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Editorial

Bridging the Gap between Purpose-Driven Frameworks and Artificial General Intelligence

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Artificial General Intelligence (AGI) has leaped forward in capabilities, offering applications that reach far beyond conventional machine learning systems. Ranging from automated systems to natural language understanding, AGI is entering realms that require sophisticated data interpretation and reasoning. However, there remains a disconnect: the ability of these systems to understand and act upon the purpose behind the media of the semantic content they process. This is the genesis for the focus of our Special Issue: "Purpose-Driven Data–Information–Knowledge–Wisdom (DIKWP)-Based Artificial General Intelligence Models and Applications".

1. The Necessity for Purpose-Driven AGI Models

In a purpose-driven framework, Data–Information–Knowledge–Wisdom (DIKW) elements operate in a functional relationship that extends beyond mere data processing to include a purpose-driven utility. This is particularly true when considering AGI's increasing involvement in fields that require individualized and contextual understanding, such as healthcare, personalized education, and social media content curation [1,2].

2. The DIKWP Framework as an Enabling Factor

The DIKWP model provides an evolutionary step to include purpose as a pivotal parameter, thus contextualizing how data are processed into wisdom. Data elements (D), such as raw numbers and facts, can be converted to information (I) by the context they provide. This processed information gains the form of knowledge (K) through comparative analysis and pattern recognition. Finally, wisdom (W) is shaped as a result of the effective utilization of knowledge. The addition of purpose (P) serves as the driving force behind this transformation from data to wisdom, ensuring the alignment of AGI's computational capacities with human-centric needs [3–5].

3. Shortcomings of Data-Centric Models in Capturing Purpose

Traditional AGI models, which are heavily reliant on vast amounts of data, often suffer from a lack of contextual understanding, i.e., the "purpose" that the data serves. They are particularly constrained in scenarios requiring subjective interpretation, such as ethical decision-making or understanding human emotions [6,7].

4. The Synergistic Relationship between Purpose and DIKW Elements

The DIKWP model posits that purpose (P) acts as a cornerstone in the transformation process from data to wisdom. Purpose-driven data graphs offer a way to understand this complex relationship, ensuring that AGI models remain aligned with the specific objectives they serve. These graphs not only facilitate the representation of data but also encapsulate the purpose, thereby fulfilling the vision of a holistic and purpose-oriented AGI system [8,9].

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5. Topics to Be Explored in This Issue

This Special Issue invites manuscripts that tackle the pressing issue of the integration of purpose in AGI, including, but not limited to, the following:

- Development of small AGI models based on DIKWP;
- Computational strategies in purpose-driven AGI;
- Formalization methods for adding purpose to traditional DIKW models;
- Evaluation models to assess the efficiency and effectiveness of purpose-driven AGI;
- Trustworthiness and ethical considerations in the implementation of explainable purpose-driven AGI models [10–12].

6. The Way Forward

The development of a purpose-driven framework for AGI signals a paradigm shift in how we conceive intelligence, artificial or otherwise. It opens up new avenues for multi-disciplinary research, incorporating facets of philosophy, psychology, and sociology to offer a truly human-centric AGI model [13]. As a result, we find an intricate yet harmonious relationship between data, information, knowledge, wisdom, and their purposes in different contexts, from healthcare and education to social justice initiatives.

We look forward to receiving your contributions to this groundbreaking area of research that aims to bridge the existing explaination gap in AGI, offering trustworthy models that are not just data-driven but also purpose-oriented.

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