Combining Machine Learning and Semantic Web: A Systematic Mapping Study

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In line with the general trend in AI research to create intelligent systems that combine learning and symbolic components, a new sub-area has emerged that focuses on combining machine learning (ML) components with techniques developed by the Semantic Web (SW) community – Semantic Web Machine Learning (SWeML). Due to its rapid growth and impact on several communities in the last two decades, there is a need to better understand the space of these SWeML Systems, their characteristics, and trends. Yet, surveys that adopt principled and unbiased approaches are missing. To fill this gap, in our recently published paper \cite{ref1}, we performed a systematic study and analyzed nearly 500 papers published in the last decade in this area, where we focused on evaluating architectural, and application-specific features. Our analysis identified a rapidly growing interest in SWeML Systems, with a high impact on several application domains and tasks. Catalysts to this growth are the deep learning and knowledge graph technologies. By leveraging the in-depth understanding of the area, we publish the classification SWeML Systems as an ontology. We bring a complementary view to the NeSy community by showing how the SW community is deploying neuro-symbolic systems.

References