
Book of Abstracts and Presentation of Keynote Speakers



7th Metadata and Semantics
Research Conference, MTSR 2013
Thessaloniki, Greece
November 19-22, 2013
Book of Abstracts

Design and Content by

Emmanouel Garoufallou

Theodora Plakotari

Damiana Koutsomiha

Alexander Technological Educational Institute of Thessaloniki

ISBN

Table of Contents

General Information	8
Organization and Committees	9
Presentation Keynote Speakers	19
Book of Abstracts	21
General Session - Content management	
A semantic model for personal consent management	21
Storing metadata as QR codes in multimedia streams	21
Semantic mapping in CLARIN component metadata	22
Leveraging semantics to represent and compute quantitative indexes. The RDFIndex approach	22
Using metadata standards to improve national and IMF data	23
Track on European and National projects	
Semantic accessibility to e-learning web services	23
Exploring the potential for mapping Schema.org microdata and the web of linked data	23
Effective Use of Metadata: From DITA XML to Semantic MediaWiki	24
Track on Metadata and Semantics for Cultural Collections and Applications	
Federating natural history museums in natural Europe	25
Toward common ontologies of facets of the archival access portal	25
A meta-model agreement for architectural heritage	26
Highlights of library data models in the era of linked open data	26
Track on Metadata and Semantics for Agriculture, Food and Environment	
agriOpenLink: towards adaptive agricultural processes enabled by open interfaces, linked data and services	27

Issues in harvesting resources from agricultural repositories	27
Preliminary work towards publishing vocabularies for germplasm and soil data as linked data	28
Ontology-based representation of scientific laws on beef production and consumption	28
Semantic shared spaces for task allocation in a robotic fleet for precision agriculture	29

Keynote Speech

Rethinking the Search Experience: What could professional search systems do better?	29
---	----

General Session - Platforms for research data sets, system architecture and data management

Advancing the DFC semantic technology platform via HIVE innovation	30
Metadata, domain specific languages and visualizations as internal artifacts driving an agile knowledge engineering methodology	30
OAIzer: configurable OAI exports over relational databases	30
Tools and techniques for assessing metadata quality	31
Linking search results, bibliographical ontologies and linked open data resources	31
A simple approach towards SKOSification of digital repositories	31

Track on Big Data and Digital Libraries in Health, Science and Technology

The semantics of negation detection in archaeological grey literature	32
A preliminary approach on ontology-based visual query formulation for big data	32
1-5 stars: metadata on the openness level of open data sets in Europe	33
Personalized vaccination using ontology based profiling	33
Metadata requirements for repositories in health informatics research: evidence from the analysis of social media citations	34

Big data for enhanced learning analytics: a case for large-scale comparative assessments	34
--	----

Track on Metadata and Semantics for Open Repositories, Research Information Systems and Data Infrastructures

Semantically enhanced interactions between heterogeneous data life-cycles: analyzing educational lexica in a virtual research environment	35
Integrating heterogeneous and distributed information about marine species through a top level ontology	35
A semantic approach for the annotation of figures: application to high-energy physics	36
Towards a stepwise method for unifying and reconciling corporate names in public contracts metadata: The CORFU technique	36
Merging controlled vocabularies through semantic alignment based on linked data	37
Transient and persistent RDF views over relational databases in the context of digital repositories	37
Document mark-up for different users and purposes	37

Keynote Speech

Towards a Semantic Research Library: Digital Humanities Research, Europeana and the Linked Data Paradigm	38
--	----

General Session - Metadata and Ontology validation, evaluation, mapping and interoperability

Encoding provenance metadata for social science datasets	38
Using metadata to facilitate understanding and certification of assertions about the preservation properties of a preservation system	39
CMSs, linked data and semantics: a linked data mashup over drupal for personalized search	39
Cross-language ontology alignment utilizing machine translation models	40

Applying the nominal group technique for metadata training of domain experts	40
Perceived helpfulness of Dublin Core semantics: an empirical study	40
Track on European and National projects	
An ontology-based knowledge model for marketing decision support in Tourism	41
The BlogForever project	42
General Session - Platforms for research data sets, system architecture and data management	
Change and a Future for Metadata	42
Author Index	43

General Information

M TSR is considered as the prime event in semantic technologies in Europe and brings together about 200 participants from all over Europe, the USA, Australia and other countries. Continuing the successful mission of previous M TSR Conferences (M TSR'05, M TSR'07, M TSR'09, M TSR'10, M TSR'11 and M TSR'12), the seventh International Conference on Metadata and Semantics Research (M TSR'13) aims to bring together scholars and practitioners that share a common interest in the interdisciplinary field of metadata, linked data and ontologies. Proceedings will be published by Springer's CCIS (Communications in Computer and Information Science) Book Series. The proceedings will be abstracted/indexed in: Scopus, EI-Compendex, DBLP, Google Scholar, Mathematical Reviews, SCImago. CCIS volumes are also submitted for the inclusion in ISI Proceedings. Revised and extended versions of best papers will be published in selected international journals, including the International Journal of Metadata, Semantics and Ontologies (Inderscience), and Program: Electronic library and information systems (Emerald). These facts signal our commitment to attracting more practitioners from the world of libraries and archives, as well as addressing the concerns of the local community of information professionals.

Organization and Committees

Program Chairs

Garoufallou, Emmanouel (Chair) Alexander Technological Educational Institute
of Thessaloniki, Greece

Greenberg, Jane (Co-Chair) University of North Carolina at Chapel Hill,
USA

Organization Chairs

Siatra, Rania Alexander Technological Educational Institute
of Thessaloniki, Greece

Manghi, Paolo Institute of Information Science and
Technologies (ISTI), National Research
Council, Italy

Houssos, Nikos National Documentation Center (EKT), Greece

Hartley, R.J. Manchester Metropolitan University, UK

Special Track Chair

Balatsoukas, Panos University of Manchester, UK

Conference Steering Committee

Sicilia, Miguel-Angel University of Alcalá, Spain

Manouselis, Nikos Agro-Know Technologies, Greece

Sartori, Fabio Università degli Studi di Milano-Bicocca, Italy

Dodero, Juan Manuel University of Cádiz, Spain

Local Organizing Committee

Plakotari, Dora Alexander Technological Educational Institute
of Thessaloniki, Greece

Theodoridou, Christina Alexander Technological Educational Institute
of Thessaloniki, Greece

Hatzilia, Margarita Alexander Technological Educational Institute
of Thessaloniki, Greece

Christianoudis, Ioannis	Alexander Technological Educational Institute of Thessaloniki, Greece
Koutsomiha, Damiana	American Farm School, Greece
Gaitanou, Panorea	Ionian University, Greece
Ioannidis, Giannis	Alexander Technological Educational Institute of Thessaloniki, Greece
Rousidis, Dimitris	University of Alcalá, Spain
Mouskeftaropoulou, Elena	Alexander Technological Educational Institute of Thessaloniki, Greece
Noulas, Nikolaos	Alexander Technological Educational Institute of Thessaloniki, Greece
Paraskeuopoulos, Kostas	Alexander Technological Educational Institute of Thessaloniki, Greece

Program Committee

Akerkar, Rajendra	Western Norway Research Institute, Norway
Altun, Arif	Hacetepe University, Turkey
Athnasiadis, Ioannis N.	Democritus University of Thrace, Greece
Balatsoukas, Panos	University of Manchester, UK
Bartol, Tomaz	University of Ljubljana, Slovenia
Caracciolo, Caterina	Food and Agriculture Organization of the United Nations, Italy
Cechinel, Christian	Federal University of Pampa, Brazil
Chebotko, Artem	University of Texas - Pan American, USA
Closs, Sissi	Karlsruhe University of Applied Sciences, Germany
Costopoulou, Constantina	Agricultural University of Athens, Greece
Cunningham, Sally Jo	Waikato University, New Zealand
Escribano Otero, Juan José	Universidad Europea de Madrid, Spain
Dogdu, Erdogan	TOBB Teknoloji ve Ekonomi University,

Turkey

Dodero, Juan Manuel	University of Cádiz, Spain
Foulonneau, Muriel	Tudor Public Research Centre, Luxemburg
Gaitanou, Panorea	Ionian University, Greece
Garoufallou, Emmanouel	Alexander Technological Educational Institute of Thessaloniki, Greece
Gergatsoulis, Manolis	Ionian University, Greece
Greenberg, Jane	University of North Carolina at Chapel Hill, USA
Hartley, R.J.	Manchester Metropolitan University, UK
Houssos, Nikos	National Documentation Center (EKT), Greece
Iglesias, Carlos A.	Universidad Politecnica de Madrid, Spain
Jaiswal, Pankaj	Oregon State University, USA
Jorg, Brigitte	UKOL, UK
Kanellopoulos, Dimitris	University of Patras, Greece
Kapidakis, Sarantos	Ionian University, Greece
Kop, Christian	University of Klagenfurt, Austria
Manghi, Paolo	Institute of Information Science and Technologies (ISTI), National Research Council, Italy
Manouselis, Nikos	Agro-Know Technologies, Greece
Moen, William	University of North Texas, USA
O'Brien, Ann	Loughborough University, UK
Ochoa, Xavier	Centro de Tecnologias de Informacion Guayaquil, Equador
Okur, Mehmet C.	Yaşar University, Turkey
Colomo-Palacios, Ricardo	Universidad Carlos III, Spain

Palmonari, Matteo	University of Milano-Bicocca, Italy
Papaleo, Laura	University of Genova, Italy
Papatheodorou, Christos	Ionian University, Greece
Poulos, Marios	Ionian University, Greece
Prabhakar, T. V.	Indian Institute of Technology Kanpur, India
Sanchez, Salvador	University of Alcalá, Spain
Sartori, Fabio	Università degli Studi di Milano-Bicocca, Italy
Senkul, Pinar	METU, Turkey
Sgouropoulou, Cleo	Technological Educational Institute, Athens, Greece
Sicilia, Miguel-Ángel	University of Alcalá, Spain
Sugimoto, Shigeo	University of Tsukuba, Japan
Ternier, Stefaan	Open University of the Netherlands, Netherlands
Tonkin, Emma	University of Bath, UK
Zschocke, Thomas	United Nations University, Germany

Referees

Rousidis, Dimitris	David King
Antonopoulou, Stavroula	Nikolaos Korfiatis
Christoph Schindler	Maltesh Motebennur
Koutsomiha, Damiana	Athena Salaba
Mouskeftaropoulou, Elena	Vangelis Banos
Sfakakis, Michalis	Siatiri, Rania
Zafeiriou, Georgia	

Track on Big data and Digital Libraries in Health, Science and Technology

Special Track Chairs

Garoufallou, Emmanouel (Chair) Alexander Technological Educational Institute
of Thessaloniki, Greece

Balatsoukas, Panos (Co-Chair) University of Manchester, UK

Program Committee

Chen, Bin Stanford University, USA

Couch, Philip University of Manchester, UK

Grabar, Natalia Université Lille 3, France

Grant, Maria University of Salford, UK

Hartley, R.J. Manchester Metropolitan University, UK

Jansen, Ludger University of Rostock, Germany

Kuo, Alex University of Victoria, Canada

McCusker, James Yale University, and Rensselaer Polytechnic
Institute, USA

Nykanen, Pirkko University of Tampere, Finland

O'Brien, Ann Loughborough University, UK

Rubin, Eitan Ben-Gurion University of the Negev, Israel
O'Sullivan, Dympna City University, UK

Sicilia, Miguel-Angel University of Alcalá, Spain

Urquhart, Christine Aberystwyth University, UK

Wang, Fusheng Emory University, USA

Weller, Peter City University, UK

Track on European and National Projects, and Project Networking

Special Track Chair

Garoufallou, Emmanouel Alexander Technological Educational Institute
of Thessaloniki, Greece

Programme Committee

Antonopoulou, Stavroula American Farm School

Balatsoukas, Panos University of Manchester, UK

Gaitanou, Panorea Ionian University, Greece

Greenberg, Jane University of North Carolina at Chapel Hill,
USA

Hartley, R.J. Manchester Metropolitan University, UK

Houssos, Nikos National Documentation Center (EKT), Greece

Koutsomiha, Damiana American Farm School

Manghi, Paolo Institute of Information Science and
Technologies (ISTI), National Research
Council, Italy

Mouskeftaropoulou, Elena Alexander Technological Educational Institute
of Thessaloniki, Greece

Rousidis, Dimitris University of Alcalá, Spain

Siatiri, Rania Alexander Technological Educational Institute
of Thessaloniki, Greece

Sicilia, Miguel-Angel University of Alcalá, Spain

Track on Metadata and Semantics for Open Repositories, Research Information Systems and Data Infrastructures

Special Track Chairs

Subirats, Imma	Food and Agriculture Organization of the United Nations, Italy
Houssos, Nikos	National Documentation Centre, Greece

Program Committee

Baker, Thomas	DC, USA
Besemer, Hugo	Wageningen UR Library, The Netherlands
Dunshire, Gordon	University of Strathclyde, UK
Elbadawi, Ibrahim Ahmed	Federal Government, United Arab Emirates
Grosser, Stephanie	US Agency for International Development, USA
Guru, Siddeswara	University of Queensland, Australia
Luzi, Daniela	Institute for Population and Social Policy Research - Italian National Research Council (IRPPS- CNR), Italy
Jack, Kris	Mendeley, UK
Jeffery, Keith	Keith G Jeffery Consultants, UK
Jörg, Brigitte	UKOLN, University of Bath, UK
Koskela, Rebecca	University of New Mexico, USA
Manghi, Paolo	Institute of Information Science and Technologies (ISTI), National Research Council, Italy
Manola, Natalia	University of Athens, Greece
Matthews, Brian	Science and Technology Facilities Council, UK

Qin, Jian	Syracuse University, USA
Schöpfel, Joachim	University of Lille, France
Shin, Edwin	MediaShelf, USA
Stathopoulos, Panagiotis	National Documentation Center (EKT), Greece
Tzitzikas, Yannis	University of Crete and ICS-FORTH, Greece
Zeng, Marcia	Kent State University, USA
Vila, Daniel	Polytechnic University of Madrid, Spain
Wang, Zhong	Sun – Yat – Sen University, China

Track on Metadata & Semantics for Cultural Collections & Applications

Special Track Chairs

Gergatsoulis, Manolis	Ionian University, Greece
-----------------------	---------------------------

Program Committee

Bountouri, Lina	General State Archives, Greece
Dekkers, Makx	Independent consultant, Spain
Francesco, Giuliana De	Cultural Heritage and Technical Assistance Division, Council of Europe
Gradmann, Stefan	Leuven University, Belgium
Isaac, Antoine	Vrije Universiteit Amsterdam, The Netherlands
Lourdi, Irene	University of Athens, Greece
Masci, Maria Emilia	Scuola Normale Superiore di Pisa, Italy
Meghini, Carlo	National Research Council of Italy (ISTI-CNR), Italy
Papatheodorou, Christos	Ionian University and Digital Curation Unit, IMIS, Athena RC, Greece
Sfakakis, Michalis	National Documentation Centre (EKT), Greece
Stead, Stephen	Paveprime Ltd., UK
Tsinaraki, Chrisa	Technical University of Crete, Greece

Tudhope, Douglas University of Glamorgan, UK

Track on Metadata and Semantics for Agriculture, Food and Environment

Program Chairs

Athanasiadis, Ioannis N. Democritus University of Thrace, Greece

Manouselis, Nikos Agro-Know Technologies, Greece

Pane, Juan Universidad Nacional de Asunción, Paraguay,
Universidad de Trento, Italy

Special Track Steering Committee

Keizer, Johannes Food and Agriculture Organization of the
United Nations, Italy

Rizzoli, Andrea E. IDSIA, Switzerland

Janssen, Sander. Alterra, Wageningen UR, The Netherlands

Program Committee

Baez, Marcos University of Trento, Italy

Brewster, Christopher Aston Business School, Aston University, UK

Caracciolo, Caterina Food and Agriculture Organization of the United Nations,
Italy

Drakos, Andreas Agro-Know Technologies, Greece

Ebner, Hannes Metasolutions, Sweden

Hénaff, Diane Le INRA RD 10, France

Houssos, Nikos National Documentation Center (EKT), Greece

Konstantopoulos, Stasinios NCSR Demokritos, Greece

Lezcano, Leonardo University of Alcalá, Spain

Palavitsinis, Nikos Agro-Know Technologies, Greece

Protonotarios, Vassilis Agro-Know Technologies, Greece

Rodriguez, Carlos University of Trento, Italy

Vaccari, Lorenzino

Autonomous Province of Trento, Italy

Verhelst, Lieke

Informagic, The Netherlands

Vignare, Karen

University of Maryland, University College, USA

Keynote Speakers



Towards a Semantic Research Library: Digital Humanities Research, Europeana and the Linked Data Paradigm

Dr. Stefan Gradmann is a full Professor in the Arts department of KU Leuven (Belgium) as well as director of the University Library. Besides his continuing focus on knowledge management and semantically based operations his research and teaching covers digital libraries and web based information architectures, with a special emphasis on the digital humanities. His third area of expertise is document management and document lifecycle management. The overall background of his work is an integrated view of the scientific information lifecycle with emphasis on interoperability and open, standards based methods of modelling this scholarly information continuum - both in technical terms as in an e-scholarship perspective. He studied Greek, philosophy and German literature in Paris and Freiburg (Brsg.) and received his Ph.D in Freiburg in 1986 in German Literature Studies. He has worked as scientific librarian in various managerial positions and later was Deputy Director of the University of

Hamburg Regional Computing Center before occupying a chair of Library and Information Science at Humboldt-Universität zu Berlin / Berlin School of Library and Information Sciences with a focus on knowledge management and semantically based operations from 2008 to 2013. His working languages are German, English, French and Dutch.

Humanities Computing: Stefan was an international advisor for the ACLS Commission on Cyberinfrastructure for the Humanities and Social Sciences, and as such has contributed to the report "Our Cultural Commonwealth". Furthermore, he has been leading the EC funded project Digitised Manuscripts to Europeana (DM2E).

Europeana: He has been heavily involved in building Europeana, the European Digital Library, from its very beginnings. More specifically he was leading work on technical and semantic interoperability and has been a co-author of the graph based Europeana Data Model (EDM) and triggered Europeana's involvement in the LoD community. **Presidence DGI:** Since December 2008 Stefan Gradmann is president of the Deutsche Gesellschaft für Informationswissenschaft und Informationspraxis (DGI). With more than 1000 institutional and some 200 personal members DGI is a major player in the area of information science.



Rethinking the Search Experience: What could professional search systems do better?

Dr Michail Salampasis is an associate professor at the department of Informatics of the Alexander TEI of Thessaloniki. He holds a B.Sc. in Informatics (1993) from the department of Informatics of the ATEI of Thessaloniki in Greece. He has a Ph.D. in Computing from the School of Computing & Engineering of the University of Sunderland in UK (1997). He was candidate for the best PhD thesis award in UK. This is a significant acknowledgment of research work of exceptional quality. His main research interests are in applied and interdisciplinary studies in information science, including models and experiments related to information seeking behaviour, information seeking in large professional search systems, Web information seeking and evaluation, distributed information retrieval including source selection and results merging algorithms, search systems usability testing, information seeking using multiple strategies/interfaces. He

currently is the coordinator of the Cost Action “[Multilingual and Multifaceted Interactive Information Access \(MUMIA\)](#)” and a Marie Curie Fellow at the [Institute of Software Technology and Interactive Systems](#), Vienna University of Technology leading a research program for Personalised Federated Patent Search Systems (PerFedPat). Michail Salampasis is a member of various scientific organisations and special interesting groups, served as program and general chair in several conferences and [has published about 60 papers](#) in refereed journals, conferences and book chapters in various fields of computing.

Book of Abstracts

General Session - Content management

A Semantic Model for Personal Consent Management

Ozgu Can
Ege University, Department of Computer Engineering,
35100 Bornova-Izmir, Turkey
ozgu.can@ege.edu.tr

Data protection and privacy has a significant importance in information sharing mechanisms, especially in domains that handle with sensitive information. The knowledge that can be inferred from this sensitive information may unveil the consumer's personal information. Consumers should control who can access their consent data and for what purposes this data will be used. Therefore, information sharing requires effective policies to protect the personal data and to ensure the consumer's privacy needs. As different consumers have different privacy levels, each consumer should determine one's own consent policy. Beside ensuring personal privacy, information sharing to obtain personal data usage for acceptable reasons should be endorsed. This work proposes a semantic web based personal consent management model. In this model, consumers specify their consent data and create their personal consent policy for their consent data according to their privacy concerns. Thus, personalized consumer privacy for consent management will be ensured and reasonable information sharing for the personal data usage will be supported.

Keywords: Consent Management, Privacy, Semantic Web

Storing metadata as QR codes in multimedia streams

Athanasios Zigomitrosa, Constantinos Patsakis^b
^aDepartment of Informatics, University of Piraeus, Piraeus, Greece & Institute for the
Management of Information Systems, _Athena_ Research Center, Greece.
^bDistributed Systems Group, School of Computer Science and Statistics, Trinity College,
College Green, Dublin 2, Ireland.

With the continuous adoption of the web and the increase of connection speeds, people are more and more sharing multimedia content. The main problem that is created by this approach is that the shared content become less and less search-friendly. The information that is shared, cannot be easily queried, so a big part of the web becomes inaccessible. To this end, there is a big shift towards adopting new metadata standards for image and video that can efficiently help with queries over image and videos. In this work we extend our proposed method of embedding metadata as QR codes in gray scale images, to color video files with a slightly modified algorithm to make the decoding faster. We then examine the experimental results regarding the compressed file size, using a lossless encoding and the distortion of the frames of the video files. Storing the metadata inside the multimedia stream with QR format has several advantages and possible new uses that are going to be discussed.

Keywords: QR codes, video metadata, LSB

Semantic Mapping in CLARIN Component Metadata

Matej Durco¹ and Menzo Windhouwer²

¹ matej.durco@assoc.oeaw.ac.at

Institute for Corpus Linguistics and Text Technology (ICLTT), Vienna, Austria

² menzo.windhouwer@dans.knaw.nl

The Language Archive - DANS, The Hague, The Netherlands

In recent years, large scale initiatives like CLARIN set out to overcome the notorious heterogeneity of metadata formats in the domain of language resource. The CLARIN Component Metadata Infrastructure established means for exible resouce descriptions for the domain of language resources. The Data Category Registry ISOcat and the accompanying Relation Registry foster semantic interoperability within the growing heterogeneous collection of metadata records. This paper describes the CMD Infrastructure focusing on the facilities for semantic mapping, and gives also an overview of the current status in the joint component metadata domain.

Keywords: semantic mapping, metadata, research infrastructure

Leveraging semantics to represent and compute quantitative indexes. The RDFIndex approach.

Jose María Álvarez-Rodríguez¹, José Emilio Labra-Gayo², and Patricia Ordoñez de Pablos²

¹ South East European Research Center,

54622, Thessaloniki, Greece

jmalvarez@seerc.org

² WESO Research Group, Department of Computer Science, University of Oviedo,

33007, Oviedo, Spain.

{labra,patriop}@uniovi.es

The compilation of key performance indicators (KPIs) in just one value is becoming a challenging task in certain domains to summarize data and information. In this context, policymakers are continuously gathering and analyzing statistical data with the aim of providing objective measures about a specific policy, activity, product or service and making some kind of decision. Nevertheless existing tools and techniques based on traditional processes are preventing a proper use of the new dynamic and data environment avoiding more timely, adaptable and flexible (on-demand) quantitative index creation. On the other hand, semanticbased technologies emerge to provide the adequate building blocks to represent domain-knowledge and process data in a flexible fashion using a common and shared data model. That is why a RDF vocabulary designed on the top of the RDF Data Cube Vocabulary to model quantitative indexes is introduced in this paper. Moreover a Java and SPARQL based processor of this vocabulary is also presented as a tool to exploit the index meta-data structure and automatically perform the computation process to populate new values. Finally some discussion, conclusions and future work are also outlined.

Using Metadata Standards to Improve National and IMF DATA

Nalini Umashankar
International Monetary Fund
numashankar@imf.org

Metadata standardization leads to greater efficiencies and lower costs in global exchange and internal production of data. Use of metadata standards enhances the accountability of countries for providing quality information about their economy and improves the understanding of data by users. The International Monetary Fund (IMF) experience, as outlined in this paper, demonstrates how metadata standards have resulted in faster, cheaper and more consistent production and dissemination of data. Keywords: International Monetary Fund, IMF, Metadata standards

Track on European and National projects

Semantic accessibility to e-learning web services

Juan Manuel Doderero, Manuel Palomo-Duarte, Iván Ruiz-Rube, and Ignacio Traverso
Informatics Engineering Department
Universidad de Cádiz
{juanma.doderero,manuel.palomo,ivan.ruiz,ignacio.traverso}@uca.es

Semantic web technologies are all the more relevant in modern e-learning environments that are built upon existing web resources, applications and services, which cannot be completely hosted and managed by a centralised web-based system. This paper shows how semantic web and linked data technologies can improve the interoperability between virtual learning environments and external web resources. The ReST architectural principles were applied and a semantically enhanced access interface was defined to enable a richer exploitation of the services provided by external web applications for the aim of the e-learning environment. Following this methodology, several open source web applications have been integrated with a popular course management system, in order to improve web services accesibility from the e-learning system.

Exploring the potential for mapping Schema.org microdata and the Web of Linked Data

Alberto Nogales, Miguel-Angel Sicilia, Elena García-Barriocanal and Salvador Sánchez-Alonso
1 Information Engineering Research Unit, Computer Science Department, University of Alcalá, Ctra. Barcelona km. 33.6, 28871 Alcalá de Henares (Madrid), Spain
{alberto.nogales, msicilia, elena.garciab, salvador.sanchez}@uah.es

In recent years the exposure of Linked Open Data (LOD) has become widespread, with an increasing number of datasets available and enabling new opportunities for interlinking. In parallel, microdata in several forms has also proliferated mainly as a means to improve the effectiveness of search engines. Concretely, Schema.org consists of a vocabulary for microdata that enriches the information on pages, helping search engines to provide better results. In this paper we explore the potential of mapping Schema.org and the Web of Linked Data. First, mappings between Schema.org terms and terms in Linked Open Vocabularies (LOV) are extracted. Then we use these mappings to obtain an analysis, aimed at gaining insights about the potential impact of this vocabulary in the Web of Linked

Data. The results show that is easier to find a mapping between classes than between properties, but the occurrences of these are many more in LOD.

Keywords: Ontologies, microformats, Schema.org, Linked Data, LOV.

Effective Use of Metadata: From DITA XML to Semantic MediaWiki Implementing Structured Metadata in a collaborative platform

Tobias Noeske

Karlsruhe University of Applied Sciences, Germany

TNoeske@gmx.de

Introduction. The Darwin Information Typing Architecture (DITA) [1] is an open XML standard architecture which is designed for creating topic-oriented, information-typed content that can be reused and single-sourced in a variety of ways also with the help of meta-data. On the other hand wikis provide an easy to use and common method of managing information, requiring only little training and supporting collaboration. Especially with the introduction of Semantic MediaWiki in 2005, wikis became a valuable tool for contributing to the semantic web by making wiki content machine interpretable. [2] This poster describes how DITA content and the associated metadata can be implemented into Semantic MediaWiki and demonstrates the benefits of using the semantic functions which Semantic MediaWiki provides out-of-the-box.

Metadata Handling in DITA. DITA supports both metadata elements and metadata attributes. [3][4] Additionally some DITA elements provide information which can also be considered metadata. [5]

Many of the predefined metadata correspond directly to Dublin core metadata [6]. DITA also offers the possibility to define own metadata elements if required. [7] In order to make the metadata functional, tools are required.

Metadata Handling in Semantic MediaWiki. Semantic MediaWiki (SMW) [8] supports semantic annotations in form of individually definable attributes which describe in what kind of relationship a wiki article stands to other articles. These semantic annotations provide enhanced information retrieval through the improved ability to perform searches, and increased interoperability.

Preparing DITA XML for Semantic MediaWiki. In order to use DITA sources in SMW, they need to be transformed into wiki text which can be processed by Semantic MediaWiki. For all kinds of transformations concerning XML the eXtensible Stylesheet Language (XSL) [9] is used. A script converts the addressed metadata into suitable wiki syntax depending on the desired presentation and transforms the links defined in the DITA document in semantic links for Semantic MediaWiki.

Using DITA Metadata in Semantic MediaWiki. Once the XML sources are successfully converted to wiki syntax, the transformed text can be added into an existing wiki and processed by the available functions of SMW. Basic functions include: semantic search, inline queries with different output formats [10]. Additionally, Semantic MediaWiki offers the possibility to export information about articles in Resource Description Framework (RDF) format [11].

Track on Metadata and Semantics for Cultural Collections and Applications

Federating Natural History Museums in Natural Europe

Konstantinos Makris¹, Giannis Skevakis¹, Varvara Kalokyri¹, Polyxeni Arapi¹, Stavros Christodoulakis¹,

John Stoitsis², Nikos Manolis², Sarah Leon Rojas³

¹Laboratory of Distributed Multimedia Information Systems and Applications, Technical University of Crete (TUC/MUSIC), 73100 Chania, Greece

{makris, skevakis, vkalokyri, xenia, stavros}@ced.tuc.gr

²Greek Research and Technology Network (GRNET) 56, Mesogion Av. 11527, Athens, Greece

stoitsis@gmail.com, manolisn23@gmail.com

³ Fraunhofer Institute for Applied Information Technology FIT, Schloss Birlinghoven,

53754 Sankt Augustin, Germany

sarah.leon.rojas@fit.fraunhofer.de

An impressive abundance of high quality scientific content about Earth's biodiversity and natural history available in Natural History Museums (NHMs) around Europe remains largely unexploited due to a number of barriers, such as: the lack of interconnection and interoperability between the management systems used by museums, the lack of centralized access through a European point of reference like Europeana, and the inadequacy of the current metadata and content organization. To cope with these problems, the Natural Europe project offers a coordinated solution at European level. Cultural heritage content is collected from six Natural History Museums around Europe into a federation of European Natural History Digital Libraries that is directly connected with Europeana.eu. This paper presents the Natural Europe Cultural Digital Libraries Federation infrastructure consisting of: (a) The Natural Europe Cultural Environment (NECE), i.e. the infrastructure and toolset deployed on each NHM allowing their curators to publish, semantically describe, manage and disseminate the Cultural Heritage Objects (CHOs) they contribute to the project, and (b) the Natural Europe Cultural Heritage Infrastructure (NECHI) interconnecting NHM digital libraries and further exposing their metadata records to Europeana.eu.

Keywords: digital curation, preservation metadata, metadata aggregation, digital libraries, interoperability, Europeana

Toward Common Ontologies of Facets of the Archival Access Portal

Tarvo Kärberg^{1 2}

¹University of Tartu, Tartu, Estonia

karberg@ut.ee

²National Archives of Estonia, Tartu, Estonia

Tarvo.Karberg@ra.ee

This article discusses the importance of providing flexible access to archived content and gives an overview of development of the new multifaceted archival access portal of the National Archives of Estonia (NAE). The article describes how the development and implementation of total five taxonomies and classifications as facets for refining the search were carried out, what issues were encountered, and which solutions were chosen. This case study reflects the journey toward common ontologies of archival access portal facets. Some key recommendations and questions for the subsequent project will be given at the end of this article.

Keywords: archival access, taxonomy, ontology, facets

A Meta - Model Agreement for Architectural Heritage

Michail Agathos and Sarantos Kapidakis
Ionian University, Department of Archives and Library Science
Laboratory on Digital Libraries and Electronic Publishing, Ioanni Theotoki 72, 49100, Corfu
{agathos,sarantos@ionio.gr}

This work presents the formulation of a conceptual model for architectural heritage, a meta-model, which attempts to encompass the common aspects of diachronic architectural theories for architecture composition. The model incorporates definitions of some of the essential theories that represent the underlying conceptualization of the information contained in an architectural work and its aim is to create a particular understanding that can be used to design and build monument inventories. A practical application of the above model is the derivation of ARMOS (Architecture Metadata Object Schema), a metadata schema underlying this model, consistent with the recording principles of ICOMOS for monuments, aiming at reducing semantic heterogeneity in the description of architectural works, especially historic buildings.

Keywords. Architecture, Architectural Heritage, Architectural Theory, Conceptual Modeling, FRBR, Immoveable Monuments, Metadata Standards, Meta- Models, Monument Inventories, ICOMOS, Semantic Interoperability.

Highlights of library data models in the era of Linked Open Data

Sofia Zapounidou¹, Michalis Sfakakis¹, Christos Papatheodorou^{1,2}
¹Department of Archives and Library Science, Ionian University, Corfu, Greece
²Digital Curation Unit, IMIS, "Athena" Research Center, Athens, Greece
{12zapo, sfakakis, papatheodor}@ionio.gr

Semantic Web technologies and Linked data form a new reference framework for libraries. The library community aims to integrate its data with the Semantic Web and as a result new library data models have been developed. In this context, significant research effort focuses on the alignment between the library models with relevant models developed by other communities in the cultural heritage domain. However there exist several issues concerning the interoperability between all these data models. This paper seeks to contribute in the interoperability of four models, namely FRBR, FRBRoo, EDM and BIBFRAME. It highlights the commonalities and the divergences between them by using a case bibliographic record and by exploring how this record is represented by each one of them.

Keywords: semantic web, library data models, linked data, FRBR, FRBRoo, EDM, BIBFRAME

Track on Metadata and Semantics for Agriculture, Food and Environment

agriOpenLink: Towards Adaptive Agricultural Processes Enabled by Open Interfaces, Linked Data and Services

Slobodanka D. Kathrin Tomic¹, Anna Fensel¹, Christian Aschauer², Klemens Gregor Schulmeister²,
Thomas Riegler³, Franz Handler³, Marcel Otte⁴, Wolfgang Auer⁴

¹ The Telecommunications Research Center Vienna (FTW), Vienna, Austria
{tomic,fensel}@ftw.at

² University of Natural Resources and Life Sciences, Division of Agricultural Engineering (BOKU),
Vienna, Austria

{christian.aschauer,klemens.schulmeister}@boku.ac.at

³ Josephinum Research (JR), Wieselburg, Austria

{thomas.riegler, franz.handler}@josephinum.at

⁴ MKW Electronics GesmbH (MKWE) Weibern, Austria

{marcel.otte,wolfgang.auer}@mkw.at

Today, users involved in agricultural production processes increasingly rely on advanced agricultural machines and specialized applications utilizing the latest advances in information and communication technology (ICT). Robots and machines host numerous specialized sensors and measurement devices and generate large amounts of data that combined with data coming from external sources, could provide a basis for better process understanding and process optimization. One serious roadblock to this vision is a lack of interoperability between the equipment of different vendors; another pitfall of current solutions is that the process knowledge is not modelled in a standardized machine readable form. On the other hand, such process model can be flexibly used to support process-specific integration of machines, and enable context-sensitive automatic process optimization. This paper presents an approach and preliminary results regarding architecture for adaptive optimization of agricultural processes via open interfaces, linked data and semantic services that is being developed within the project agriOpenLink; its goal is to provide a novel methodology and tools for semantic process orchestration and dynamic context-based adaptation, significantly reducing the effort needed to create new ICT-controlled agricultural applications involving machines and users.

Keywords: Semantic Services, Semantic Processes, Ontology, Open Interfaces

Issues in harvesting resources from agricultural repositories

Devika P. Madalli¹

¹Documentation Research and Training Center (DRTC) Indian Statistical Institute (ISI), INDIA

Harvesters facilitate aggregating metadata from various repositories and other sources such as journals and enable a centralized access to full text and objects. While harvesting can be fairly simple and straight forward, it is not without its challenges. This paper intends to highlight some of the issues in harvesting metadata in agricultural domains. It suggests some possible solutions with instances from Demeter, a pkp based harvester compared with DSpace based harvesting facility implemented at Indian Statistical Institute. Also described is Tharvest a thematic harvester model for agricultural resources from generic repositories.

Preliminary Work Towards Publishing Vocabularies for Germplasm and Soil Data as Linked Data

Valeria Pesce¹, Guntram Geser², Caterina Caracciolo¹, Johannes Keizer¹, and Giovanni L'Abate³

¹ Food and Agriculture Organization of the United Nations, Rome, Italy

{Valeria.Pesce, Caterina.Caracciolo, Johannes.Keizer}@fao.org

² Salzburg Research, Salzburg, Austria

guntram.geser@salzburgresearch.at

³ Consiglio per la Ricerca e la sperimentazione in Agricoltura, Centro di Ricerca per l'Agrobiologia e la

Pedologia (CRA-ABP), Firenze, Italy

giovanni.labate@entecra.it

The agINFRA project focuses on the production of interoperable data in agriculture, starting from the vocabularies and Knowledge Organization Systems (KOSs) used to describe and classify them. In this paper we report on our first steps in the direction of publishing agricultural Linked Open Data (LOD), focusing in particular on germplasm data and soil data, which are still widely missing from the LOD landscape, seemingly because information managers in this field are still not very familiar with LOD practices.

Keywords: Agriculture, germplasm, soil, Knowledge Organization Systems, metadata sets, vocabularies, RDF, Linked Data, classifications

Ontology-based representation of scientific laws on beef production and consumption

Piotr Kulicki¹, Robert Trypuz¹, Rafał Trójczak¹, Jerzy Wierzbicki², and Alicja Wozniak²

¹ The John Paul II Catholic University of Lublin, Faculty of Philosophy

Al. Raławickie 14,

20-950 Lublin, Poland

fkulicki,trypuzg@kul.pl

² Polish Beef Association

ul. Kruczkowskiego 3,

00-380 Warszawa, Poland

jerzy.wierzbicki@pzpbm.pl

We present an ontology called Science designed for representing scientific laws and rejected hypotheses from scientific papers and experimental results in the area of beef production and consumption. The ontology is designed on the basis of 1) classifications of scientific laws presented in the works of Polish philosophers of science and nature: K. Ajdukiewicz and W. Krajewski and 2) the analysis of empirical material from the project database of articles. Science imports OntoBeef ontology of the subject domain. Both ontologies, i.e. Science and Onto-Beef, are based on DOLCE. It is shown how to represent scientific laws in the ontologies and how to generate new scientific laws from the old ones coded in the Science.

Keywords: ontology, scientific law, livestock, beef

Semantic Shared Spaces for Task Allocation in a Robotic Fleet for Precision Agriculture

Domagoj Drenjanac¹, Lukas Klausner², Eva Kühn², Slobodanka Dana Kathrin Tomic¹

¹ The Telecommunications Research Center Vienna (FTW), Vienna, Austria
{drenjanac, tomic}@ftw.at

² Institute of Computer Languages, Vienna University of Technology, Vienna, Austria
eva@complang.tuwien.ac.at
lukas@palu.at

Task allocation is a fundamental problem in multi-robot systems where heterogeneous robots cooperate to perform a complex mission. A general requirement in a task allocation algorithm is to find an optimal set of robots to execute a certain task. This paper describes how coordination capabilities of the space-based middleware are extended with the semantic model of robot capabilities to improve the process of selection in terms of flexibility, scalability and reduced communication overhead during task allocation. We developed a framework that translates resources into a newly defined semantic model and performs automatic reasoning to assist the task allocation. We conducted performance tests in a specific precision agriculture use case based on the robotic fleet for weed control elaborated within European Project RHEARobot Fleets for Highly Effective Agriculture and Forestry Management.

Keywords: Task Allocation, Space-Based Computing, Semantics, Robotic Fleet

Keynote Speech

Rethinking the Search Experience: What could professional search systems do better?

Michail Salampasis

Department of Informatics, Technology Educational Institute of Thessaloniki, Greece
msa@it.teithe.gr

This paper presents the traditional Information Retrieval (IR) model which is implemented in current search engines that support web search. Professional search is defined and the parameters that differentiate professional search from web search are discussed. Then, another model that provides an increased design space for developing Integrated Professional Search (IPS) systems is presented. The framework the model suggests facilitates loosely coupled IPS systems in which each of their search tools have little or no knowledge of the details of other search tools or components. The paper also describes, as a case study of an IPS, the architecture and the main functionalities of a patent search system. The integration of a search tool into this search system is discussed to demonstrate how analyzing search experience facilitates straightforward integration and the effective use of integrated search tools.

General Session - Platforms for research data sets, system architecture and data management

Advancing the DFC Semantic Technology Platform via HIVE Innovation

Mike C. Conway¹, Jane Greenberg², Reagan Moore¹,
Mary Whitton¹, and Le Zhang²

¹ The University of North Carolina at Chapel Hill, Chapel Hill, NC, USA
michael_conway@unc.edu, rwmooore@renci.org, whitton@renci.org

² Metadata Research Center, School of Library and Information Science, University
of North Carolina at Chapel Hill, Chapel Hill, NC, USA,
janeg@email.unc.edu, lezha@live.unc.edu

The DataNet Federation Consortium (DFC) is developing data grids for multidisciplinary research. As the DFC grid grows in size and number of disciplines, it becomes critical to address metadata management and sustainability challenges. The HIVE project is being integrated into the iRODS in the DFC architecture to provide a scalable linked open data approach to scientific data sharing.

Keywords: HIVE, iRODS, semantic web, linked open data, SKOS

Metadata, Domain Specific Languages and Visualisations as internal artifacts driving an agile Knowledge Engineering methodology

Angelos Yannopoulos, Yannis Christodoulou, Effie Bountris, Katia Savrami and Maria Douza
Department of Electrical and Computer Engineering, National Technical University of Athens, Athens,
Greece

We introduce M(krDSL), an agile Knowledge Engineering methodology. It addresses the Knowledge Acquisition bottleneck. The point of differentiation of M(krDSL) from previous practice involves knowledge engineers and domain experts collaborating extremely closely: "The domain expert constructs the model. The model is independently useful as a communication tool." We introduce two additional layers of abstraction between human domain experts and operational software: a shared Knowledge Model of the domain, and Visualisation mockups/prototypes. Tools of the methodology include: DSLs and graphical representations; Qualitative analysis of the DSLs; Semantic Metadata for Test Driven Design; and analysis of concurrently evolving Visualisation output mockups/prototypes. In our experience, following this methodology helped us escape from situations where we had completely ceased to be able to make any modelling progress at all, while even at times when we were able to make easy progress in our KE tasks, M(krDSL) gave us a high degree of confidence in the correct prioritisation and correct results of our work.

OAIzer: Configurable OAI Exports over Relational Databases

Sandro La Bruzzo¹, Paolo Manghi¹, and Alessia Bardi^{1;2}

¹ Consiglio Nazionale delle Ricerche
Istituto di Scienza e Tecnologie dell'Informazione "A. Faedo"
name.surname@isti.cnr.it

² Dipartimento di Ingegneria dell'Informazione, Università di Pisa
alessia.bardi@for.unipi.it

Modern Digital Library Systems (DLSs) typically support information spaces of interconnected objects, whose graph-like document models surpass the traditional DL payload-metadata document models.

Examples are repositories for enhanced publications, CRIS systems, cultural heritage archives. To enable interoperability, DLSs expose their objects and interlinks with other objects as "export packages", via standard exchange formats (e.g. XML, RDF encodings) and OAI-ORE or OAI-PMH protocols. This paper presents OAIzer, a tool for the easy configuration and automatic deploy of OAI interfaces over an RDBMSbased DLS. Starting from the given relational representation of a document model, OAIzer provides DLS developers with user interfaces for drafting the intended structure of export packages and the automated deploy of OAI endpoints capable of exporting such packages.

Tools and Techniques for assessing metadata quality

Effie Tsiflidou¹, Nikolaos Manouselis¹
1 Agro-Know Technologies, Greece
effie@agroknow.gr, nikosm@ieee.org

A significant amount of digital repository research and development activity is taking place worldwide. The quality of the metadata is considered really important for the main functionalities of a digital repository. In this paper we carry out a preliminary analysis of tools that can be used for the valid assessment of metadata records in a repository. More specifically, three different tools are studied and used to assess various quality metrics of metadata records. Then, an example quality assessment is presented for specific case study: the Prodnra open access repository. Finally, some conclusions are made and directions for the future work are identified.

Keywords: metadata quantitative analysis, metadata quality metrics, digital re-positories, Google Refine, MINT

Linking Search Results, Bibliographical Ontologies and Linked Open Data Resources

Fabio Ricci, Javier Belmonte, Eliane Blumer, René Schneider
Haute Ecole de Gestion de Genève, 7 route de Drize, CH-1227 Carouge {fabio.fr.ricci, javier.belmonte, eliane.blumer, rene.schneider}@hesge.ch

This paper describes a lightweight approach to build an environment for scientific research that connects user-selected information resources with domain specific ontologies and the linked open data cloud. Search results are converted into RDF triples to match with ontology subjects in order to derive relevant subjects and to find related documents in external repositories data that are stored in the Linked Open Data Cloud. With the help of this deterministic algorithm for analyzing and ranking search subjects, the explicit searching process, as effectuated by the user, is implicitly supported by the LOD-technology.

Keywords: Innovative Scientific Search, Metadata Reusability, Linked Open Data Technologies

A Simple Approach towards SKOSification of Digital Repositories

Enayat Rajabi, Miguel-Angel Sicilia and Salvador Sanchez-Alonso
Information Engineering Research Unit, Computer Science Department,
University of Alcalá, Ctra. Barcelona km. 33.6, 28871 Alcalá de Henares, Spain
{enayat.rajabi, msicilia, salvador.sanchez}@uah.es

Many knowledge organizations and digital repositories have leveraged different software to manage their taxonomies and thesauri. However, some of them do not have enough technical knowledge or experts to create complex structure e.g., OWL. On the other side, SKOS, as a simple language for

classifying the knowledge organization systems e.g., thesauri, allows data to be distributed and composed on the Web of Data in a structured way. This short paper presents an approach to expose taxonomies, classification schemes and other types of vocabularies as SKOS by developing a mapping tool. It also visualizes the output in a graphical user interface in order to explore the vocabularies along with their relationships as well.

Key words: Vocabularies; Taxonomies; SKOS; Excel; Visualization; Linked Data.

Track on Big Data and Digital Libraries in Health, Science and Technology

The Semantics of Negation Detection in Archaeological Grey Literature

Andreas Vlachidis¹, Douglas Tudhope¹,

¹ University of South Wales, Hypermedia Research Unit, Pontypridd Wales, CF37 1DL, UK
{andreas.vlachidis, douglas.tudhope}@southwales.ac.uk

Archaeological reports contain a great deal of information that conveys facts and findings in different ways. This kind of information is highly relevant to the research and analysis of archaeological evidence but at the same time can be a hindrance for the accurate indexing of documents with respect to positive assertions. The paper presents a method for adapting the biomedicine oriented negation algorithm NegEx to the context of archaeology and discusses the evaluation results of the new modified negation detection module. The performance of the module is compared against a “Gold Standard” and evaluation results are encouraging, delivering overall 89% Precision, 80% Recall and 83% F-Measure scores. The paper addresses limitations and future improvements of the current work and highlights the need for ontological modelling to accommodate negative assertions. It concludes that adaptation of the NegEx algorithm to the archaeology domain is feasible and that rule-based information extraction techniques are capable of identifying a large portion of negated phrases from archaeological grey literature.

Keywords: Negation Detection, Semantic Technologies, Digital Humanities, CIDOC-CRM, Semantic Annotation, Natural Language Processing.

A Preliminary Approach on Ontology-based Visual Query Formulation for Big Data

Ahmet Soylu¹, Martin G. Skjæveland¹, Martin Giese¹, Ian Horrocks²,
Ernesto Jimenez-Ruiz², Evgeny Kharlamov², and Dmitriy Zheleznyakov²

¹ Department of Informatics, University of Oslo, Norway
{ahmets, martige, martingi}@ifi.uio.no

² Department of Computer Science, University of Oxford, United Kingdom
{name.surname}@cs.ox.ac.uk

Data access in an enterprise setting is a determining factor for the potential of value creation processes such as sense-making, decision making, and intelligence analysis. As such, providing friendly data access tools that directly engage domain experts (i.e., end-users) with data, as opposed to the situations where database/IT experts are required to extract data from databases, could substantially increase competitiveness and profitability. However, the ever increasing volume, complexity, velocity, and variety of data, known as the Big Data phenomenon, renders the end-user data access problem even more challenging. Optique, an ongoing European project with a strong industrial perspective, aims to countervail the Big Data effect, and to enable scalable end-user data access to traditional relational databases by using an ontology-based approach. In this paper, we specifically present the preliminary design and development of our ontology-based visual query system and discuss directions for addressing the Big Data effect.

Keywords: Visual Query Formulation, Ontology-based Data Access, Big Data, End-user Data Access, Visual Query Systems.

1-5 stars: Metadata on the Openness Level of Open Data Sets in Europe

Sébastien Martin¹, Muriel Foulonneau², Slim Turki²
1 Paris VIII University
Vincennes-Saint-Denis, France
2 Public Research Centre Henri Tudor,
29, av. John F. Kennedy
L-1855 Luxembourg, Luxembourg
{name.surname}@tudor.lu

The development of open data requires a better reusability of data. Indeed, the catalogs listing data dispersed in different countries have a crucial role. However, the degree of openness is also a key success factor for open data. In this paper, we study the PublicData.eu catalogue, which allows accessing open datasets from European countries and analyse the metadata recorded for each dataset. The objectives are to (i) identify the quality of a sample of metadata properties, which are critical to enable data reuse and to (ii) study the stated level of data openness. The study uses the Tim Berners-Lee's five star evaluation scale.

Keywords: open data, metadata, catalogue, CKAN

Personalized Vaccination Using Ontology Based Profiling

Ozgu Can, Emine Sezer, Okan Bursa, and
Murat Osman Unalir
Ege University, Department of Computer Engineering,
35100 Bornova-Izmir, Turkey
{ozgu.can,emine.unalir,okan.bursa,
murat.osman.unalir}@ege.edu.tr

Ontology-based knowledge representation and modeling for vaccine domain provides an effective mechanism to improve the quality of healthcare information systems. Vaccination process generally includes different processes like vaccine research and development, production, transportation, administration and tracking of the adverse events that may occur after the administration of vaccine. Moreover, vaccination process may cause some side effects that could cause permanent disability or even be fatal. Therefore, it is important to build and store the vaccine information by developing a vaccine data standardization. In the vaccination process, there are different stakeholders, such as individuals who get the vaccination, health professionals who apply the vaccination, health organizations, vaccine producers, pharmacies and drug warehouses. In this paper, a vaccine data standardization is proposed and a generic user modeling is applied in the context of personalized vaccination for healthcare information systems. Besides, policies are also used to strengthen the proposed personalized vaccination model by defining clinical guidances for individuals. The proposed personalized vaccination system offers a better management of vaccination process and supports the tracking of individual's medical information.

Keywords: Medical Knowledge Management, Semantic Web, Vaccine Ontology, Healthcare, Personalization

Metadata requirements for repositories in health informatics research: evidence from the analysis of social media citations

Dimitris Rousidis^{1,2}, Emmanouel Garoufallou², Panos Balatsoukas³, Kostas Paraskeuopoulos², Stella Asderi⁴, Damiana Koutsomiha⁵

¹ University of Alcalá, Madrid, Spain

² Alexander Technological Educational Institute of Thessaloniki, Greece

³ University of Manchester, UK

⁴ American College of Thessaloniki, Greece

⁵ American Farm School, Thessaloniki, Greece

Social media have transformed the way modern science is communicated. Although several studies have been focused on the use of social media for the dissemination of scientific knowledge and the measurement of the impact of academic output, we know very little about how academics cite social media in their publications. In order to address this gap, a content analysis was performed on a sample of 629 journal articles in medical informatics. The findings showed the presence of 109 citations to social media resources, the majority of which were blogs and wikis. Social media citations were used more frequently to support the literature review section of articles. However, a fair amount of citations was used in order to document various aspects of the methodology section, such as the data collection and analysis process. The paper concludes with the implications of these findings for metadata design for bibliographic databases (like PubMed and Medline).

Keywords: Scholarly communication, Citation Analysis, Digital Library 2.0, Metadata, Search interfaces, Social media, Medical informatics

Big data for Enhanced Learning Analytics: A case for large-scale comparative assessments

Nikolaos Korfiatis

korfiatis@em.uni-frankfurt.de

Big Data Analytics Research Lab, Chair for Database and Information Systems, Institute for Informatics and Mathematics, Goethe University Frankfurt Robert-Mayer-Str. 10, 60325, Frankfurt am main, , Germany <http://www.bigdata.uni-frankfurt.de>

Recent attention on the potentiality of cost-effective infrastructures for capturing and processing large amounts of data, known as Big Data has received much attention from researchers and practitioners on the field of analytics. In this paper we discuss on the possible benefits that Big Data can bring on TEL by using the case of large scale comparative assessments as an example. Large scale comparative assessments can pose as an intrinsic motivational tool for enhancing the performance of both learners and teachers, as well as becoming a support tool for policy makers. We argue why data from learning processes can be characterized as Big Data from the viewpoint of data source heterogeneity (variety) and discuss some architectural issues that can be taken into account on implementing such an infrastructure on the case of comparative assessments.

Keywords: Bigdata, TEL, Learning Analytics, Comparative assessments

Track on Metadata and Semantics for Open Repositories, Research Information Systems and Data Infrastructures

Semantically Enhanced Interactions between Heterogeneous Data Life-Cycles Analyzing Educational Lexica in a Virtual Research Environment

Basil Ell¹, Christoph Schindler², and Marc Rittberger²

¹ Karlsruhe Institute of Technology (KIT),
Karlsruhe, Germany
basil.ell@kit.edu,

² German Institute for International Educational Research (DIPF),
Frankfurt am Main, Germany
fschindler, rittberger@ dipf.de

This paper highlights how Semantic Web technologies facilitate new socio-technical interactions between researchers and libraries focussing research data in a Virtual Research Environment. Concerning data practices in the fields of social sciences and humanities, the worlds of researchers and librarians have so far been separate. The increased digitization of research data and the ubiquitous use of Web technologies change this situation and offer new capacities for interaction. This is realized as a semantically enhanced Virtual Research Environment, which offers the possibility to align the previously disparate data life-cycles in research and in libraries covering a variety of inter-activities from importing research data via enriching research data and cleansing to exporting and sharing to allow for reuse. Currently, collaborative qualitative and quantitative analyses of a large digital corpus of educational lexica are carried out using this semantic and wiki-based research environment.

Keywords: Virtual Research Environments, Research Infrastructures, Digital Libraries, Semantic Web technologies

Integrating Heterogeneous and Distributed Information about Marine Species through a Top Level Ontology

Yannis Tzitzikas^{1;2}, Carlo Allocca¹, Chryssoula Bekiari¹, Yannis Marketakis¹,
Pavlos Fafalios^{1;2}, Martin Doerr¹, Nikos Minadakis¹, Theodore Patkos¹ and
Leonardo Candela³

¹ Institute of Computer Science, FORTH-ICS, Greece

² Computer Science Department, University of Crete, Greece

³ Consiglio Nazionale delle Ricerche, CNR-ISTI, Pisa, Italy

{tzitzik,carlo,beikiari,marketak,fafalios,martin,minadakis,patkos}@ics.
forth.gr,leonardo.candela@isti.cnr.it

One of the main characteristics of biodiversity data is its cross-disciplinary feature and the extremely broad range of data types, structures, and semantic concepts which encompasses. Moreover, biodiversity data, especially in the marine domain, is widely distributed, with few well-established repositories or standard protocols for their archiving, access, and retrieval. Our research aims at providing models and methods that allow integrating such information either for publishing it, browsing it, or querying it. For providing a valid and reliable knowledge ground for enabling semantic interoperability of marine data, in this paper we motivate a top level ontology, called MarineTLO that we have designed for this purpose, and discuss its use for creating MarineTLO-based warehouses in the context of a research infrastructure.

A semantic approach for the annotation of figures: application to High-Energy Physics

Piotr Praczyk^{1,2} and Javier Noguera-Iso²

¹CERN, Geneva, Switzerland

²Computer Science and Systems Engineering Dept., Universidad de Zaragoza, Spain

Figures play an important role in the process of understanding a scholarly publication, providing overviews of large amounts of data or ideas that are difficult to present using only the text. This work presents a system allowing to describe and to search for scientific figures in the High Energy Physics (HEP) domain. It proposes an application HEP Figures Ontology (HFO), based on existing ontologies, for the annotation of scientific figures in a semantic triplestore. Finally, this work studies the searching functionalities provided by triplestores based on the HFO model, and compares them with traditional digital library systems.

Towards a stepwise method for unifying and reconciling corporate names in public contracts metadata. The CORFU technique.

Jose María Álvarez-Rodríguez¹, Patricia Ordoñez de Pablos², Michail

Vafolopoulos³, and José Emilio Labra-Gayo²

¹ South East European Research Center,

54622, Thessaloniki, Greece

jmalvarez@seerc.org

² WESO Research Group, Department of Computer Science, University of Oviedo

33007, Oviedo, Spain.

{patriop,labra}@uniovi.es,

³ Multimedia Technology Laboratory, National Technical University of Athens,

15773, Athens, Greece.

vafopoulos@medialab.ntua.gr

The present paper introduces a technique to deal with corporate names heterogeneities in the context of public procurement metadata. Public bodies are currently facing a big challenge trying to improve both the performance and the transparency of administrative processes. The e-Government and Open Linked Data initiatives have emerged as efforts to tackle existing interoperability and integration issues among ICT-based systems but the creation of a real transparent environment requires much more than the simple publication of data and information in specific open formats; data and information quality is the next major step in the public sector. More specifically in the e-Procurement domain there is a vast amount of valuable metadata that is already available via the Internet protocols and formats and can be used for the creation of new added-value services. Nevertheless the simple extraction of statistics or creation of reports can imply extra tasks with regards to clean, prepare and reconcile data. On the other hand, transparency has become a major objective in public administrations and, in the case of public procurement, one of the most interesting services lies in tracking rewarded contracts (mainly type, location, and supplier). Although it seems a basic kind of reporting service the truth is that its generation can turn into a complex task due to a lack of standardization in supplier names or the use of different descriptors for the type of contract. In this paper, a stepwise method based on natural language processing and semantics to address the unification of corporate names is defined and implemented. Moreover a research study to evaluate the precision and recall of the proposed technique, using as use case the public dataset of rewarded public contracts in Australia during the period 2004-2012, is also presented. Finally some discussion, conclusions and future work are also outlined.

Merging controlled vocabularies through semantic alignment based on linked data

Ioannis Papadakis¹ and Konstantinos Kyprianos¹
¹ Ionian University, Dept. of Archives and Library Science
Ioannou Theotoki 72, Corfu, 49100, Greece
papadakis@ionio.gr, k.kyprianos@gmail.com

In this paper, a methodology is presented that aids in finding equivalent terms between semantically similar controlled vocabularies. It is based both on lexical similarities discovery and semantic alignment through external LOD datasets. The proposed methodology has been deployed for the identification of equivalent terms within two datasets consisting of subject headings, namely Dione and NYT and facilitated through the employment of the LOD datasets of DBpedia and WordNet. The effectiveness of the methodology is assessed through a comparative evaluation between the deployment of the methodology presented in this paper and the deployment of a lexical similarities-based algorithm presented in previous work.

Keywords: controlled vocabularies, semantic alignment, linked data

Transient and persistent RDF views over relational databases in the context of digital repositories

Nikolaos Konstantinou¹, Dimitrios-Emmanuel Spanos¹, Nikolas Mitrou²
¹ Hellenic Academic Libraries Link
Iroon Polytechniou 9, Zografou, 15780, Athens, Greece
² School of Electrical and Computer Engineering, National Technical University of Athens
Iroon Polytechniou 9, Zografou, 15780, Athens, Greece
nkons@cn.ntua.gr, dspanos@cn.ntua.gr, mitrou@cs.ntua.gr

As far as digital repositories are concerned, numerous benefits emerge from the disposal of their contents as Linked Open Data (LOD). This leads more and more repositories towards this direction. However, several factors need to be taken into account in doing so, among which is whether the transition needs to be materialized in real-time or in asynchronous time intervals. In this paper we provide the problem framework in the context of digital repositories, we discuss the benefits and drawbacks of both approaches and draw our conclusions after evaluating a set of performance measurements. Overall, we argue that in contexts with infrequent data updates, as is the case with digital repositories, persistent RDF views are more efficient than real-time SPARQL-to-SQL rewriting systems in terms of query response times, especially when expensive SQL queries are involved.

Keywords: Linked Open Data, RDF Views, Bibliographic information, Digital Repositories, R2RML, Mapping.

Document Mark-Up for Different Users and Purposes

David King, and David R. Morse
Department of Computing and Communications,
The Open University,
Milton Keynes,
MK7 6AA, UK
{david.king, david.morse}@open.ac.uk

Semantic enhancement of texts aids their use by researchers. However, mark-up of large bodies of text is slow and requires precious expert resources. The task could be automated if there were marked-up texts to train and test mark-up tools. This paper looks at the re-purposing of texts

originally marked-up to support taxonomists to provide computer scientists with training and test data for their mark-up tools. The re-purposing highlighted some key differences in the requirements of taxonomists and computer scientists and their approaches to mark-up.

Keywords: mark-up, XML annotation, stand-off annotation, biodiversity

Keynote Speech

Towards a Semantic Research Library: Digital Humanities Research, Europeana and the Linked Data Paradigm

Stefan Gradmann
Leuven University, Belgium

Libraries have been almost exclusively dealing with containers of content for centuries now and have left the generation and handling of content to others (authors and publishers). This distribution of roles has been triggered to some extent by the advent of print – as libraries now are approaching the End of the Gutenberg Galaxis and are increasingly confronted to the emerging Linked Data Web they will have to rethink their role profoundly: from handling containers they will have to evolve into content and contextualization agents. The Europeana Data Model (EDM) is presented in this context as an example of new technology enabling Digital Humanities Research that could figure prominently on the agenda of future Semantic Research Libraries. However, being up to these new opportunities in terms of content based and context driven services requires cultural changes on the libraries' side: the keynote will discuss some of the terms and related thinking libraries need to get rid of in order to effectively adopt this paradigm shift. In case they operate this cultural change we might assist a triple win for Europeana, Digital Humanists and Libraries alike.

General Session- Metadata and Ontology validation, evaluation, mapping and interoperability

Encoding Provenance Metadata for Social Science Datasets

Carl Lagoze¹, Jeremy Williams², and Lars Vilhuber³

¹ School of Information, University of Michigan, Ann Arbor, MI
clagoze@umich.edu

² Cornell Institute for Social and Economic Research, Cornell University, Ithaca, NY
jw568@cornell.edu

³ School of Industrial and Labor Relations, Cornell University, Ithaca, NY
lars.vilhuber@cornell.edu

Recording provenance is a key requirement for data-centric scholarship, allowing researchers to evaluate the integrity of source data sets and re-produce, and thereby, validate results. Provenance has become even more critical in the web environment in which data from distributed sources and of varying integrity can be combined and derived. Recent work by the W3C on the PROV model provides the foundation for semantically-rich, interoperable, and web-compatible provenance metadata. We apply that model to complex, but characteristic, provenance examples of social science data, describe scenarios that make scholarly use of those provenance descriptions, and propose a manner for encoding this provenance metadata within the widely-used DDI metadata standard.

Keywords: Metadata, Provenance, DDI, eSocial Science

Using Metadata to Facilitate Understanding and Certification of Assertions about the Preservation Properties of a Preservation System

Jewel H. Ward¹, Hao Xu², Mike C. Conway², Terrell G. Russell³ & Antoine de Torcy³

¹The University of North Carolina at Chapel Hill, Chapel Hill, NC, USA

jewel_ward@unc.edu

²Data Intensive Cyber Environments Center (DICE), Chapel Hill, NC, USA

xuh@email.unc.edu, michael_conway@unc.edu

³Renaissance Computing Institute (RENCI), Chapel Hill, NC, USA

tgr@renci.org, adetorcy@email.unc.edu

Developers of preservation repositories need to provide internal audit mechanisms to verify their assertions about how the recommendations outlined in the Open Archival Information System (OAIS) Reference Model are applied. They must also verify the consistent application of preservation policies to both the digital objects and the preservation system itself. We developed a method for mapping between the OAIS Reference Model Functional Model to a data grid implementation, which facilitates such tasks. We have done a preliminary gap analysis to determine the current state of computer task-oriented functions and procedures in support of preservation, and constructed a method for abstracting state transition systems from preservation policies. Our approach facilitates certifying properties of a preservation repository and bridges the gap between computer code and abstract preservation repository standards such as the OAIS Reference Model.

Keywords. preservation repository, OAIS Reference Model, trusted digital repository, state transition system, metadata, policy, rule-oriented programming

CMSs, Linked Data and Semantics: A Linked Data Mashup over Drupal for Personalized Search

Aikaterini K. Kalou, Dimitrios A. Koutsomitropoulos and Georgia D. Solomou

High Performance Information Systems Laboratory (HPCLab),

Computer Engineering and Informatics Dpt., School of Engineering,

University of Patras, Building B, 26500 Patras-Rio, Greece

{kaloukat, kotsomit, solomou}@hpclab.ceid.upatras.gr

Semantic mashups are a representative paradigm of Web applications which highlight the novelties and added-value of Semantic Web technologies, especially Linked Data. However, Semantic Web applications are often lacking desirable features related to their 'Web' part. On the other hand, in the world of traditional web-CMSs, issues like front-end intuitiveness, dynamic content rendering and streamlined user management have been already dealt with, elaborated and resolved. Instead of reinventing the wheel, in this paper we propose an example of how these features can be successfully integrated within a semantic mashup. In particular, we re-engineer our own semantic book mashup by taking advantage of the Drupal infrastructure. This mashup enriches data from various Web APIs with semantics in order to produce personalized book recommendations and to integrate them into the Linked Open Data (LOD) cloud. It is shown that this approach not only leaves reasoning expressiveness and effective ontology management uncompromised, but comes to their benefit.

Cross-Language Ontology Alignment Utilizing Machine Translation Models

Antonis Koukourikos¹, Pythagoras Karampiperis¹, Giannis Stoitsis^{2,3}

¹Software and Knowledge Engineering Laboratory, Institute of Informatics and Telecommunications, National Center for Scientific Research "Demokritos" Agia Paraskevi Attikis, P.O.Box 60228, 15310 Athens, Greece

²Agro-Know Technologies, Grammou 17 Str., Vrilissia Attikis, 15235 Athens, Greece

³Computer Science Department, Universidad de Alcala, 28871 Alcala de Henares, Madrid, Spain

In the context of ontology alignment, linguistic analysis is a prominent solution, used by various proposed methodologies. When mapping ontologies that use the same language, the existent approaches have been shown to produce significant results, being able to handle complex descriptions of the enclosed concepts and properties. In order to expand the applied linguistic methods in a cross-language context, i.e. to align ontologies that use different languages, it is essential to automate the process of finding lexical correspondences, beyond simple term translation, between the entity descriptions provided by the involved ontologies. The present paper proposes a machine learning approach to obtain the optimal from a set of translation provided by different automated machine translation services, in order to use it as the basis for aligning ontology pairs that provide complex descriptions expressed in different languages.

Keywords: Ontology Alignment, Cross-language Alignment, Automated Machine Translation, Machine Learning

Applying the Nominal Group Technique for Metadata Training of Domain Experts

Nikos Palavitsinis^{1;2}, Nikos Manouselis², and Charalampos Karagiannidis³

¹ University of Alcala de Henares, 28871 Alcalá de Henares, Madrid, Spain
{palavitsinis@uah.es}

² Agro-Know Technologies, 17 Grammou Str, Vrilissia, Athens, Greece, 15235
{palavitsinis@agroknow.gr; nikosm@agroknow.gr}

³ University of Thessaly, Department of Special Education, Volos, Greece
{karagian@uth.gr}

Low metadata quality is a problem faced by most digital repositories, affecting resource discoverability and the overall quality of services and search mechanisms that are supported by these repositories. Metadata training of human annotators presents itself as a major challenge to contribute towards higher metadata quality for the digital resources hosted in repositories. This paper discusses the positive results of previous approaches to metadata training in the cases of an educational, cultural and scientific/research repositories, and it attempts to improve them by using the Nominal Group technique.

Keywords. metadata, training, domain experts, evaluation

Perceived Helpfulness of Dublin Core Semantics: An Empirical Study

Mohammad Yasser Chuttur
University of Mauritius, Reduit, Mauritius
y.chuttur@uom.ac.mu

In an experimental study, 120 participants randomly assigned to two groups were asked to rate the helpfulness of the Dublin Core elements definitions and guidelines while creating metadata records. In contrast to previous studies, findings reveal that participants had problems understanding definitions for the whole element set specified by Dublin Core. This study also reveals that careful

attention should be given to the clarity of guidelines as well to ensure correct application of Dublin Core elements.

Keywords: Dublin Core, creating metadata record, best practice guideline, dc element definition.

Track on European and National projects

An ontology-based knowledge model for marketing decision support in Tourism

George Stalidis and Dimitrios Karapistolis

Department of Business Administration, ATEITH

The presented work involves knowledge engineering technologies to support marketing planning in the area of tourism. Informed decisions in this field are most usually based on market data available as statistics or on primary surveys launched for this purpose. However, such data are only meaningful to an experienced analyst and the potential for their reusability is limited. The goal of the proposed approach is to drastically enlarge the potential of exploiting and reusing survey data, by extracting and managing structured knowledge from them and making this knowledge available to users who are not experts in analysis, through highly usable decision support tools. Moreover, the problem of merging different sources in a consolidated model is considered, towards the accumulation of knowledge into a Knowledge-Based System (KBS) in a reusable and sharable form, available to the marketer for solving complex problems. By adopting the appropriate standardized and machine-understandable formalism, knowledge will be available for exchanging and accessing between systems or over the Internet.

The presented work is part of the 3-year research project “Data Analysis and Knowledge Management Technologies for Planning Tourism Products – DANKMAN” (<http://www.mkt.teithe.gr/en/research/research-projects/dankman/>), which is currently in its mid phase and endeavors to integrate data analysis software (MAD), an Artificial Neural Network component (NN) and a Knowledge Based System (KBS) into an integrated data analysis and decision support tool for marketing planning in the tourist domain.

The contribution of the presently reported work is mainly focused on the development of a knowledge model suitable for tourist destination marketing and the illustration of a proposed methodology for extracting knowledge from questionnaire-based primary surveys employing multidimensional factor and clustering analysis methods. The application is to provide decision support to the “Organization for Promotion and Marketing of Thessaloniki”, more specifically, (a) the analysis of tourist product (image, resources, infrastructure, etc.), (b) the analysis of market segments based on their needs, return prospects and accessibility/susceptibility, and (c) support in selecting promising target segments and prioritizing actions to match the selected segments. The data used as input were collected by a primary survey launched within the current project in Thessaloniki during the summer 2013. Additional data were used from an older hotel service quality survey in Northern Greece.

The proposed model is ontology-based, however, considering that the complexity of the knowledge to be engineered was higher than class hierarchies and relations between objects, additional expressiveness was obtained by a rule-based component. The model includes the following components: (a) An ontology for the tourist domain, providing the necessary terminology regarding the concepts found in the addressed problem (visitor, destination, trip, hotel etc.) and their properties (e.g. a visitor has as properties his age, country, education, etc.) (b) a problem-specific ontology component that expands the above one to support the special terminology needs of individual knowledge sources as well as definitions of classes constructed during the analysis (c) a rule-based component incorporating logic and operations, in order to formulate predictions or suggestions that can be estimated given a set of conditions/input variables. The full model and the corresponding Knowledge Base are implemented in Protégé OWL 4.2, the language used for defining ontologies is OWL - DL in XML syntax and the rules are compiled in SWRL (Semantic Web Rule Language).

The application of multidimensional factor analysis methods on primary survey data showed the feasibility of extracting qualitative knowledge from data which can then be expressed in

computerized form via an ontology and rule-based model. The introduction of findings from two independent surveys into a common Knowledge Base was performed successfully, taking advantage of the ability of the consolidated knowledge model to describe common concepts without inconsistencies, as well as to satisfy the requirements of both sources for terminology definitions and expressiveness. Future steps include the deeper analysis of the image and tourism of Thessaloniki in order to enrich the knowledge content, the expansion of the KM to cater for additional data sources and the incorporation of a query mechanism.

Keywords: Tourist decision support, ontology knowledge model, marketing rules, multidimensional analysis

The BlogForever project

Vangelis Banos

The digital cultural heritage is partly preserved through web archiving activities. The BlogForever platform is a web archiving platform that aims specifically at the preservation of the blogosphere. The focus enables exploitation of the blog structure for sophisticated access capabilities on archived data. Interoperability among BlogForever archives, as well as with other digital libraries, is necessary in order to avoid silos of data and to enable value-added services. In this paper, we reveal interoperability scenarios for a blog archive, and present how descriptive, structural, administrative, and provenance metadata can be exposed to facilitate the identified scenarios.

General Session - Platforms for research data sets, system architecture and data management

Change and a Future for Metadata

Jane Greenberg¹, Emmanouel Garoufallou²

¹The University of North Carolina at Chapel Hill, Chapel Hill, NC, USA
janeg@email.unc.edu

²Alexander Technological Educational Institute of Thessaloniki, GREECE
mgarou@libd.teithe.gr

Future predictions generally resolve some place between a desired outcome and a predetermined path set by fixed circumstances. This essay explores the future of metadata, recognizing the impossibility of creating a precise road map comingled with the fact that researchers and practitioners do, in fact, have some capacity to impact future plans. We address the unprecedented time in which we live, shaped by the latest networked and technological capacities. Observations presented address the future province of metadata, a role for metadata in addressing grand challenges, and emerging synergistic environments. The conclusion summarizes these observations and confirms the significance of metadata.

Keywords. Metadata research, grand challenges, community scholarship, synergistic environments, semantic web, linked data, Research Data Alliance (RDA), e-science, e-research

Author Index

Agathos, Michail	26
Allocca, Carlo	35
Álvarez -Rodriguez, Jose Maria	22, 36
Arapi, Polyxeni	25
Aschauer, Christian	27
Asderi, Stella	34
Auer, Wolfgang	27
Balatsoukas, Panos	34
Bardi, Alessia	30
Bekiari, Chryssoula	35
Belmonte, Javier	31
Blumer, Eliane	31
Bountris, Effie	30
Bursa, Okan	33
Can, Ozgu	21, 33
Candela, Leonardo	35
Caracciolo, Caterina	28
Christodoulakis, Stavros	25
Christodoulou, Yannis	30
Chuttur, Mohammad Yasser	40
Conway, Mike C.	30, 39
de Torcy, Antoine	39
Dodero, Juan Manuel	23
Doerr, Martin	35

Douza, Maria	.....	30
Drenjanac, Domagoj	.....	29
Durco, Matej	.....	22
Ell, Basil	.....	35
Fafalios, Pavlos	.....	35
Fensel, Anna	.....	27
Foulonneau, Muriel	.....	33
Garcia-Barriocanal, Elena	.....	23
Garoufallou, Emmanouel	.....	34, 42
Geser, Guntram	.....	28
Giese, Martin	.....	32
Gradmann, Stefan	.....	38
Greenberg, Jane	.....	30, 42
Handler, Franz	.....	27
Horrocks, Ian	.....	32
Jimenez-Ruiz, Ernesto	.....	32
Kalokyri, Varvara	.....	25
Kalou, Aikaterini K.	.....	39
Kapidakis, Sarantos	.....	26
Karagiannidis, Charalampos	.....	40
Karampiperis, Pythagoras	.....	40
Kärberg, Tarvo	.....	25
Keizer, Johannes	.....	28
Kharlamov, Evgeny	.....	32
King, David	.....	37
Klausner, Lukas	.....	29

Konstantinou, Nikolaos	.....	37
Korfiatis, Nikolaos	.....	34
Koukourikos, Antonis	.....	40
Koutsomiha, Damiana	.....	34
Koutsomitropoulos, Dimitrios A.	.....	39
Kühn, Eva	.....	29
Kulicki, Piotr	.....	28
Kyprianos, Konstantinos	.....	37
L'Abate, Giovanni	.....	28
Labra-Gayo, Jose Emilio	.....	22, 36
La Bruzzo, Sandro	.....	30
Lagoze, Carl	.....	38
Madalli, Devika P.	.....	27
Makris, Konstantinos	.....	25
Manghi, Paolo	.....	30
Manolis, Nikos	.....	25
Manouselis, Nikos	.....	31, 40
Marketakis, Yannis	.....	35
Martin, Sébastien	.....	33
Minadakis, Nikos	.....	35
Mitrou, Nikolas	.....	37
Moore, Reagan	.....	30
Morse, David R.	.....	37
Nogales, Alberto	.....	23
Nogueras-Iso, Javier	.....	36
Ordoñez de Pablos, Patricia	.....	22, 36

Otte, Marcel	27
Palavitsinis, Nikos	40
Palomo-Duarte, Manuel	23
Papadakis, Ioannis	37
Papatheodorou, Christos	26
Paraskeuopoulos, Kostas	34
Patkos, Theodore	35
Patsakis, Constantinos	21
Pesce, Valeria	28
Praczyk, Piotr	36
Rajabi, Enayat	31
Ricci, Fabio	31
Riegler, Thomas	27
Rittberger, Marc	35
Rojas, Sarah Leon	25
Rousidis, Dimitris	34
Ruiz-Rube, Iván	23
Russell, Terrell G.	39
Salampasis, Michail	29
Sánchez Alonso, Salvador	23
Savrami, Katia	30
Schindler, Christoph	35
Schneider, Rene	31
Schulmeister, Klemens Gregor	27
Sezer, Emine	33
Sfakakis, Michalis	26

Sicilia, Miguel-Angel	.....	23, 31
Skevakis, Giannis	.....	25
Skjæveland, Martin G.	.....	32
Solomou, Georgia D.	.....	39
Soylu, Ahmet	.....	32
Spanos, Dimitrios-Emmanuel	.....	37
Stoitsis, Giannis	.....	25
Stoitsis, John	.....	40
Tomic, Slobodanka Dana Kathrin	.....	27, 29
Traverso, Ignacio	.....	23
Trójczak, Rafał	.....	28
Trypuz, Robert	.....	28
Tsiflidou, Effie	.....	31
Tudhope, Douglas	.....	32
Turki, Slim	.....	33
Tzitzikas, Yannis	.....	35
Umashankar, Nalini	.....	23
Unalir, Murat Osman	.....	33
Vafopoulos, Michail	.....	36
Vilhuber, Lars	.....	38
Vlachidis, Andreas	.....	32
Ward, Jewel H.	.....	39
Whitton, Mary	.....	30
Wierzbicki, Jerzy	.....	28
Williams, Jeremy	.....	38
Windhouwer, Menzo	.....	22

Wozniak, Alicja	.....	28
Xu, Hao	.....	39
Yannopoulos, Angelos	.....	30
Zapounidou, Sofia	.....	26
Zhang, Le	.....	30
Zheleznyakov, Dmitriy	.....	32
Zigomitros, Athanasios	.....	21