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Empowering Human Connected Communities

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► **To cite this version:**

Stefano A. Cerri. Empowering Human Connected Communities. CBIE'2012: Congresso Brasileiro de Informatica na Educaçao, Nov 2012, Rio de Janeiro, Brazil. lirmm-00799140


HAL Id: lirmm-00799140

<https://hal-lirmm.ccsd.cnrs.fr/lirmm-00799140>

Submitted on 11 Mar 2013

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 Laboratoire d'Informatique et de Robotique de Montpellier
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Empowering human connected communities (part 2)

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November 27th, 2012
 Congresso Brasileiro de Informática na Educação UFPA & UNIRIO, Rio de Janeiro, Brazil

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Outline #0

1. What to do and why to do it?
2. How to do it ?
3. Ongoing projects

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Outline #3: Ongoing projects
 sharing the ideas

- human Discovery & Science construction
 - in science: **ENCORE**: chemistry -> done
 - in science: **CoObs** & **Viewpoints**: ecology
 - in science: **SIFR**: biomedicine
- human Learning
 - in education: **Didael KTS**:
Multimedia and Digital Technologies:
Formal and Informal Learning
- human Creativity
 - in art: **EMPIU**: music

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Projects are scenarios

- Classification according to a viewpoint
- A **service oriented** view:
 - **Semantics**
 - **Agents**
 - autonomous + communicating;
 - **Human + artificial**
 - **Distributed**, concurrent
 - Processes and data

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CoObs (Courtesy of Philippe Lemoisson, CIRAD)

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CoObs (Courtesy of Philippe Lemoisson, CIRAD)
 the life cycle of "mass learning" for action

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Viewpoints
 (Courtesy of Philippe Lemoisson, CIRAD)

- Goal: to emerge actionable knowledge from digital multimedia and multilingual content, at the scale of a community
- Concept: a computer supported open, continuously evolving knowledge space populated by high level objects, rhetorical agents, artificial agents, multimedia and multilingual content, multilingual topic, ontological concepts.
- Collective intelligence will emerge from self-organization in this complex system.
- A set of protocols will rule the knowledge space. While the artificial agents will be in charge of mining, pre-translating, summarizing the textual documents and retrieving multimedia content, the institutional agents will tag the multimedia content, and express opinions, assessments and feedback upon retrievals.
- continuous learning, i.e. adaptability to the evolution of semantics
- self-organization of knowledge, i.e. emergence of concepts and mainstreams
- resilience with respect to the evolution of knowledge
- scalability, i.e. full acceptance of the merging of communities
- transparency, i.e. no hidden arbitrations

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Logics on top of Viewpoints
 contacts: philippe.lemoisson@cirad.fr, cerri@lirmm.fr

Goal: to compute formalized knowledge
 A conversation between agents owning logical reasoning abilities

3 speech acts:

- assertives
- directives
- commissives

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Semantic indexing of biomedical resources

16.4 Billion Annotations

2.4M terms
 200 ontologies
 0.5M elements
 22 sources


Courtesy of Clément Jonquet

Enabling Translational Discoveries with Integration of Biomedical Data

In biomedicine, the wealth of publicly accessible biomedical data is beginning to enable cross-cutting integrative translational biomedical studies. **Translational scientific discoveries** could be made by mining and crossing biomedical resources.

Biomedical researchers have turned to **ontologies and terminologies** to structure and annotate their data (i.e., experimental data sets, diseases, experimental conditions, clinical trial descriptions, published papers) with ontology concepts for better search and retrieval.

LIRMM will continue and enhance an already existing collaboration with the **National Center for Biomedical Ontologies** at Stanford University which is developing the **Biological web ontology repository (<http://www.biological-ontology.org/>)**, a platform of ontology based services highly used in the biomedical community.




Courtesy of Clément Jonquet

Annotation challenge

- Explosion of biomedical data: diverse, distributed, unstructured... not linked to ontologies
- Hard for biomedical researchers to find the data they need
 - Data integration problem
 - Translational discoveries are prevented
- Good examples
 - GO annotations
 - PubMed (biomedical literature) indexed with Mesh headings
- Annotate data with ontology concepts

Courtesy of Clément Jonquet



Multimedia and Digital Tehnologies: Formal and Informal Learning



The scenario of the future: innovation and technologies



LCD TELEVISION GLASS
Large format, Ultra Thin, Formless Design

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K-61 - 3000 LIRMM research

Women & Technologies: a winning pair

Gianna Martiniago
Manager and President of Women&Technologies Association



EMPIU

EMPIU: EMIPIU Music Interactive Platform for Internet User

Courtesy of Goffredo Haus and Gianna Martiniago

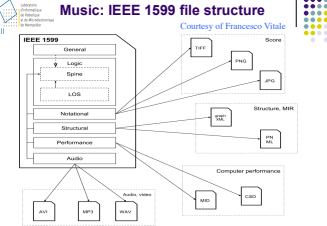
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Music: IEEE 1599 file structure

Courtesy of Francesco Vitale



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EMPIU

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Ave Maria (Gounod)
Por una cabeza (Carlos Gardel)

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Obrigado Thank you Merci
Grazie Danke

Claudia Metta,
Augusta Nunes,
Pascal Dégézie,
Philippe Lemoisson,
Clément Jonquet,
Gianna Martiniago,
Goffredo Haus,
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Grazie Danke Bedankt



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