AgroPortal: an ontology repository for agronomy

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CALL FOR DEMONSTRATION

2017 EFITA CONGRESS

EUROPEAN CONFERENCE DEDICATED TO THE FUTURE USE OF ICT IN THE AGRI-FOOD SECTOR, BIORESOURCE AND BIOMASS SECTOR

I. About your profile

demonstration coordinator	Last name and first name	Clement Jonquet
	Area of expertise	Informatics, Ontologies & vocabularies, Metadata & standards, Semantic Web, Linked Data, Knowledge organization systems, Knowledge engineering.
	E-mail address	jonquet@lirmm.fr
	Phone number	+1 650 723 6725
Your organization	Name of your organization	LIRMM Laboratory of Informatics, Robotics and Microelectronics of Montpellier (LIRMM), University of Montpellier & CNRS, France. Visiting scholar at Stanford Center for Biomedical Informatics Research, Stanford University
	Organization description and activity	The LIRMM – Laboratory of Informatics, Robotics, and Microelectronics of Montpellier (www.lirmm.fr) is a 350-person cross-faculty research entity of the UM and the National Center for Scientific Research (CNRS). LIRMM research activities cover a broad range of topics, including: design and verification of integrated, mobile and communicating systems, modeling of complex systems, research on algorithms, bioinformatics, human-machine interaction, robotics, database, distributed systems, AI, knowledge engineering and more. LIRMM's Informatics department counts 85 permanent researchers, and more than 70 PhD candidates. Several research teams (ADVANSE, SMILE, GRAPHIK, TEXTE) have good expertise in knowledge engineering, semantic Web, text mining, services and agronomical/biomedical ontologies. Stanford Center for Biomedical Informatics Research (BMIR) (http://bmir.stanford.edu) is a division in the Department of Medicine within Stanford University School of Medicine. It is home to world class scientists and trainees developing cutting-edge approaches to acquiring, representing, processing, and managing knowledge and data related to health, health care, and the biomedical sciences. BMIR encompasses 8 full-time faculty, approximately 20 research staff, post-doctoral trainees, graduate students and administrative support staff. BMIR develops the Protégé ontology editor (http://protege.stanford.edu) now used by thousands of ontologists and developers worldwide to build intelligent computer systems and semantic application for eScience. The National Center for Biomedical Ontology (NCBO) (http://www.bioontology.org) is one of the 8 NCBCs founded under the US National Institutes of Health (NIH) Roadmap to promote the use of biomedical ontologies.
	Address of the organization	161 Rue Ada, 34090 Montpellier, France
	Website	www.lirmm.fr

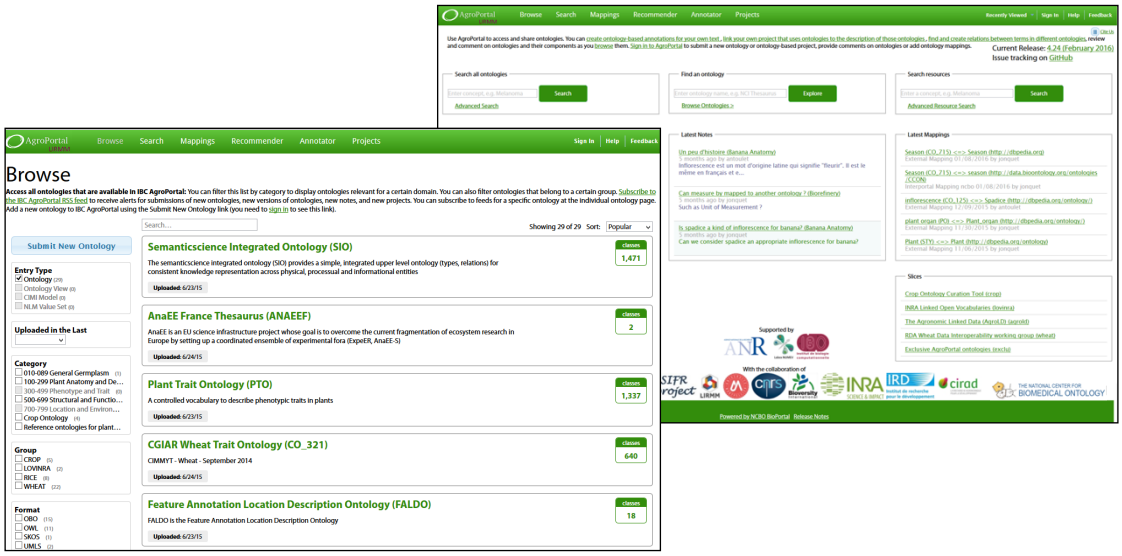
II. About your demonstration

Demonstration title	AgroPortal: an ontology repository for agronomy
Key word(s)	ontologies, standard vocabularies, ontology repository, ontology mapping, semantic annotation, ontology recommendation, agronomy, plant, food, biodiversity
Technical content of the demonstration	The demonstration will show the features offered by the portal, including: - to search and browse across all the ontologies, - to annotate a piece of text with all the ontologies, - to store and serve mappings between ontologies (within the portal or not), - to recommend ontologies for given text input, - to list project using ontologies. - ontology versioning, UI widgets, ontology metrics - community feedback (comment, subscription to ontology changes), users' management, private access to ontologies. In addition, two endpoints allow automatic querying of the content of the portal: (i) a REST web service API (http://data.agroportal.lirmm.fr) and (ii) a SPARQL endpoint (http://sparql.agroportal.lirmm.fr). They will be shortly illustrated also.

Relevance to conference topic and track	Relevant to topic group “Semantic interoperability and Knowledge Management”
Originality of the demonstration and its content	We have now an advanced prototype platform (http://agroportal.lirmm.fr) that currently hosts 62 ontologies or vocabularies – including 4 privates ones and 40 not originally present in BioPortal or any public repository. We have identified 77 candidate ontologies and we are working daily to import new ones while involving/informing the original ontology developers. The platform counts already 51 registered users. Examples of ontologies uploaded in AgroPortal:

Title	Group	Classes
IBP Rice Trait Ontology (CO_320)	CROP, RICE	2066
IBP Wheat Trait Ontology (CO_321)	CROP, WHEAT	1023
IBP Wheat Anatomy & Development Ontology (CO_121)	CROP, WHEAT	77
IBP Crop Research (CO_715)	CROP	256
FAO-IPGRI Multi-Crop Passport Ontology (CO_020)	CROP	87
Biorefinery (BIOREFINERY)	LOVINRA	287
Matter Transfer(TRANSMAT)	LOVINRA	1125
Plant Ontology (PO)	WHEAT, RICE	1728
Plant Trait Ontology (TO)	WHEAT, RICE	2258
Durum Wheat (DURUM_WHEAT)	LOVINRA	127
Agricultural Experiments (OAE)	LOVINRA	59
Environment Ontology (ENVO)	WHEAT	6191
NCBI Organismal Classification (NCBITAXON)	WHEAT	906907

Screenshots of the AgroPortal user interface:



A description of your demo that will appear in the program	Many vocabularies and ontologies are produced to represent and annotate agronomic data. Therefore, there is a need of a common platform to identify, host and use them in agro-informatics application. By reusing the NCBO BioPortal technology, we have designed AgroPortal an ontology repository for the agronomy domain. The AgroPortal project aims at reusing the scientific outcomes and experience of the biomedical domain in the context of plant, agronomy, food, and biodiversity. We offer an ontology portal which features ontology hosting, search, versioning, visualization, comment, recommendation, enables semantic annotation, as well as storing and exploiting ontology alignments. All of these within a fully semantic web compliant infrastructure. The AgroPortal specifically pays attention to respect the requirements of the agronomic community in terms of ontology formats (e.g., SKOS, trait dictionaries) or supported features. In this demonstration, we will present our platform currently open and accessible at http://agroportal.lirmm.fr.
Acknowledge-ments	This work is partly achieved within the Semantic Indexing of French biomedical Resources (SIFR – www.lirmm.fr/sifr) project that received funding from the French National Research Agency (grant ANR-12-JS02-01001), the European Union’s Horizon 2020 research and innovation programme under the Marie Sklodowska-Curie grant agreement No 701771, the NUMEV Labex (grant ANR-10-LABX-20), the Computational Biology Institute of Montpellier (grant ANR-11-BINF-0002), as well as by the University of Montpellier and the CNRS.

Demonstration requirements	Materials needed	Duration of Preparation. Duration of Demo	Space needs	Safety considerations
	Reliable internet connection and video projector.	*20 minutes demonstration*	*NA*	*NA*