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DeepOntoNLP 2021

**Second International Workshop on Deep Learning
meets Ontologies and Natural Language Process-
ing**

Hersonissos, Greece, June 6 2021 - moved online

Proceedings

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Preface

The Second International Workshop on Deep Learning meets Ontologies and Natural Language Processing (DeepOntoNLP) was held as part of the 18th Extended Semantic Web Conference on June 6, 2021. DeepOntoNLP 2021 was expected to happen in Hersonissos, Greece, but due to the COVID-19 emergency and the consequent travel restrictions, the workshop was held online. The workshop was organized by ENGIE (France).

This workshop collected contributions that aimed at demonstrating recent and future advances in semantic rich deep learning by using Semantic Web and Natural Language Processing (NLP) techniques which can reduce the semantic gap between the data, applications, machine learning process, in order to obtain a semantic-aware approaches. In addition, the goal of this workshop was to bring together an area for experts from industry, science and academia to exchange ideas and discuss results of on-going research in natural language processing, structured knowledge and deep learning approaches.

In total, 7 submissions from different countries were received. The final program included 4 full papers and 3 short papers. All submissions were peer-reviewed by at least three internal Program Committee members on the basis of relevance for the workshop, novelty/originality, significance, technical quality and correctness, quality and clarity of presentation, quality of references and reproducibility, to ensure that only submissions of high quality were included in the workshop program. Full paper authors were given 15 minutes to present their work, with 5 minutes for questions and answers. Conversely, short paper authors used 10 minutes to present and 5 minutes were left for questions and answers. The presentations covered topics that go from the integration of embedding representations for ontology maintenance, over the role of out-of-vocabulary words in question-answering systems, to studies involving knowledge extraction from texts.

In addition to the paper presentations, the program included two 45-min keynote talks given by Michael Spranger from the Sony Artificial Intelligence Lab, Tokyo, Japan, and Fabio Petroni from the Facebook Artificial Intelligence Lab, London, UK. Michael Spranger presented Logic Tensor Networks (LTN) a recently revised neural-symbolic formalism that supports learning and reasoning through the introduction of a many-valued, end-to-end differentiable first-order logic, called Real Logic. The talk introduced LTN using examples that combine learning and reasoning in areas as diverse as: data clustering, multi-label classification, relational learning, logical reasoning, query answering, semi-supervised learning, regression and learning of embeddings. In his talk, Fabio Petroni reviewed general approaches for representing large scale textual knowledge sources that are useful for multiple downstream tasks. He introduced the KILT benchmark, a recently proposed set of tools and datasets spanning multiple domains (including Question Answering, Entity Linking and Dialogue). Finally, Fabio de-

scribed some of the latest knowledge-intensive NLP models with a focus on their efficiency.

Overall, the workshop was a successful event, as shown by the level of participation and the quality of the contributions during the presentations and the discussion. Plans to organize the third edition of the workshop were formed. The organizers would like to sincerely thank the main conference organizers, the keynote and panel speakers, the paper authors, the programme committee, and the attendees for their valuable contribution to make this workshop a success.

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