

TWEAK Team

Traces, Web, Education, Adaptation, Knowledge

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

The TWEAK team works in the domains of Artificial Intelligence and Knowledge Engineering and specifically explores Technology Enhanced Learning (TEL) and Web-based systems.

We are mostly interested in the co-evolution of the human-machine system in digital environments, with a knowledge-oriented stance. We propose models and tools in domains such as cooking, MOOCs and the Web of Things. Most of our tools rely on efficient semantic Web technologies.

Scientific skills and societal challenges

Scientific skills

- Trace-based Reasoning
- Knowledge acquisition
- Knowledge modeling in trace-based systems
- User assistance
- Personalization of TEL systems: learner models, adaptation of activities
- Client-side knowledge processing
- Activity analysis in digital environments

Societal challenges

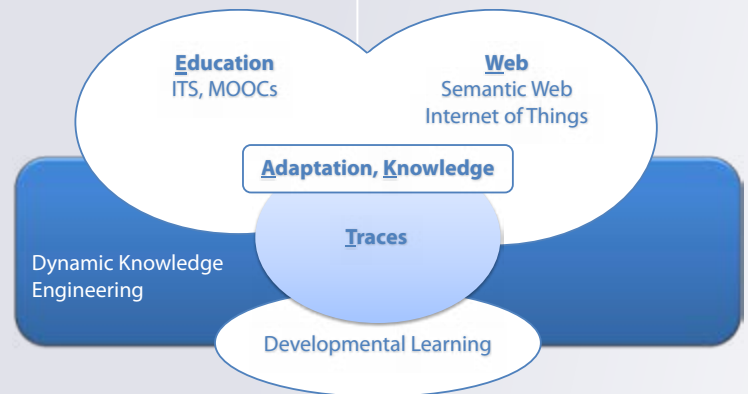
- Collecting, transforming and exploiting interaction traces in our digital environments.
- Improving and facilitating access to learning in MOOCs through auto-evaluation and learner's path adaptation
- Addressing AI challenges by studying trace-based reasoning in the context of developmental learning
- Leveraging the use of semantic technologies in modern Web applications

The team

Members

- 2 Professors
- 6 Associate Professors
- 8 PhD students

Team established in January 2015



Highlights

- Creation of a platform for building trace-based systems (<http://tbs-platform.org/>)
- CNRS pilot mission COAT (Connaissances Ouvertes à Tous) to support research on MOOCs
- Organization of international conferences in Lyon: WWW 2012 and ICCBR 2012
- Participation to W3C working groups and recommendations (including the Media Annotation Ontology: <http://www.w3.org/TR/mediaont-10/>)
- Publication of the MOOC IDEAL (<http://liris.cnrs.fr/ideal/mooc>)

Contacts

Coordinator

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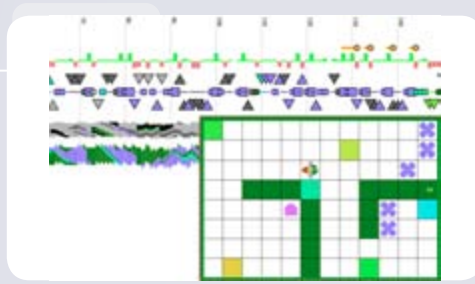
Website

liris.cnrs.fr/tweak/



Softwares and platforms

- TBS platform: set of interoperable tools for building trace-based system, including kTBS (kernel for Trace Based System) <http://tbs-platform.org/>
- AMBRE-add: an Intelligent Tutoring System to teach problem solving methods in primary school (Web version)
- Eprofilea: a unified environment for exploiting heterogeneous learner profiles
- SEPIA: an environment for specifying and executing epiphytic personalized assistance systems
- ASKER: a Authoring tool for aSsessingKnowledge genERating exeRcises
- RDF-REST.js: a Javascript framework for developing semantic web-based applications



Positioning

International context

- Implication in iW3C2, participation to W3C working groups (Media Annotation, RDF, Linked Data Platform) and interest groups (Web of Things)
- Numerous international collaborations (hosting of four invited researchers, two researchers from the team invited abroad, high mobility of PhD students)

National context

- Active members of learned societies of our fields: AFIA, ARCo, ATIEF
- Funded projects (ANR, FUI): CLAIRE (e-education 1), Cartographie des savoirs (e-education 2), Ideal (ANR RP-DOC), Kolflow (ANR), OFS (FUI), Ozalid (FUI), HUBBLE (ANR), Orphée (Réseau ANR)

Regional context

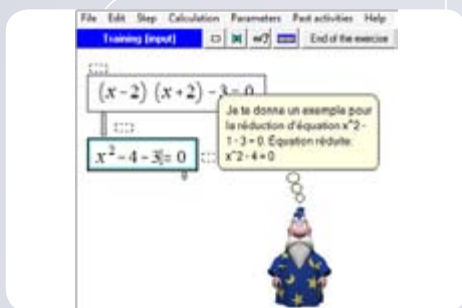
- Project « Personnalisation des EIAH » of cluster ISLE
- ARC6 Animation Actions « Web de savoir, d'histoire et de mémoire », « Good Privacy for Traces »
- Researchers mobility (Explora Doc, Explora Pro)
- Links with the local business environment through events (Blend Web Mix) and workshops (Connected Objects) (Blend Web Mix)

Industrial partnerships

- EADS, EDF - GDF, Educlever (Maxicours), France Telecom - Orange, Gerip, Grand Lyon, IRI (Institut de Recherche et d'Innovation), Jamespot, Knowings, MACIF, OpenClassrooms, Urbilog, SEB

International relationships

- Algeria, Canada, USA, Ireland, New-Zealand, UK



International journals and conferences

- KBS (Knowledge Based Systems)
- Expert Systems
- IJAIED (International Journal on Artificial Intelligence in Education)
- IJLT (International Journal of Learning Technologies)
- IEEE TLT (Transactions on Learning Technologies)
- IEEE IC (Internet Computing)
- Journal of Systems and Software
- ICCBR (International Conference on Case-Based Reasoning)
- EKAW (Knowledge Engineering and Knowledge Management)
- ICALT (International Conference on Advanced Learning Technologies)
- CSEDU (Computer Supported Education)
- ITS (Intelligent Tutoring Systems)
- AIED (Artificial Intelligence in Education)
- ESWC (European Semantic Web Conference)
- WWW (World Wide Web)
- IEEE International Conference on Enabling Technologies
- International Conference on Electronic Commerce and Web Technologies

