The Semantic Web Challenge (challenge.semanticweb.org) started in 2003 with the inspiration to showcase the best of semantic technology, to stimulate research and development and to serve as an informal benchmark that can be used not only to compare systems but also to measure the progress in the field. The idea of the Challenge was summed up in the phrase ‘show us what is possible’ and that is what the Challenge has provided since then: the motivation to create compelling end-user applications that show the technology at work as part of real-life applications. The Challenge has been a success in that although the applications created would not be competitive on the marketplace directly without significant investment, all of the top applications exhibited features that went well beyond in what was visible at the time on the commercial scene. In essence, the participants demonstrated the reasons for continuing to invest in semantic technologies and have driven the research agenda by calling out areas that have needed further attention.

It has been clear from the beginning that semantic technologies are applicable in a broad range of domains and thus restricting the Challenge to a particular task would have seriously limited showing what is possible. Similarly, it’s been noted that each particular application requires a different mix of technological components and while it’s possible to measure individual components in quantifiable ways (e.g. to measure the speed of executing a query) such measurements would tell little about the overall end-user experience. Thus from the beginning the Challenge has been open to all contributions as long as they have met the minimal criteria of applicability in terms of manipulating the meaning of data, using sources of knowledge under diverse ownership and control, and representing a complete application intended for an end-user (and not a developer). The applications have been judged on a number of dimensions that express the desirable characteristics of a Semantic Web application such as applying expressive reasoning methods, exhibiting desirable scaling properties, using multimedia items etc. (The complete list of minimal criteria and the additional desirable features are listed on the Challenge web site.) Each year the judging has been carried out by members of the Advisory Board with the help external experts. The authors of the top systems have been awarded prizes every year, which was made possible by the sponsors of the Challenge.

The first three Challenges have received 10, 18 and 7 submissions, respectively. These systems have been demonstrated at the yearly ISWC conferences and their short descriptions have appeared in the conference proceedings. The papers describing the winning systems of these competitions have also appeared as journal articles [2,3,1]. In 2006 and 2007 the Challenge has received 14 and 18 submissions, respectively. This Special Issue is a collection of six articles describing the six winning systems of these past 2 years. As a collection, these descriptions and the accompanying demos show the tremendous progress the competition has seen in many areas. One sign that is immediately apparent to the reader is that while in the past a system may have relied on the user entering a complex query in an obscure knowledge representation formalism to retrieve a piece of information, by 2007 the winning systems have managed to hide almost all of the complexity of navigating complex result sets.

The articles also demonstrate the broad applicability of Semantic Web technology. In our first paper from the Semantic Web Challenge 2006, Schreiber et al. demonstrate how metadata and ontologies can be used to relate items from the collections of different museums and make them searchable as a single virtual collection. The main challenges addressed are ontology alignment and providing keyword-based search over metadata graphs through an easy-to-use interface. The work of Celma et al. addresses another form of non-textual media, in particular music, where the main issue the authors tackled is music recommendation based on personal preferences. As in the case of museum artifacts, audio metadata also aided in integrating information from multiple sources without an explicit understanding of the content. The last winner of 2006 is a framework for generating metadata applications for Web communities. The technological highlight is the use of P2P technology, which provides for privacy considerations as well as implementing pull mechanisms for keeping data up to date. The system is designed in a way that starting up new communities and composing the user interface of the community application is driven by the semantics of the data and requires minimal programming effort.

From the even broader field of the Semantic Web Challenge 2007, the work of Heath and Motta stood out by providing the most comprehensive user experience. The application targets the domain of reviews, where semantic technology again brings the key element of integrating content from across the Web, in particular combining reviews with information about the object(s) being reviewed. The Potluck system by Huyhn et al. impressed reviewers by providing a surprisingly simple and intuitive interface for one of the most complex operations on Semantic Web data, the merging of data sources, which includes the alignment of schemas as well as the cleaning of the resulting data. This is a significant achievement in that it allows casual users to mash-up data without necessarily being aware of semantic technology. Our
last paper by Wang et al. returns to the museum scene and picks up where the work of the first article finished. The system adds personalized recommendations to the virtual museum based on the user’s ratings of individual art works and a machine understanding of concepts and relationships in the art domain. This work also demonstrates a possible future of museums where the online visitors can continue exploring the real museum while taking with them all the knowledge and information gathered online, or vice versa, continuing online a visit that began in the physical museum.

We hope the reader will enjoy these articles as much as we enjoyed organizing the Challenge in these years.

References