

# BD Team Databases

**Laboratoire d'InfoRmatique en Image et Systèmes d'information**  
LIRIS UMR 5205 CNRS / INSA de Lyon / Université Claude Bernard Lyon 1 / Université Lumière Lyon 2 / Ecole Centrale de Lyon

Our activities are centered on principles, techniques, and applications of data management systems. In this context, data are produced by various sources (e.g. classical data, sensor data, service data) and applications rely on various storage mediums (e.g. RAM, flash memory disks, hard disks) with very different technical features. Our approach is derived from methods of Database domain both at the theoretical level (algebraic and logical languages, data dependencies) and at the system level (storage techniques, indexing and query optimization).

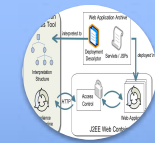
## Research axes



Management of Dynamic Environments



Data Quality, Integrity, and Availability



Data and Services Security and Confidentiality

Intelligent Buildings

## Scientific skills and societal challenges

### Scientific skills

- Foundations of database: languages and constraints
- Data semantics, non conventional data sources
- Multidimensional modeling
- Query optimization
- Security

### Societal challenges

- Intelligent buildings
- Big data
- Urban monitoring
- Master data management

## The team

### Members

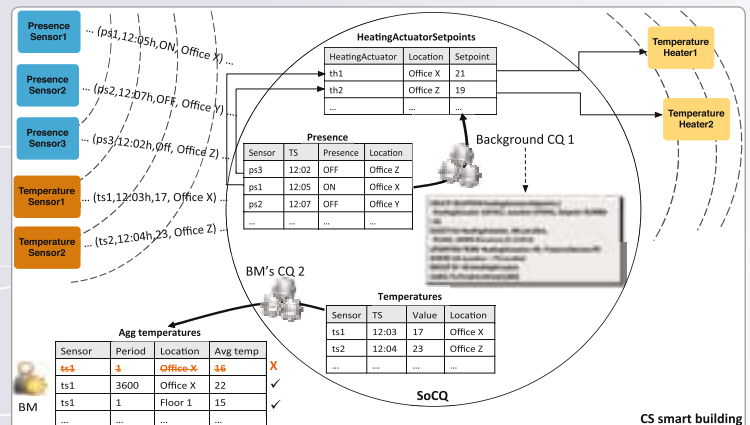
- 4 Professors
- 13 Associate Professors
- 9 PhD students

### Defended PhD Thesis

- 4 per year in average

## Highlights

- Organization of VLDB 2009, 750 participants, 44 countries represented.
- Design and implementation of a declarative, SQL-like, language (SoCQ) for managing of data, data streams and services. Application to intelligent buildings (1 ANR project, 1 regional project, 3 INSA projects) and to robotics (1 CNRS-JSPS project).
- Numerous fundings, including 2 European projects (FP7 Network of Excellence and FT7 STREP), 3 bilateral projects (USA, Japan, Norway) and 5 ANR projects.
- Integration of Prof. Hassan Aït-Kaci of an ANR Chair of Excellence (University Lyon 1), ex-senior scientist IBM (Canada) and ILOG (France, USA).



## Contacts

### Coordinator

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### Website

[liris.cnrs.fr/bd/](http://liris.cnrs.fr/bd/)

## Softwares and platforms

- SoCQ4Home (<http://liris.cnrs.fr/socq4home>): it federated the group's works about sensor data and it helped to initiate interdisciplinary partnerships (especially thermic and social studies). Funding from CNRS, INSA (3 BQR), and 1 regional project.
- RQL software (<http://rql.insa-lyon.fr>): RQL generalizes the discovery of functional dependencies in relational database to any kind of rules that conform to the syntactical restrictions of the language (ANR DAG project).



## Positioning

### International context

- Organization of VLDB 2009 (750 participants), IEEE/WIC/ACM WI-IAT (350 participants), 6th French-Japanese workshop ISIP 2011 (50 participants)
- 3 bilateral projects with:
  - Japan (Data Stream Management for Mobile Robots, CNRS/JSPS, University of Kyushu)
  - Norway (KOGAR: Knowledge Gardening in the Web of Data)
  - USA (Cybersecurity Collaboratory-Cyberspace Threat Identification, Analysis and Proactive Response, Partner University Fund, University of Arizona (USA), 2012-2015)
- 2 European projects (STREP FP7 COMPAS, NoE S-Cube)

### National context

- Organization of national congresses : summer school Web Intelligence, July 2010 (65 participants), GDR MAGIS (GDR in geomatics and spatial analysis), June 2013 (90 participants), and SAR-SSI in may 2014 (50 participants)
- 7 ANR projects, 2 Mastodons projects, 1 FUI

### Regional context

- 3 projects funded by Région Rhône-Alpes

### Industrial partnerships

- Anticipéo, EDF R&D, Orchestra Networks, SAP, Systar

### International relationships

- Algeria, Belgium, Italy, Japan, Norway, USA



## Reuves et conférences

- Journal of Decision Systems
- Transactions on Large-scale Data and Knowledge-centred Systems
- Journal of Intelligent Information Systems
- Distributed and Parallel Databases
- Journal on Data Semantics
- International Journal of Cooperative Information Systems
- International Conference on Extending Database Technology (EDBT)
- International Conference on Database and Expert Systems Applications (DEXA)
- International Conference on Database Systems for Advanced Applications (DASFAA)
- European Conference on Artificial Intelligence (ECAI)
- International Information Security and Privacy Conference (ICPS)
- Bases de données Avancées (BDA)

