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Aspect of the Knowledge Representation Framework (KR Framework) for Offering the Basis for a Number of Research Activities in the Caisor

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Abstract

The representation of knowledge refers to the technical challenge of capturing human understanding and thinking in a conceptual framework that enables computer networks to handle information. This research study is aimed to critically analyse the impact of the knowledge representation framework on the efficiency level of CAISOR activity. The research study has provided a sustainable viewpoint about the way KRF presents visualization data that is easy to understand for the human as well as the CAISOR agenda. A wide variety of different initiatives are founded on the CAISOR agenda through the Knowledge Representation Framework. The KR model covers many features of structured information representation ranging from simple facts to sophisticated formulations and programs. In addition, the research study has followed a secondary qualitative data collection method to collect the secondary sources of data regarding the research topic.

Keywords

AI System, CAISOR, Framework, Knowledge Representation Framework.

INTRODUCTION

A method to the representation and arrangement of organizing data in both conventional and knowledge bases and knowledge-based systems is an approach of Knowledge representation framework (KRF). KRF is built on the usage of KR functions as a more legible and powerful alternatives to S-expressions, JSON, transcription and the same to describe specific data. However, through the utilization of various brackets and infixes, KRF notation is comparable to the logic and extensive setting interpretation. Many of the KRF's languages employ KR as its syntax frameworks, such as KIF, KQML and PDDL for the sake of Syntax. This comprises the common language of expression that performs a function comparable to KIF, the documents and website marking language and numerous more. The Session Command Language has been designed to give orders to KRF-style sessions containing software agents and is a KRE-based scripting language. Moreover, presently the usage of Knowledge representation framework has enhanced up to 27%, as it creates a positive impact on the activities of CAISOR. Here in this research study a brief overview will be provided on the impact of knowledge representation framework on the CAISOR activities. *The aim of this research study is to evaluate the importance of the Knowledge representation framework on the CAISOR activity.*

The concept of Knowledge Representation Framework and its benefit

In the CAISOR agenda, a series of research initiatives are based on the framework for representation of knowledge (KR Framework). The introduction to a lay individual is provided via several different effective methods. The KR framework defined many features of defined data representation, varying from minor facts to sophisticated formulae and scripts [9]. This format is used for publishing languages and marking and scripting in KRF based software both in KRF-based lecture and technical documents. As per the words of Wu *et al.* (2018), knowledge representation relates to the technological challenge of encryption of human knowledge and reasoning into a symbolic language, which enables information technology to manage it.[8]

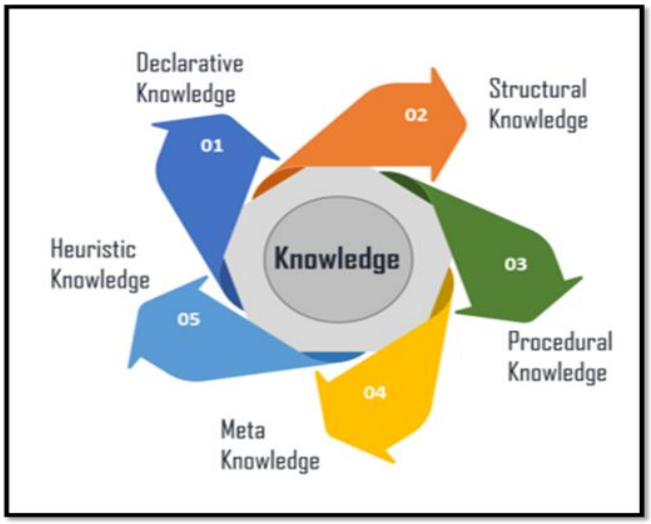

Figure 1: Types of Knowledge in the Knowledge representation framework [9].

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Knowledge representation is employed in systematic biology to integrate scientific concepts and understanding into data to increase its usefulness for scientific understanding. Real-world knowledge has an essential and significant function for intelligent creation. In showing intelligent human behaviour in AI entities, knowledge plays a significant role. An agent can only act on certain information accurately if he has some knowledge or understanding of the information. On the other hand, as per the words of Bruno *et al.* (2019), the representation and reasoning of knowledge is part of the intelligence that deals with the thinking of AI agents and how thought leads to intelligent action. It represents factual information so that a computer can comprehend and use this skill to solve complicated real-world issues, such as the diagnosis of a medical condition or the communication with people in natural languages. It is also a technique to define how knowledge in artificial intelligence can be represented. The representation of knowledge is not only data storage in a transaction window. Nevertheless, it also allows a smart machine to learn from information and experience, so that it may be intelligent like a person. The representation of the frame of knowledge facilitates the programming by grouping associated data. A rather flexible framework representation is employed by many AI applications. Slots for additional attributes and connections can be very easily added. The default data can be included, and missing values can be searched through the utilization of knowledge representation framework.[1]

The impact of Knowledge Representation Framework on the CAISOR activity

Presently, the knowledge representation system is one of the most crucial components in the CAISOR activity, as the utilization of KRF has created a positive impact on the CAISOR process by maintaining the factual data. The area of artificial intelligence is knowledge representation and reasoning, which is devoted to expressing world information in a way a computer system, can use to perform difficult jobs. As per the words of Saha (2020), the representation of knowledge includes psychological insights on how people solve issues and express knowledge, to create formalisms that facilitate design and building complicated systems. The representation and reasoning of knowledge also includes logical results to automate other types of reasoning such as rules or the relationship between sets and subsets. A constant sequence of standards and notes for the acquisition of information, software development, intelligent autonomous agents and arrangement of documents are developed under the knowledge representation framework (KRF).[6]

In such a scenario, documentation not only contains articles and reports, but also WebPages that are static and dynamic [3]. Much of CAISOR's work is defined by the use of design iteration as work towards a big and complicated design. Therefore, the utilization of Knowledge representation framework supports the CAISOR agenda to gain the necessary information from the complex design of data. On the other hand, according to the words of Cornet (2019), Knowledge representation and reasoning are the primary components of the cycle, showing human intelligence in computers. The depiction of knowledge is all about intelligent comprehension. It aims to understand and develop intelligent behaviour from the top town and concentrate on what a CAISOR agenda wants to know to be knowledgeable instead of attempting to comprehend or build brains up from below.[2]

It also describes how evolutionary computing methods can provide this information as necessary. Knowledge plays an essential part in intelligence and the creation of artificial intelligence in the actual world. The intelligent behaviour of AI agents or systems can be demonstrated with an agent or system that is only able to behave properly on certain inputs if they are aware of the input. A frame is a structure resembling a record consisting of a set of characteristics and attributes which characterize an object in the world. The utilization of frame representation creates a positive impact on the efficiency level of CAISOR by making the programming understandable for the CAISOR agenda. Therefore, through the findings it can be easily stated that the inclusion of KRF creates a positive impact on the performance of CAISOR agenda.

METHODOLOGY

This research study utilized a philosophy of positive research to assess the ideology and find the factual proof of information. As per the words of Ryan (2018), using the concept of positivism research can help a research study by developing the hypotheses and factual facts in the collection of useful information. The research study, on the contrary, has selected a descriptive research design to explain the research study's aim and goals in order to minimize the research objectives. Furthermore, instead of relying on logical induction, the research study used a deductive research strategy in establishing an original assumption based on current concepts and practices.[5]

As per the words of Pearse (2019), the researchers can use a deductive method to explore the relationships between the study components. In this research study, the researcher utilized a deductive strategy to research to develop and assess a proposed hypothesis to help the researchers in describing the topic. In addition, a secondary qualitative data collecting approach has been used in the research study to enable researchers to obtain useful information from diagrams and tables from verified reputable online sites and scientific papers. In the course of this research study, publications, scholars and peer reviews were also employed to gather the secondary source of data on the research subject from 2017 to 2021.[4]

RESULT AND DISCUSSION

In the present time, the framework of knowledge presentation has created a positive impact on the efficiency of CAISOR. The infliction of this framework has also created a positive impact on the efficiency level of AI knowledge

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circle. The main components of the AI knowledge system are learning, knowledge representation, planning, perception, and execution.

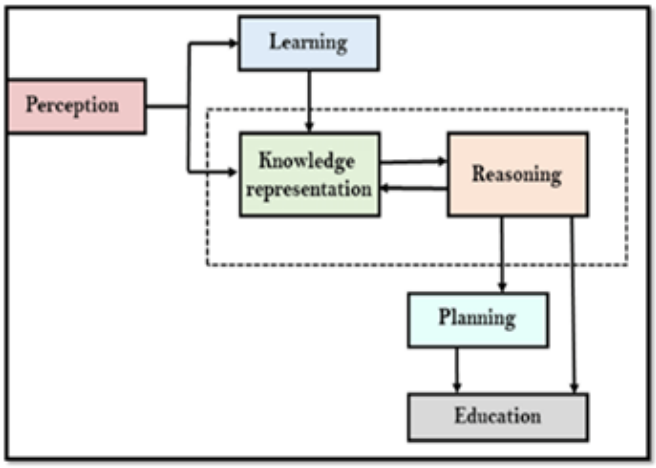

Figure 2: Components of knowledge representation framework [7]

The picture above shows that an AI system can engage with the actual world and which elements allow it to demonstrate understanding. AI has a perception element, via which information is retrieved from its surroundings, as the audio or other sensory input format can be graphical. The learning component is responsible for learning from perception-captured data. Knowledge representation is the fundamental component in the entire cycle. Both of these components demonstrate intelligence in computer people. Both components are autonomous, but yet interconnected however, planning and implementation depend on the examination of representation and reasoning of knowledge.

On the other hand, as per the words of Siregar *et al.* (2018), the inclusion of Knowledge representation framework also creates a positive impact on the efficiency level of CAISOR agenda through the ability to summarize the collected data. However, the implication of this framework also supports the AI system to understand the prospective CAISOR agenda that supports them to work according to the proposed agenda. The representation of knowledge in artificial intelligence systems is a fundamental part. The technologies with a natural language interface require three categories of information such as word knowledge, sentence structure knowledge and domain knowledge. Knowledge of the structure of phrases is called grammar or works, knowledge of objects and relationships is referred to as a model for the field of knowledge. On the other hand, when it is understandable by the knowledge engineers and at the same time the system acts as though it actually had this information, it will be regarded as effective in presenting it. Since in reality there are no ideal models, knowledge engineers and developers must compromise on their unique objectives. The breadth of the topic is wide-ranging and involves the logic, ontology, and computer fields. The logic and ontology of a particular knowledge field enable the construction of an appropriate computer model.[7]

CONCLUSION

This research study is based on the aspects of knowledge representation framework on the efficiency level of CAISOR activity. In addition, a number of CAISOR's research efforts are based on the Knowledge Representation Framework (KR Framework). The KR Framework covers many features of structured information representation ranging from simple facts to sophisticated formulae and scripts. Moreover, the research study has also highlighted the impact of knowledge representation in AI systems as well as the CAISOR agenda. Knowledge representation is a framework that supports an organization to evaluate the complex data in a simple form that creates a positive impact on the efficiency level of the CAISOR agenda.

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