information systems. He (she) will develop a project based on a production activity and distributed architecture constraints (cloud), tracing activity, and computer security.

The successful applicant will participate in designing innovative teaching strategies, particularly project-based learning and serious games. In this context, he (she) will animate the Lab work “Puissance 7”, a serious game dedicated to problem-solving methodology.

He (she) will be involved in different Lab works in computer science for 3rd year students, as well as in the supervision of internships and student projects.

Generally speaking, knowledge of the business world through experiences and projects in industrial context will be appreciated, particularly in relation to goods or services production systems.

In the context of the current reform of the training at INSA de Lyon, the successful applicant could contribute to the coordination of interventions in relation to the Industrial Engineering department.

Keywords:
industrial information systems, computer networks, serious games

Research profile

Adaptive and Interactive Systems, Intelligent Tutoring System, Serious Games, Disabilities

The selected candidate will join the SILEX research group, of the LIRIS Laboratory. The candidate will have to fit in the research program of the team, especially to contribute to current and future projects in the fields of Intelligent Tutoring System, Serious Games and Assistive Technologies for people with disabilities.

Skills related to the other research topics of the group will be appreciated.

The candidate will get involved in the organization of SILEX, and will contribute to developing and spreading its values and scientific visions (student supervision, research community animation, national and international partnerships, project building, industrial partnerships, etc.).

As second priority, candidates for the other teams of LIRIS laboratory could be considered. The integration projects should show a scientific collaboration with the SILEX team.
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