Artificial Intelligence, Its Abilities and Challenges

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Abstract

Current year artificial intelligence can be found in various sciences such as medical, aerospace science, engineering and project design, exploration and military weapons. Attention to application of artificial intelligence techniques and modelling tools in the field of business increasingly is growing. In this paper be addressed to artificial intelligence, its abilities and challenges. All relationships between the variables in the model of artificial intelligence that some discover and proven and many have also been discovered, is considered. So results of artificial intelligence model on condition adequacy of data and appropriate design are almost the best. One of the main challenges in this area is the subject of dialogues simulation.

Keywords: Artificial Intelligence, Abilities, Challenges

1. Introduction

Business Information Systems or artificial intelligence is growing in companies compete of the global market (Thakur, 2012). Information systems scientists at some of items used the artificial intelligence to create models for specific market (Crunk; North, 2007). Attention to application of artificial intelligence techniques and modeling tools in the field of business increasingly is growing. In the past decades topics neural networks, genetic algorithms and fuzzy logic have been issues that have attracted the attention of many scholars. These topics has been known and used as a powerful tool in solving problems that could not be solved with traditional methodologies and practices. In addition to applications of artificial intelligence in different field, has found positions in accounting and finance, and management long time. Researchers of management and accounting technologies and artificial intelligence techniques with some success have used to particular work in financial reporting and analysis, audit and assurance, supply chain and others field (Kalateh Rahmani, Chahardah Cheriki, 2010).

2. Artificial Intelligence

Artificial Intelligence or AI is science and technology to build intelligent machines, especially intelligent computer programs. Artificial intelligence computers lead almost to understand human intelligence (Sarshar, 2010). Artificial intelligence is the combination of computer science, physiology, philosophy, mathematics, statistics, and linguistics that Tried to simulate human characteristics through computer systems. By helping extensive research of scientists; artificial intelligence has passed many periods from the beginning until now. AI issues before the creation of e-science had been raised by philosophers and mathematicians such as Aristotle and Boole that attempt to provide rules and theories concerning the logic (Coppin, 2004).

3. Some Applications of Artificial Intelligence

3.1. Expert Systems

Expert systems are computer programs that Simulates thinking manner of expert in a particular field. In fact, this software detects logic patterns that may decide a specialist based on it and then based on those patterns like humans make decisions. More achievements of artificial intelligence have
been in the field of decision making and problem solving those main topics will include expert systems. The kind of artificial intelligence programs that reach a level of expertise that can be replaced by a specialist in a particular field of decision making are called expert systems. To information ranges from models of human expertise is transferred into an expert system called Task Domain. This scope determines level of expertise in an expert system and shows that the expert system is designed to what things. Expert systems with this task can do works such as planning, scheduling, and designing in a defined area. Process of building an expert system is called knowledge engineering. A knowledge engineer must ensure that expert system designed has all the knowledge needed to solve a problem. Naturally, otherwise, expert system decisions would not be a reliable.

3.2. Fuzzy Logic
Theory of fuzzy sets and fuzzy logic was introduced by Professor Lotfi Zadeh first in treatise called "fuzzy sets, information and control" in 1965. His primary goal was the development of more efficient models to describe the natural language processing. He has entered concepts and terms such as fuzzy sets, fuzzy events, fuzzy numbers and building fuzzy in mathematics science and engineering. Since then, Professor Lotfi Zadeh due to introduced innovative and effective theory of fuzzy logic and his efforts in this field has achieved numerous international awards. Fuzzy logic is based on the foundation of fuzzy sets theory. This theory is a generalization of the classical set theory in a mathematics science. In classical set theory, an element either is or is not member of the set. In fact, the membership of elements follows a pattern of one and zero and binary. But fuzzy sets theory expands this concept and suggests ranking normalized membership.

Fuzzy logic has many applications. The simplest sample is a temperature control system or thermostat that Works based on fuzzy rules. Many years, fuzzy logic is used to control the water temperature or the amount of turbid water that had been washed clothes in the washing machine building. The most interesting application of fuzzy logic is an interpretation that this science provides from the structure of intelligent beings decision-making, and above all, human intelligence. Perhaps one of the most interesting applications of fuzzy logic be artificial intelligence in computer games and special effects cinematic.

3.3. Neural Network
Neural networks can call electronic models of the structure of the human brain neural. Brain mechanisms of learning and teaching are based primarily on experience. Electronic models of natural neural networks have based same pattern and models dealing with such issues are different with computational methods that are normally adopted by computer systems. Even the simplest animal brains are able to solve problems that if computers today are incapable from solving them, at least they have trouble solving. For example, different pattern recognition problems are a sample of cases that computational methods don’t obtained optimal results for solving them, while brain simplest animals could easily handle such issues. The popular belief of IT professionals is that new computational models based on neural networks form the IT industry's next leap. Research in this field has shown that brain stores information as well as pattern. Process model as data storage and analysis of the model form the basis of modern computing. This field from computational knowledge (Computation) does not use any traditional programming methods.

3.4. Machine Vision
Among all branches of artificial intelligence, its applicable is computerized and mechanized of vision systems. Scope of this branch of technology growing too wide and contains normal applications
such as quality control of product line and video surveillance to new technologies like driverless cars. The range of applications of this technology will change techniques used in them.

3.5. Genetic Algorithms

Genetic algorithms posed as one solution of the traditional methods in artificial intelligence to find the answer to the question. In fact, this method can move faster to find possible solutions; this means we can obtain desired solution with lack of develop all states. Genetic algorithms are algorithms that are having immense power to find the answer of problem, but it should be noted that perhaps can considered the main application of these algorithms in problems that has large state space and practically all forms of humans in normal times (at least human life) is not possible. However, it should be noted that certainly should have appropriate and reasonable continuity between the different states of problems. Finally, genetic algorithms give us the possibility to have rapid movement in problem space towards the target area. So that we can assume that are flying in problems state space towards answer.

3.6. Natural Language Processing (NLP)

Natural language processing as a subset of artificial intelligence can applied and understands and processes recommendations and statements by using conversation that is used normally in every day. Generally operational method of this branch of artificial intelligence is imitation of human natural languages. However, the complexity of human psychology affects interactive communication. In natural language processing, human and computer have quite close relationship to each other. Computer is put in the human brain psychologically. Therefore it form innovative system that human is main organizer. Although still there are many obstacles of psychological and linguistic in conversational systems. But their improvement prospects certainly are promising. In fact, the same expectations from dialog of human - machine and dialog of human - human is not sensible (Hashemi; Farnoo, 2009).

4. Artificial Intelligence Abilities

Artificial intelligence as an interdisciplinary branch uses from science of very vast and various technique and has spread in many fields and provide the valuable services to them and in this way seeks to achieve its objectives. Although to meet needs of the military industry has been the most important factor in the growth and development of artificial intelligence, now products of this branch is used for topics in finance, marketing, management, economics, medicine industries, robotics, weather forecast, maps and identify problems, recognition of sound, speech, and handwriting, and computer games and software. Intelligent systems have particular and strengths potential to support decision-making positions that companies are faced with it (Martínez-López, Casillas; 2013). Finally, the ultimate goal of artificial intelligence can be summarized in the following cases:

1. Build a machine that could think.
2. Manufacturing machines that have emotions and at least be aware from feelings and its existence.
3. Manufacturing machines that have ability to generalize old experience in terms of similar and thus expand the knowledge and experience.
4. Manufacturing machines emulator that can thinking as a thinker by simulates the behavior of millions of human brain cells.
5 - It be a system with wise think. A system is wise that can do things right (Rayati Shavazi; Abzari, 2008).

5. Artificial Intelligence Challenges
Although currently may not available far from achieving artificial intelligence and can almost be said that some aspects has been achieved but existence some fundamental reasons preventing evolved intelligence of Turing. Turing's theory has serious opponents and critics that some of these individuals do not agreed in principle to machine intelligence. One of the most important issues in this field is simulation of dialogues. The main argument of critics in dialogue simulation subject is that can build a machine (eg, dictionary software) that can translate words and phrases and other means of receiving input signal and words and make output sentences. Thus it can be said machine that can understand the meaning of these phrases that in this result "Turing test" might not prove intelligent of a machine even if it be successful. In the face of this criticism, a team of scientists agree with the theory of Turing, believe that if machines have been action and reaction with the world around or, as we have sense of sight, hearing, touch and other senses, with the combination of "imitative responses" and "appropriate response to the environment" obtain to intelligence. One of the major criticisms to Turing test is that a machine can be smart, but may not communicate like humans.

Experts believe that background knowledge or as intelligent creatures mental archives has effective role in their intelligence. So that some new and improved branches of artificial intelligence, such as expert systems and neural network are made based on it because machine find power of learning (Alipour Sadri, 2011).

6. Discussion and Conclusion
All relationships between the variables is considered in the model of artificial intelligence that some discover and proven and many have also been discovered. So results artificial intelligence model on condition adequacy of data and appropriate design are almost best. This is an interdisciplinary branch that uses from science of very vast and various techniques and has spread in many fields and provides valuable services to them and in this way seeks to achieve its objectives. Although meet needs of the military industry has been the most important factor the growth and development of artificial intelligence, but now products of this branch is used for topics in finance, marketing, management, economics, medicine industries, robotics, weather forecast, maps and identify problems, recognition of sound, speech, and handwriting, and computer games and software.

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