

Knowledge Representation and Reasoning in the Time of Data-Centric AI

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Abstract


Data-driven AI has grown massively in the last 10 years or so, predominantly due to increased processing power availability, big data and powerful statistical and probabilistic models to support machine learning and reasoning as vector (rather than symbol) manipulation. In this talk I will explore the role that knowledge representation and reasoning (KR) may have in this landscape, as well as (to a lesser extent) the role that data-centric AI may have for KR. Specifically, I will focus on how KR can support the need for data-centric AI “models” to be verified and explained, so as to overcome any artifacts and biases that may be present in these “models”. Also, KR can contribute to “hybrid” data-centric AI “models” integrating symbolic reasoning components with statistical/neural modules. In addition to these examples of how KR can support data-centric AI, I will also describe uses of data-centric AI for knowledge elicitation. Overall, data-centric AI is an important area of AI research and the KR community can gain lots by engaging with this landscape.

Keywords

Knowledge Representation and Reasoning, Machine Learning, Explainability

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