

Artificial Intelligent and Their Increasing Trends

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ABSTRACT:

The field of Artificial Intelligence, which started roughly half a century ago, has a turbulent history. In the 1980s there has been a major paradigm shift towards embodiment. While embodied artificial intelligence is still highly diverse, changing, and far from “theoretically stable”, a certain consensus about the important issues and methods has been achieved or is rapidly emerging. In this non-technical paper we briefly characterize the field, summarize its achievements, and identify important issues for future research. One of the fundamental unresolved problems has been and still is how thinking emerges from an embodied system. Provocatively speaking, the central issue could be captured by the question “How does walking relate to thinking?”

Keyword: - Artificial, changing, fundamental, Intelligent

1. INTRODUCTION:

The theory and development of computer systems able to perform tasks normally requiring human intelligence, such as visual perception, speech recognition, decision-making, and translation between languages

Artificial intelligence (AI) is an area of computer science that emphasizes the creation of intelligent machines that work and reacts like humans. Some of the activities computers with artificial intelligence are designed for include:

- Speech recognition
- Learning
- Planning
- Problem solving
- Artificial intelligence is a branch of computer science that aims to create intelligent machines. It has become an essential part of the technology industry.

Research associated with artificial intelligence is highly technical and specialized.

Trends in Artificial Intelligence

Robotics is the branch of mechanical engineering, electrical engineering and computer science that deals with the design, construction, operation, and application of robots,^[1] as well as computer systems for their control, sensory feedback, and information processing. These technologies deal with automated machines that can take the place of humans in dangerous environments or manufacturing processes, or resemble humans in appearance, behavior, and/or cognition. Many of today's robots are inspired by nature contributing to the field of bio-inspired robotics.

The concept of creating machines that can operate autonomously dates back to classical times, but research into the functionality and potential uses of robots did not grow substantially until the 20th century.^[2] Throughout history, robotics has been often seen to mimic human behavior, and often manage tasks in a similar fashion. Today, robotics is a rapidly growing field, as technological advances continue; research, design, and building new robots serve various practical purposes, whether domestically, commercially, or militarily. Many robots do jobs that are hazardous to people such as defusing bombs, mines and exploring shipwrecks.

Robotics research

Much of the research in robotics focuses not on specific industrial tasks, but on investigations into new types of robots, alternative ways to think about or design robots, and new ways to manufacture them but other investigations, such as MIT's cyberflora project, are almost wholly academic.

A first particular new innovation in robot design is the open sourcing of robot-projects. To describe the level of advancement of a robot, the term "Generation Robots" can be used. This term is coined by Professor Hans Moravec, Principal Research Scientist at the Carnegie Mellon University Robotics Institute in describing the near future evolution of robot technology. First generation robots, Moravec predicted in 1997, should have an intellectual capacity comparable to perhaps a lizard and should become available by 2010. Because the first generation robot would be incapable of learning, however, Moravec predicts that the second generation robot would be an improvement over the first and become available by 2020, with the intelligence maybe comparable to that of a mouse. The third generation robot should have the intelligence comparable to that of a monkey. Though fourth generation robots, robots with human intelligence, professor Moravec predicts, would become possible, he does not predict this happening before around 2040 or 2050.^[103]

The second is Evolutionary Robots. This is a methodology that uses evolutionary computation to help design robots, especially the body form, or motion and behavior controllers. In a similar way to natural evolution, a large population of robots is allowed to compete in some way, or their ability to perform a task is measured using a fitness function. Those that perform worst are removed from the population, and replaced by a new set, which have new behaviors based on those of the winners. Over time the population improves, and eventually a satisfactory robot may appear. This happens without any direct programming of the robots by the researchers. Researchers use this method both to create better robots, and to explore the nature of evolution. Because the process often requires many generations of robots to be simulated,^[106] this technique may be run entirely or mostly in simulation, then tested on real robots once the evolved algorithms are good enough. Currently, there are about 1 million industrial robots toiling around the world, and Japan is the top country having high density of utilizing robots in its manufacturing industry.¹

Neural network

"Neural network" redirects here. For networks of living neurons, see Biological neural network. For the journal, see Neural Networks (journal).

An artificial neural network is an interconnected group of nodes, akin to the vast network of neurons in a brain. Here, each circular node represents an artificial neuron and an arrow represents a connection from the output of one neuron to the input of another.

In machine learning and related fields, artificial neural networks (ANNs) are computational models inspired by an animal's central nervous systems (in particular the brain), and are used to estimate or approximate functions that can depend on a large number of inputs and are generally unknown. Artificial neural networks are generally presented as systems of interconnected "neurons" which can compute values from inputs, and are capable of machine learning as well as pattern recognition thanks to their adaptive nature.

For example, a neural network for handwriting recognition is defined by a set of input neurons which may be activated by the pixels of an input image. After being weighted and transformed by a function (determined by the network's designer), the activations of these neurons are then passed on to other neurons. This process is repeated until finally, an output neuron is activated. This determines which character was read.

Types of Neural Network

Artificial neural network types vary from those with only one or two layers of single direction logic, to complicated multi-input many directional feedback loops and layers. On the whole, these systems use algorithms in their programming to determine control and organization of their functions. Most systems use "weights" to

change the parameters of the throughput and the varying connections to the neurons. Artificial neural networks can be autonomous and learn by input from outside "teachers" or even self-teaching from written-in rules.

BIOMETRIC:

Subversive Presentation – Presentation of human or artificial biometric characteristics to the biometric capture subsystem in a fashion that interferes with or undermines the correct or intended policy of the biometric system. • Suspicious Presentation – Presentation of a human or artificial characteristic to the biometric capture subsystem in a fashion that could interfere with the intended policy of the biometric system • Suspicious Presentation Detection (SPD) – Automated determination of a suspicious presentation. • Examples of SPD – Liveness detection failure – Artefact detection – Altered biometric detection – Others terms that have been used: anti-spoofing, biometric fraud, spoof detection, authenticity detection, etc.

Future of AI

The Distant Future - Ai and robots are far behind computers but it'll only be a matter of time before they become as regular as cell phones are in our everyday life. - Ray Kurzweil has used Moore's law (which describes the relentless exponential improvement in digital technology with uncanny accuracy) to calculate that desktop computers will have the same processing power as human brains by the year 2029, and that by 2045 artificial intelligence will reach a point where it is able to improve itself at a rate that far exceeds anything conceivable in the past. - Several futurists and science fiction writers have predicted that human beings and machines will merge in the future into Cyborgs that are more capable and powerful than either. This idea called trans-humanism.

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