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Editorial

Guest Editorial: Measuring Ontologies for Value Enhancement (MOVE)

Abstract: This editorial highlights the importance of digital ontologies and ontology-like Data-Information-Knowledge-Wisdom (DIKW) artifacts in advancing AI. We invited original research and reviews on the role of ontologies in AI development, enhancement, and applications.

Keywords: ontologies, AI

1. Importance of Ontologies in AI Development

Although AI has entered the mainstream, many enterprises are still exploring its capabilities and potential applications. Despite significant advances, fundamental challenges remain in how AI systems represent knowledge, interpret meaning, and reason across different domains. These challenges raise questions about the conceptual structures needed to support further AI development.

In Computer Science, "an ontology defines a set of representational primitives with which to model a domain of knowledge or discourse" [1].

For this special issue of the AIA Journal, we expanded the work of the Measuring Ontologies for Value Enhancement (MOVE) community [2, 3], by exploring how ontologies may advance AI.

Ontologies have been related to AI in several significant ways, such as:

1) Knowledge Representation and Sharing
2) Semantic Modeling
3) Domain Expertise
4) Interoperability Complex Queries
5) Automated Reasoning
6) Enhanced Communication, Cooperation and Collaboration
7) Explication of knowledge

The above advances AI by underpinning the formal and informal conceptual structures that AI tools can use to better reason, move forward their state-of-the-art, and bring AI applications to life. However, new challenges are emerging, such as the trustworthiness of AI applications and unanticipated failures or threats of AI [4]. Furthermore, there are complex, all-pervasive and societal challenges, such as the sustainability of AI-intensive economies [5].

We invited our readers and MOVE community members to contribute to our ongoing dialogue by submitting their research, insights, and innovative applications of ontologies in AI, including the articles featured in this special edition, which marks another important milestone in this continuing journey.

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