
Guest editorial: Current trends in semantic web and knowledge graphs

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Knowledge graphs are considered as a set of data points associated with relations to describe the domains such as an organization, business or academics. They have a potential role to bridge the semantic gap between unstructured and structured information and foster new research directions and tasks with new possibilities to represent, query, visualize, interact and make more understandable information. Knowledge graphs are powerful in representing data in search and recommendation systems that explore new insights about the domain. Recently, knowledge graphs gained popularity with deep learning and graph embedding. This special issue has been organized to invite the extended version of the KGSWC-2022 conference accepted papers.

This special issue aims to provide a forum for the semantic Web community, bringing together researchers and practitioners in the industry to share ideas about R and D projects and increasing the adoption of semantic Web technologies within the region. In total, nine papers were submitted to this special issue. After a rigorous review according to relevance, originality, technical novelties and presentation quality, we selected three manuscripts. A summary is outlined below.

In the first paper (Payghode *et al.*, 2023) entitled, “Object detection and activity recognition in video surveillance using neural networks” by Payghode *et al.*, the authors develop a deep learning framework to automate the task of analyzing video footage through object detection in images by using the neural network. This paper provides an exhaustive comparison between the existing and the proposed methods. It has the highest object detection accuracy.

In the second paper (Khobragade *et al.*, 2023) entitled, “Infer the missing facts of D3FEND using knowledge graph representation learning” by Khobragade *et al.*, the authors proposed an automated approach to predict the missing facts using the link prediction task, leveraging embedding as representation learning. Experimental results show that the translational model performs well on high-rank results, whereas the bilinear model is superior in capturing the latent semantics of complex relationship types. However, the convolutional model outperforms 44% of the facts and achieves a 3% improvement in results compared to other models.

In the third paper (Hafidi *et al.*, 2023) entitled, “Semantic Web and machine learning techniques addressing semantic interoperability in Industry 4.0” by Hafidi *et al.*, the authors offered a comprehensive examination of the various solutions currently accessible for addressing the challenge of semantic interoperability in cyber-physical systems (CPS) and help to identify the most relevant points in the development of semantic models and machine learning solutions to the interoperability problem, and how these solutions are implemented in CPS.

The guest editors would like to express their deep gratitude to all the authors who have submitted their valuable contributions and to the highly qualified anonymous reviewers. We think that the selected contributions, which represent the current state-of-the-art in the



related area, will be of great interest to the community. We also would like to thank Prof. Honghao Gao, the Editor-in-Chief of IJWIS, Emerald.

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