# Preface to SEDSEAL 2018

During the past decade, the field of artificial intelligence (AI) has been experiencing an outburst of applications and innovations, having many facets: on the one hand, there are strong symbolic representations to underpin the next generation of the Web, and the advent of the Semantic Web has a major role in giving everyday browsing tasks a blend of intelligence; and on the other hand, deep learning techniques and achievements have been proven to tackle problems that would seem intractable some time ago. The wide availability of information on the Internet, storage space, and Web-generated content add more impetus to devising applications that would take advantage of such unprecedented resources but would also stand up to the challenges posed by processing and value extraction out of big data.

The SEDSEAL 2018 workshop's particular aim was exactly to put emphasis on big data analysis and more specifically on how semantics-aware applications can contribute in this field. Still, there are often issues that need to be dealt with. These range from efficient ontological processing of big data ontologies to knowledge graph maintenance to ontology evolvement with machine-learning techniques.

Semantic interoperability inside data lakes composed of vast IoT networks is addressed by Kalamaras et al. The authors propose an architecture for big data analytics in the context of large-scale IoT systems consisting of multiple IoT platforms. The efficient management of the spectrum crunch in the field of wireless communication necessitates processing of a large volume of information and requires knowledge-based decision-making upon ever-changing circumstances. Nagpure et al. explain how semantic models can be employed to analyze complex spectrum data. Semantic ambiguity in natural language has been a problem that traditionally hampers Semantic Web applications. To resolve this ambiguity, Gadag and Sagar describe a deep learning architecture, trained to compute semantic similarity between words.

Indeed, the interplay between the logical formalisms of the Semantic Web and machine- and deep-learning techniques is currently a hot research topic for both technologies to reach their next step and forms the state of the art in this area. We believe that the overall outcome of the SEDSEAL 2018 workshop can offer a valuable and timely snapshot, bringing together a multidisciplinary audience under the general AI and data science framework, of current advances, practices, and lessons learned.

We were honored to have Prof. Panos Kalnis as the SEDSEAL keynote speaker, to whom we express our gratitude for kindly accepting our invitation. There could be no better way than his motivating lecture on scalable querying of big RDF data to open this workshop. We are grateful to the number of people who served in the SEDSEAL 2018 Program Committee. Their eager participation and thoughtful remarks have been

invaluable. We would also like to thank the AIAI 2018 chair, Prof. Lazaros Iliadis, and the workshop co-chairs, Profs. Christos Makris and Spiros Sioutas, for their help and support for a successful SEDSEAL 2018.

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