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AI Aur Samajik Badlaav

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Abstract

In the future, intelligent machines will replace or enhance human capabilities in many areas. Artificial intelligence is the intelligence exhibited by machines or software. It is the subfield of computer science. Artificial intelligence is becoming a popular field in computer science as it has enhanced the human life in many areas. Artificial intelligence in the last two decades has greatly improved performance of the manufacturing, service sector and so in the field of education. Study in the field of artificial intelligence has given rise to the rapidly growing technology known as expert system. Application areas of artificial intelligence is heaving a huge impact on various fields of life as expert system is widely used in these days to solve the complex problems in various areas as education, engineering, business, medicine, weather forecasting etc. The areas employing the technology of artificial intelligence have seen an increase in the quality and efficiency. This paper gives an overview of this technology and the scope of artificial intelligence in different areas with special reference to the use of this technology in the field of education along with its meaning, searching techniques, inventions and future.

INTRODUCTION

It is claimed that artificial intelligence is playing an increasing role in the research of educational technology, management sciences and operational research areas. Intelligence is commonly considered as the ability to collect knowledge to solve complex problems. In the near future intelligent machines will replace human capabilities in many areas. Artificial intelligence is the study of intelligent machines and software that can reason, learn, gather knowledge, communicate, manipulate and perceive the objects. John McCarthy coined the term in 1956 as branch of computer science concerned with making computers behave like humans. It is
the study of the computation that makes it possible to perceive reason and act. Artificial intelligence is different from Psychology because it emphasis on computation and is different from computer science because of its emphasis on perception, reasoning and action. It makes machines smarter and more useful. It works with the help of artificial neurons (artificial neural network) and scientific theorems (if then statements and logics). AI

EVOLUTION OF AI DEFINATION

AI has a history much longer than is commonly understood, in fields from science and philosophy ranging all the way back to ancient Greece but its modern iteration owes much to Alan Turing and conference in Dartmouth College in 1956 where the term "Artificial Intelligence" was officially coined and defined by John McCarthy
at the time as "the science and engineering of making intelligent machines". Russel and Norvig (2020) referred
to it as the "the birth of artificial intelligence." One of the initial paradigms of AI was that it revolved around
high-level cognition. Not the ability to recognise concepts, perceive objects, or execute complex motor skills shared by most animals, but the potential to engage in multi-step reasoning, to understand the meaning of natural language, to design innovative artefacts, to generate novel plans that achieve goals, and even to reason about their own reasoning. This general human like intelligence was referred to as strong AI For strong AI, the primary approach has centred on symbolic reasoning, that computers are not simply numeric calculators but rather general symbol manipulators. As noted by Newell and Simon (1976) in their physical

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symbol system hypothesis, intelligent behavior appears to require the ability to interpret and manipulate symbolic structures.

While this approach showed promise initially (Newell & Simon, 1963), many branches of AI retreated from this approach due its difficulty and the lack of progress coming in to the 21st century. It remains yet uncertain on when and if strong AI will be made a reality.

The distinction between weak AI and strong AI is also concerned with rule adherence, i.e., the way machines interact with rules distinguishes rule-based decision making in which machines strictly respect the rules set by developers from rule following decision making which machines follow rules that have not been strictly specified to them. Rule-based decision-making matches weak AI, while rule-following decision making is an attempt that tends towards strong AI. An example of rule-following decision making is neural networks (NN),

which allow algorithms to learn from themselves. Strong AI would be machines making their own rules and then follow them, which is not possible at the stage of right now AI has gone through many peaks and troughs since its early inception in the 1950s, usually referred to as AI

"summers and winters. Since 2010, however, AI can be said to have once again entered a summer period, mainly due to considerable improvements in the computing power of computers and the access to massive amounts of data. This resurgence in AI research is the result of three breakthroughs:

(1) The introduction of a much more sophisticated class of algorithms;

(2) The arrival on the market of low-cost graphics processors capable of performing large amounts of calculations in a few milliseconds; and

(3) The availability of very large, correctly annotated databases allowing for more sophisticated learning of intelligent systems (Jain et al., 2004, Khashman, 2009, PWC, 2019).

Despite the length of time the field has existed, there is still no commonly accepted definition (Allen, 1998, Bhatnagar et al., 2018, Brachman, 2006, Hearst and Hirsh, 2000, Nilsson, 2009). This is not considered a problem yet, as many scientific concepts only get true definitions after they have matured enough, rather than at their conception, and given the complexity and breadth of AI, it may not be feasible to expect AI to have a

set definition yet. Still, this doesn't mean that the topic should be ignored, especially with the recent advancements and advancements relating to the field.However, without a clear definition of the term, "it is difficult for policymakers to assess what AI systems will be able to do in the near future, and how the field may get there. There is no commonframework to determine which kinds of AI systems are even desirable" (Bhatnagar et al., 2018). A similar concern has been echoed by Monett and Lewis (2018), that "theories of Intelligence usually means "the ability to solve hard problems" (Minsky, 1958).

"AI is concerned with methods of achieving goals in situations in which the information available has a certain complex character. The methods that have to be used are related to the problem presented by the situation and are similar whether the problem solver is human, a Martian, or a computer program" (McCarthy, 1988). With the variety of separate opinions on what AI is, lacking agreement on a standard evaluation (i.e., criteria, benchmark tests, milestones) makes it extremely challenging for the field to maintain healthy growth

(Hern´andez-Orallo, 2017).

A systematic guide to literature review development Okoli (2015) propose a systematic review process that consists of 8 steps, namely planning (2 steps), selection (2 steps), extraction (2 steps) and execution (2 steps) that are completed across 4 phases (see Fig. 1.). Each of these four phases and eight steps are discussed in detail in the remainder of the section.

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DISCUSSION

This section summarizes the findings of the SLR and highlights some areas that research to date has focused and the key findings from these studies. It is then followed by a discussion on the theoretical contributions and implications for practice. The overall goal is to uncover themes that are relevant for research and practice and identify areas which warrant further research. This section will discuss relevant insights we found from the literature, starting with the lack of cohesion around the definition of AI, the resurgence of AI interest and research in recent years, the specific contribution types of AI literature, and the disproportionate focus on machine learning and process automation.

In this study we conducted a SLR that provides a comprehensive overview on AI in IS related studies. By using a systematic literature review, we identified, classified, and analysed 1877 studies on AI and ML in IS that were published between 2005 and 2020. Of these, 98 were identified as primary studies, after a rigorous filtering process. To understand the fundamentals of AI in IS we examined and studied the articles based on studies by year, publication channel, research methods used, and their contribution to IS contributions research. Prior to commencing this task however, we had to consider the problem that the definitions of artificial intelligence were largely varied and ambiguous.

Following are the sample Questions?

1) Are you aware of Artificial intelligence?
2) Should AI be allowed to replace human workers in certain job?
3) Do you agree that artificial intelligence has useful applications in the medical field and education sector?
4) How will the advancements of artificial intelligence and robotics impact your decision of being involved
in a specialty?
5) Do you believe that artificial intelligence will significantly impact the future of technology and society?"

ARTIFICIAL INTELLIGENCE METHODS:

1. Machine Learning It is one of the applications of AI where machines are not explicitly programmed to perform certain tasks;

rather, they learn and improve from experience automatically. Deep Learning is a subset of machine learning based on artificial neural networks for predictive analysis. There are various machine learning algorithms, such as Unsupervised Learning, Supervised Learning, and Reinforcement Learning. In Unsupervised Learning, the algorithm does not use classified information to act on it without any guidance. In Supervised Learning, it deduces a function from the training data, which consists of a set of an input object and the desired output. Reinforcement learning is used by machines to take suitable actions to increase the reward to find the best

possibility which should be taken in to account.

2. Natural Language Processing (NLP)

It is the interactions between computers and human language where the computers are programmed to process natural languages. Machine Learning is a reliable technology for Natural Language Processing to obtain meaning from human languages. In NLP, the audio of a human talk is captured by the machine. Then the audio to text conversation occurs, and then the text is processed where the data is converted into audio. Then the machine uses the audio to respond to humans. Applications of Natural Language Processing can be found in

IVR (Interactive Voice Response) applications used in call centres, language translation applications like Google Translate and word processors such as Microsoft Word to check the

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accuracy of grammar in text. However, the nature of human languages makes the Natural Language Processing difficult because of the rules which are involved in the passing of information using natural language, and they are not easy for the computers to understand. So, NLP uses algorithms to recognize and abstract the rules of the natural languages where the unstructured data from the human languages can be converted to a format that is understood by the computer.

Automation & Robotics

The purpose of Automation is to get the monotonous and repetitive tasks done by machines which also improve productivity and in receiving cost-effective and more efficient results. Many organizations use machine learning, neural networks, and graphs in automation. Such automation can prevent fraud issues while financial transactions online by using CAPTCHA technology. Robotic process automation is programmed to perform high volume repetitive tasks which can adapt to the change in different circumstances.

3. Machine Vision Machines can capture visual information and then analyze it. Here cameras are used to capture the visual information, the analogue to digital conversion is used to convert the image to digital data, and digital signal processing is employed to process the data. Then the resulting data is fed to a computer. In machine vision,

two vital aspects are sensitivity, which is the ability of the machine to perceive impulses that are weak and resolution, the range to which the machine can distinguish the objects. The usage of machine vision can be found in signature identification, pattern recognition, and medical image analysis, etc.

APPLICATIONS OF AI

1. AI in Astronomy Artificial Intelligence can be very useful to solve complex universe problems. AI technology can be helpful for understanding the universe such as how it works, origin, etc.

2. AI in Healthcare In the last, five to ten years, AI becoming more advantageous for the healthcare industry and going to have a significant impact on this industry. o Healthcare Industries are applying AI to make a better and faster diagnosis than humans. AI can help doctors with diagnoses and can inform when patients are worsening so that medical

help can reach to the patient before hospitalization.

3. AI in Gaming AI can be used for gaming purpose. The AI machines can play strategic games like chess, where the machine needs to think of a large number of possible places.

4. AI in Finance AI and finance industries are the best matches for each other. The finance industry is implementing automation, Chabot, adaptive intelligence, algorithm trading, and machine learning into financial processes.

5. AI in Data Security

The security of data is crucial for every company and cyber-attacks are growing very rapidly in the digital world. AI can be used to make your data more safe and secure. Some examples such as AEG bot, AI2 Platform, are used to determine software bug and cyber-attacks in a better way.

CONCLUSION

This systematic literature review study provides a structured understanding of the state-of-the-art of AI research in IS. This was achieved by identifying 98 primary studies out of 1877 related AI articles over a fifteen-year period (2005 – 2020) and analyzed them with respect to (i) definitions of AI, (ii) frequency of publication by year, (iii) publication channels, (iv) research method and data collection type, (v) contribution type, (vi) type of AI and (vii) business value. A clear finding emerging from this systematic literature review is the need to (i) increase the number of rigorous academic studies on AI, especially regarding tools and models, (ii) be more

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detailed on the definition of AI used in studies, even when it is not the focus, and (iii) build on cumulative knowledge. Research on AI in IS is still largely unexplored. While there is a relatively sizable amount of literature concerning AI in some way, a comprehensive review of what is known about AI in IS is lacking. This is especially true for the way AI is defined in IS, which is still disparate. This study examines the body of knowledge about AI in IS. This work Has developed one of the very few SLRs on AI in IS and has provided a structured analysis of trends and gaps in the field. The study provides new insights to the field of IS through the utilization of conceptions of AI definition, mapping activities to AI, and value relating to AI. We identified gaps in knowledge in the context of AI research and IS, which provides a starting point for IS researchers and IS practitioners to advance the socio-technical knowledge surrounding AI. Thus, we make a call for future IS studies to examine AI, specifically to how AI is defined in contemporary IS research.

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