

Preface

EC-Web is an international scientific conference series devoted to technology-related aspects of e-commerce and e-business. The 17th edition of the conference, EC-Web 2016, took place in Porto, Portugal, in September 2016 and served as a forum to bring together researchers and practitioners to present and discuss recent advances in their fields. The conference series historically covers the following areas:

- Search, comparison, and recommender systems
- Preference representation and reasoning
- Semantic-based systems, ontologies, and linked data
- Agent-based systems, negotiation, and auctions
- Social Web and social media in e-commerce
- Computational advertising
- E-commerce infrastructures and cloud-based services
- Service modelling and engineering
- Business processes, Web services, and service-oriented architectures
- E-business architectures
- Emerging business models, software as a service, mobile services
- Security, privacy, and trust
- Case studies

This year, the conference program focused on five main topics: recommender systems, product data on the Web, business processes and Web services and cloud computing, and data analysis. The works presented at the conference reflect recent trends in different subfields related to e-commerce and Web technologies, which can be summarized as follows.

- In the Web era, recommender systems play a fundamental role in helping users deal with issues related to information overload. Recent trends have emphasized the role of the user in these systems, with ways of giving users more control over the recommendations they receive and helping them to visualize the output of the recommender system.
- Product data is one of the most obvious manifestations of doing e-commerce on the Web. Techniques for extracting product data from website content and turning the captured data into canonical representations will extend the reach of e-commerce technologies.
- Business processes embody huge amounts of valuable expertise, which needs to be captured and stored. There is then a need to support search through repositories of business processes so that the expertise can be reused. In a similar vein, there is a growing volume of Web and cloud services that can be composed into larger services. This requires their retrieval, with regard to their inter-operability and quality.

- Finally, user activity on the Web produces growing quantities of data such as clickstreams and purchase histories. We need techniques for efficiently and accurately mining new knowledge from this data for applications such as recommendation and fraud detection.

Out of the contributions of the conference, we selected 12 papers to be included in the proceedings. The volume also includes one invited paper from the conference's keynote speaker. The accepted papers are organized in three themes:

The section on "Recommender Systems" in the proceedings contains four papers. Jorge et al. provide a survey of recommender systems with a focus on implicit feedback and online stream-based approaches. Their paper includes a discussion of methods for forgetting earlier data in the stream and for evaluating recommenders in this setting. This paper is an invited paper and is based on the talk given at the conference by our keynote speaker, Alípio M. Jorge. We are grateful to Prof. Jorge for taking the time to contribute to the conference in this way. Among the other papers in the recommender system section, Jannach et al. review different ways in which recommender systems can give the user more control over the recommendation process, and present a user survey concerning the control mechanisms available in Amazon.com. Deldjoo et al. extract features from movie frames and combine these using canonical correlation analysis with more conventional textual data about the movies, to build a high-performing hybrid. Finally, Richthammer and Pernul describe their use of treemaps for presenting a set of recommendations: The two-dimensional presentation can convey more information visually than can a conventional recommendation list.

The next sections is concerned with "Data Management and Data Analysis" on the Web. Horch et al. manually analyze 50 different e-commerce websites, using descriptive statistics to give insight into the way that these shops structure and distribute product data across their sites, for example, that there may be up to around 15 different kinds of prices. Petrovski et al. describe a corpus of product data they produced that can act as a gold standard in tasks such as product matching: The corpus contains around 500 products and, for 150 of them, 1,500 positive and 73,500 negative correspondences between the products. de Amorim et al. offer a new fast algorithm for mining frequent itemsets from clickstreams. The algorithm is evaluated in a news article recommender system. Jiao et al. also mine clickstreams along with add-to-basket and purchase events, to investigate the value of search re-ranking strategies. Lastly, Lima and Pereira investigate the interplay between resampling and feature selection in fraud detection tasks.

The papers in the "Business Processes, Web Services, and Cloud Computing" section of the proceedings investigate the retrieval of business processes and the composition of Web services. Ordoñez et al. present a new way of indexing business processes, inspired by n -grams and capturing both the linguistic and structural aspects of the business process. In the case of cloud services, Ferrarons et al. define interoperability metrics such as quantitative coverage metrics and qualitative quality metrics. da Silva et al. present an approach to service composition that uses evolutionary computation techniques that work on services represented as directed acyclic graphs.

Finally, Kasmi et al. survey work that uses recommender systems techniques for Web services composition. The survey covers dimensions such as context, social networks, time, and interactivity, among others.

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Papers

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