SILEX Group
Supporting Interaction and Learning by Experience

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 research questions are organized around three strongly articulated themes :

- Knowledge dynamics and traced experience
- Co-design of situated learning environments
- Interactive and adaptive systems

We consider the coupling of users and computers as a learning and co-evolving system. Observing this system with modeled traces of activity enables us to propose original answers to questions related to the construction of knowledge, to understanding and supporting users, and to the adaptation of systems to users.

Striking facts
- Toolkit for trace management (http://tbs-platform.org/)
- Pilot project CNRS COAT (Connaissances Ouvertes à Tous) for supporting research on MOOCs
- Organization of international conferences in Lyon: WWW 2012 and ICCBR 2012
- Involvement in W3C, participation to the definition of recommendations (video annotation: http://www.w3.org/TR/mediaont-10/)
- Associate member of the Excellence Network GaLA (Game and Learning Alliance)

The team in numbers
■ Members
4 Professors
12 Assistant Professors
23 Ph.D. students
■ Theses defended
3 to 4 per year on average

Skills and societal impact
■ Skills
- Reasoning on traced experiences
- Experience modeling in modeled traces systems
- User assistance
- Personalization in TEL: modeling learners, creation of activities adapted to them
- Document modeling for video annotation
- HCI: Engineering interactive systems, and design methods
- Regulation in collaborative activities
- New learning methods : Serious Games, collaborative learning, mixed reality based learning.

■ Societal impact
- Collection, transformation and processing of interaction traces in digital environments
- Improving and facilitating access to learning through MOOCs with auto-evaluation and adaptation to the learners' behaviors.
- Rethinking interaction in distributed environments to cope with the variety of digital devices
- Tackle the challenge of Artificial Intelligence by studying experience based reasoning in the context of developmental learning.

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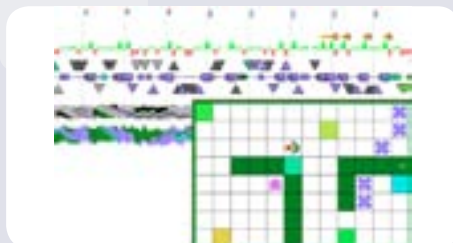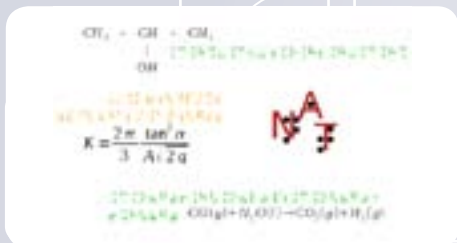
Toolkits and software

- TBS toolkit: interoperable tool chain facilitating the design of trace base systems; including kTBS, the teams' trace management kernel
- PupInt: middleware for supporting the development and experimentation with interactive multi-touch standing desks - supports pairing, communication, data exchange and fluid interaction between desks and mobile devices
- AMBRE-add: learning environment for teaching problem solving in elementary school (Web version)
- Eprofilea: unified environment for shared exploitation of heterogeneous learners' profiles
- SEPIA: environment for design and execution of personalized epiphytic assistance systems
- GOAL: Web platform enabling the generation of Serious Games scenarios

Network and collaborations

International

- Implication in iW3cs, participation to W3C work groups (Media Annotation, RDF, Linked Data Platform)
- Several international collaborations (hosting of 4 invited professors, stay abroad of two team members, strong mobility of students)

National

- Active members of scientific societies : AFIA, ARCo, ATIEF, AFIHM, IFRATH
- Funded projects (ANR, FUI) : JENLab (ANR), CLAIRE (e-education 1), Knowledge Cartography (e-education 2), Robot Populi (FUI), CLES (NKM serious games), Ideal (ANR RP-DOC), Kolflow (ANR), OFS (FUI), Ozalid (FUI)

Local

- Project « Personnalization in TEL », cluster ISLE
- Animation Actions ARC6 « Web of knowledge, history and memory », « Good Privacy for Traces », « Design of new Serious Games for improving learning processes »
- Travel supported by Région Rhônes Alpes via Explora Doc and Explora Pro

Relations with industry

- Adeneo Embedded, Awabot, Artefacts Studio, Corexpert, EADS, EDF - GDF, Educlever (Maxicours), France Telecom - Orange, Gerip, Grand Lyon, Intellysurf, IRI (Institut de Recherche et d'Innovation), Jamespot, Kiniro, Knowings, MACIF, OpenClassrooms, Urbilog, SEB, Symetrix, Total Immersion, Web Service pour l'éducation.

International relations

- Algeria, Germany, Canada, China, U.S.A., New Zealand

Journals and conferences

- Knowledge Based Systems (KBS)
- Expert Systems
- International Journal on Artificial Intelligence in Education (IJAIED)
- International Journal of Learning Technologies (IJLT)
- IEEE Transactions on Learning Technologies (TLT)
- International Conference on Case-Based Reasoning (ICCBR)
- International Conference on Advanced Learning Technologies (ICALT)
- Computer Supported Education (CSEDU)
- Intelligent Tutoring Systems (ITS)
- European Semantic Web Conference (ESWC)
- World Wide Web (WWW)
- Artificial Intelligence in Education (AIED)