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The Semantic Web: Semantics and Big Data

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Preface

ESWC celebrated its 10th anniversary this year and took place in Languedoc-Roussillon, in the beautiful city of Montpellier, during May 26–30.

As motto for this year's edition of the conference, we chose the topic "Semantics and Big Data." Big Data Analytics is one of the top technological trends identified by Gartner Inc., stressing the increasingly important role of information governance. The capability of processing, analyzing, and interpreting large amounts of continuously changing, complex, and heterogeneous data is a challenge that will engage the research community's attention for the years to come. The ESWC community can and should contribute to this challenge, focusing in particular on the role that semantic technologies can play in the strive for scalable interpretation of not only large but also heterogeneous and complex data with many explicit and implicit relations.

The 10th edition of ESWC featured an exciting program including four keynotes by Enrico Motta (Knowledge Media Institute, Open University), David Karger (MIT), and Manfred Hauswirth (National University of Galway) as well as by Márta Nagy-Rothengass from the European Commission, whose invited talk took place during the EU Project Networking Session. In addition, the conference program featured 13 workshops, 7 tutorials as well as a PhD Symposium, an EU Project Networking Session, a panel on the motto of the conference, and a Semantic Mashup Challenge. The main program of the conference was rounded off by a demonstration and poster session in which researchers had the chance to present their latest results and advances in the form of live demos. We are also happy that OWLED decided to collocate again their annual workshop with ESWC to discuss future directions for the Web Ontology Language.

The program of the conference comprised 42 contributed paper talks (37 research and 5 in-use papers), selected among 162 submissions, which corresponds to an acceptance rate of 25.9%. This year the reviewing procedure was improved in terms of transparency and quality. We introduced a rebuttal phase that in some cases was crucial for taking final decisions, and a limited number of papers were accepted after a second reviewing round aimed at verifying specific acceptance conditions. The PhD Symposium attracted 23 submissions, of which 7 were accepted as full papers for oral presentation and 11 as short papers for poster presentation, corresponding to an acceptance rate of 30%. In order to foster interaction with other disciplines and to inspire the ESWC research community to venture into new problems and challenges, the conference also featured a special track on "Cognition and the Semantic Web."

As General and PC Chairs we would like to thank everybody who was involved in the organization of ESWC 2013. First of all, our thanks go to the Local Chairs François Scharffe and Clement Jonquet for doing a great job with the local arrangements of the conference, but also in the acquisition of addi-

tional funding and sponsoring. Further, we would like to thank all our Track Chairs who played a key role in helping the PC Chairs to select and compile an outstanding technical program: Aldo Gangemi, Eva Blomqvist, Pascal Hitzler, Luciano Serafini, María Esther Vidal, Axel Polleres, Jun Zhao, Jens Lehmann, Marta Sabou, Andreas Hotho, Alfio Gliozzo, Malvina Nissim, Josiane Parreira, Payam Barnaghi, Claudia d'Amato, Dunja Mladenic, Terry Payne, José Luis Ambite, Sören Auer, Peter Boncz, Krzysztof Janowicz, Kai-Uwe Kühnberger, Sofia Angeletou, and José Manuel Gómez-Pérez.

Special thanks go to this year's PhD Symposium Chairs Laura Hollink and Sebastian Rudolph, who gave their very best to contribute to the progress and education of our research offspring. We would also like to thank our Workshop Chair, Johanna Völker, as well as our Tutorial Chair, Stefan Schlobach, for putting together an exciting tutorial and workshop program that attracted the interest of many attendees of the conference. Vanessa Lopez and Miriam Fernández did an excellent job in selecting a number of very interesting and relevant posters and demos for the conference. We are very happy that Brigitte Endres-Niggemeyer, Giuseppe Di Fabbrizio, and Ioannis Papadakis kindly agreed to organize again the AI Mashup Challenge, this year with an emphasis on "Semantic and Intelligent Mashups." We would also like to thank Marko Grobelnik for chairing a panel on the motto of the conference and Achim Rettinger for organizing the European Project Networking Session. We are very grateful to Fabien Gandon as our Publicity and Communication Chair for spreading news about the conference in a timely manner and to Axel Ngonga as our Sponsorship Chair for his help with the acquisition of sponsoring.

This conference would not have been possible without the support of STI International. We thank Serge Tymaniuk from STI for administrating the website. Thanks also to our treasurer and financial officer Alex Wahler from STI for diligently taking care of the budget and financial/administrative issues.

We would also like to acknowledge the great work of youvivo GmbH, in particular of Edith Leitner and Martina Hartl, in organizing the conference. Thanks also to our Proceedings Chair, Katja Temnow, who made it possible that you are reading these lines right now. We are grateful to our Metadata Chairs: Dieter Fensel, Birgit Leitner, Alex Oberhauser, and Cord Wiljes.

Last but not least, we would like to thank all our sponsors. You will find their logos on the following pages. We kindly acknowledge the support of Springer in the preparation of this volume as well as a gift from Springer as prize for the AI Mashup Challenge.

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A Semantic Web for End Users

David Karger

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For whom are we creating the Semantic Web? As we wrestle with our ontologies, alignments, inference methods, entity extractions and triple stores, it is easy to lose track of the vast majority of users who have no idea what any of these things are, who they help, or what problems they will solve.

In this talk, I will adopt the perspective of these end users. I will identify a number of information management problems faced by them – such as organizing their personal information, communicating effectively on the web, and handling their incoming information overload. The Semantic Web can play a key role in solving these problems. But what will matter most to end users is not the details of the Semantic Web's syntax, model, or algorithms, but rather the interfaces and workflows through which end users interact with it. I will describe key characteristics of these interfaces and workflows, and offer an overview of the research that needs to be done to develop them as effective solutions for end users.

What Does It Mean to Be Semantic? On the Effective Use of Semantics in the Semantic Web

Enrico Motta

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Twelve years after the publication of the seminal article by Tim Berners-Lee, James Hendler and Ora Lassila, which expounded the vision of a Semantic Web characterised by dynamic and large scale agent interoperability, the Semantic Web still distinctly lacks a wow factor. Many SW applications exist, but too often they are characterised by few data sources put together at compile time to drive some relatively simple user functionality. In many cases it is difficult to identify the competitive advantage that being semantic affords these applications, compared to systems built using conventional technologies. Of course, one could argue that this is not necessarily a problem: the success of an area is measured in terms of its academic vitality and its impact on commerce and society. However, I would argue that there is actually a problem here and in my talk I will analyse these issues by examining how the notion of semantics is used in our community, highlighting the productive and unproductive uses of the term, and in particular describing the different ways in which semantics can be effectively exploited to provide added value to applications. The key message is that while there are many ways to exploit semantics to develop better functionalities, as a community we need to develop a better understanding (both fundamentally and pragmatically) of the value proposition afforded by the use of semantics. Without such understanding there is a risk that we will fail to take full advantage of the technologies that we are developing and the opportunities they create for us.

It's a Dynamic World – Ubiquitous Streams and the Linked Data Web

Manfred Hauswirth

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It is well established that we produce humongous amounts of information – technical infrastructures (smart grid, smart cities), the Social Web (Twitter, social networks, blogs), information systems (e-commerce, e-health), the media (newspapers, broadcasters), the Internet of Things, mobile phones, and many more – and that these amounts are growing exponentially. Linked Data gives us the technical means to network all this information and enables us to develop new forms of analytics on networked data from many sources instead of traditional "monolithic" data analytics. But this network of information is "in-discrete" as the data is produced continuously and at potentially high speeds with varying loads and demands on the producer and the consumer sides. This calls for new data/knowledge management approaches and as a result, the Linked Data world is slowly moving from a simplifying discrete model to a more realistic continuous view. This development impacts on and changes research problems in all areas and for all layers and requires well-orchestrated research efforts in and across research communities to support "streaming" as an integrated paradigm. In this talk, I will present a comprehensive stack of Linked Stream management approaches for all layers – from the Internet of Things to backend information systems, and will discuss the impact of streams on big data, analytics, and privacy.

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