Artificial Intelligence and Humans

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Abstract- Over 23 million software developers in 2018, this number is expected to reach 26.4 million by the end of 2019 and 27.7 million by 2023 according to Evans Data Corporation. The number of programmers continues to grow to this day as technology is the Forthcoming, especially in the AI field. Where there are 300,000 "AI researchers and practitioners" in the world, but the market demand is for millions of roles, so many people Siding to this field. Nowadays, most people learn the programming field as inquisitiveness but for their interest, however, they delve deeper into this field, which enhances their passion for and leaves their work to practice programming as occupation due to the availability of jobs and the most request for it. Over time, new languages have emerged, it has evolved to meet human needs in the form of programming languages. You can instruct the computer in the human-readable form where programming will enable you to learn the significance of clarity of expression, many determinations can be achieved, importantly, relationships, semantics, and grammar can be defined.

Index Terms- Artificial Intelligence (AI), Technology, Machine Learning, Computer Vision, Software developers, Programming, IoT development.

I. INTRODUCTION

AI is an interdisciplinary discipline with many approaches. In almost every field of the technology industry, developments for machining and deep learning produce a paradigm shift. Artificial Intelligence is the main branch of computer science branches which concerned about making the computer or robot behave and flexible as humans. Artificial intelligence (AI) helps computers to learn and adapt for new inputs and human performance tasks. Most of the AI examples, from computers playing chess to driving automobiles– rely heavily on deep learning and the processing of natural languages. Computers can be trained to perform specific tasks with the use of these techniques by processing vast volumes of data and identifying data patterns.

AI Research's core part is software engineering. Only if machines have plenty of relating to the world can often act and react like people. To implement knowledge engineering, Artificial Intelligence must have admission to substances, categories, property, and relationships of all. It is a difficult and tedious task to initiate sense, thoughtfulness and solving problems in machines and also the core part of AI is machine learning, too. Appropriate supervision involves learning that requires the capacity to identify patterns in input streams; classification and numerical regressions require learning, where Artificial Intelligence is powered by innovations in machine learning and deep learning.

II. Artificial Intelligence History

The notion of inanimate objects that come to life as intelligent beings has long been around. The ancient Greeks had theories about robots and automatons were created by Chinese and Egyptian engineers. Aristotle's invention of syllogism and the use of deductive reasoning was a crucial moment in the humanity's pursuit of understanding his mind. The history of the artificial intelligentsia, as we think today, covers less than a century, though the roots are long and deep.

Early AI research studied issues such as problem-solving and symbolic methods in the 1950s. In the 1960s this type of work was taken into account by the United States Defense and Computers Department were trained to imitate basic human reasoning. For instance, in the 1970s, DARPA completed road mapping projects. The DARPA is the defense agency for advanced research projects. Household names were long before Siri, Alexa, or Cortana, DARPA made smart personal assistants in 2003. The following are the most important and common events in AI.

IN 1943 Warren McCullough and Walter Pitts publish "A Logical Calculus of Ideas Immanent in Nervous Activity." The paper proposed the first mathematic model for building a neural network.

IN 1950 Alan Turing publishes "Computing Machinery and Intelligence, proposing what is now known as the Turing Test, a method for determining if a machine is intelligent.
Harvard undergraduates Marvin Minsky and Dean Edmonds build SNARC, the first neural network computer.
Claude Shannon publishes the paper "Programming a Computer for Playing Chess."
Isaac Asimov publishes the "Three Laws of Robotics."

IN 1952 Arthur Samuel develops a self-learning program to play checkers.

IN 1954 The Georgetown-IBM machine translation experiment automatically translates 60 carefully selected Russian sentences into English.

IN 1956 The phrase artificial intelligence is coined at the "Dartmouth Summer Research Project on Artificial Intelligence." Led by John McCarthy, the conference, which defined the scope and goals of AI, is widely considered to be the birth of artificial intelligence as we know it today.
Allen Newell and Herbert Simon demonstrate Logic Theorist (LT), the first reasoning program.

IN 1958 John McCarthy develops the AI programming language Lisp and publishes the paper "Programs with Common Sense." The paper proposed the hypothetical Advice Taker, a complete AI system with the ability to learn from experience as effectively as humans do.
IN 1959 Allen Newell, Herbert Simon and J.C. Shaw develop the General Problem Solver (GPS), a program designed to imitate human problem-solving.
Herbert Gelernter develops the Geometry Theorem Prover program.
Arthur Samuel coins the term machine learning while at IBM.
John McCarthy and Marvin Minsky found the MIT Artificial Intelligence Project.

IN 1963 John McCarthy starts the AI Lab at Stanford.

IN 1966 The Automatic Language Processing Advisory Committee (ALPAC) report by the U.S. government details the lack of progress in machine translation research, a major Cold War initiative with the promise of automatic and instantaneous translation of Russian. The ALPAC report leads to the cancellation of all government-funded MT projects.

IN 1969 The first successful expert systems are developed in DENDRAL, a XX program, and MYCIN, designed to diagnose blood infections, are created at Stanford.

IN 1972 The logic programming language PROLOG is created.

IN 1973 The "Lighthill Report," detailing the disappointments in AI research, is released by the British government and leads to severe cuts in funding for artificial intelligence projects.

IN 1974-1980 Frustration with the progress of AI development leads to major DARPA cutbacks in academic grants. Combined with the earlier ALPAC report and the previous year's "Lighthill Report," artificial intelligence funding dries up and research stalls. This period is known as the "First AI Winter."

IN 1980 Digital Equipment Corporation develops R1 (also known as XCON), the first successful commercial expert system. Designed to configure orders for new computer systems, R1 kicks off an investment boom in expert systems that will last for much of the decade, effectively ending the first "AI Winter."

IN 1982 Japan's Ministry of International Trade and Industry launches the ambitious Fifth Generation Computer Systems project. The goal of FGCS is to develop supercomputer-like performance and a platform for AI development.

IN 1983 In response to Japan's FGCS, the U.S. government launches the Strategic Computing Initiative to provide DARPA funded research in advanced computing and artificial intelligence.

IN 1985 Companies are spending more than a billion dollars a year on expert systems and an entire industry known as the Lisp machine market springs up to support them. Companies like Symbolics and Lisp Machines Inc. build specialized computers to run on the AI programming language Lisp.

IN 1987-1993 As computing technology improved, cheaper alternatives emerged and the Lisp machine market collapsed in 1987, ushering in the "Second AI Winter." During this period, expert systems proved too expensive to maintain and update, eventually falling out of favor.
Japan terminates the FGCS project in 1992, citing failure in meeting the ambitious goals outlined a decade earlier.
DARPA ends the Strategic Computing Initiative in 1993 after spending nearly $1 billion and falling far short of expectations.

IN 1991 U.S. forces deploy DART, an automated logistics planning and scheduling tool, during the Gulf War.

IN 1997 IBM's Deep Blue beats world chess champion, Gary Kasparov.

IN 2005 STANLEY, a self-driving car wins the DARPA Grand Challenge. The U.S.
military begins investing in autonomous robots like Boston Dynamic's "Big Dog" and iRobot's "PackBot."

IN 2008 Google makes breakthroughs in speech recognition and introduces the feature in its iPhone app.

IN 2011 IBM's Watson trounces the competition on Jeopardy.

IN 2012 Andrew Ng, founder of the Google Brain Deep Learning project, feeds a neural network using deep learning algorithms 10 million YouTube videos as a training set. The neural network learned to recognize a cat without being told what a cat is, ushering in a breakthrough era for neural networks and deep learning funding.

IN 2014 Google makes the first self-driving car to pass a state driving test.

IN 2016 Google DeepMind's AlphaGo defeats world champion Go player Lee Sedol. The complexity of the ancient Chinese game was seen as a major hurdle to clear in AI.

III. How does Artificial Intelligence Work?

Building an AI system is a careful reverse engineering process that reverses human characteristics and capabilities in a machine. A diverse set of components can be built into artificial intelligence and work as a mixture of Philosophy, Mathematics,

Economics, Neuroscience, Psychology, Computer Engineering, Control Theory and Cybernetics, and Linguistics.

I. Philosophy

The aim of philosophy for human beings is to help us understand our actions and how we can decide better. The different philosophic approaches used to enable these systems to make the right decisions, reflecting how an ideal person would think and behave, can build modern intelligent systems. These machines could think and understand the nature of knowledge itself by philosophy. It would also help them link knowledge to action through goal-based analysis to achieve desired results.

II. Mathematics

Mathematics is the world's language and it needs to be proficient in systems designed to solve universal problems. Machines are necessary for understanding logic, calculation, and probability.

The earlier algorithms were simply mathematical paths that facilitated calculations, followed soon by theorems, hypotheses, and other things, which all followed a predetermined logic to reach a computer output. The third math application, probability, provides for precise predictions of the future results based on artificial intelligence algorithms.

III. Economics

Economics is the study of how people choose their preferred results. This isn't just money, although money is manifested in the real world by the medium of people's preferences. Economical concepts, such as design theory, operational research, and decision-making processes at Markov, are many important. All of them have helped to understand' rational agents ' and laws of thinking through mathematics that shows how these decisions and their collective results are taken on a large scale. These types of decision-making technology help to build smart systems.

IV. Neuroscience

Since neuroscience is trying to replicate the brain and Artificial Intelligence, there is a clear overlap here. The major difference between human brains and machines is that computers are millions of times faster than the human brain, but in terms of storage capacity and linkages the human brain still has the most advantage. The advantage of using computer hardware and more advanced software is slowly coming to an end, but there is yet a great challenge to overcome because we don't know yet how to use computer resources to achieve the intelligence level in the brain.

V. Psychology

The middle point between neuroscience and philosophy can be regarded as psychology. It tries to understand how our specially designed and developed brain reacts to stimuli and answers its environment, which is important for the development of a smart system. Cognitive psychology considers the brain as a processing device for information, operating based on beliefs and objectives and beliefs. Several theories of cognition were already codified to create algorithms that drive today's chatbots.

VI. Computer Engineering

The most obvious application here, but we have finished it so you can understand the basics of all this computer engineering. Computer engineering transforms all of our theories and concepts into a machine-readable language to produce a result that we can understand. Even more powerful artificial intelligence systems based on modern operating systems, programming languages, information management systems, tools, and cutting-edge hardware have been opened up to every step forward in computer engineering.

VII. Control Theory and Cybernetics

A system must be able to control and modify its actions to produce the desired output to be truly intelligent. This desired result is defined as an objective function towards which the system will continue to change its actions, using the mathematical calculations and the logic to measure and maximize its behaviors based on changes in its environment.

VIII. Linguistics

All thought is based on some language and represents thoughts most comprehensibly. Linguistics has resulted in the development of natural language processing that helps machines to understand our syntactic language and to produce output in ways that almost everyone can understand. Understanding a language requires knowledge of the subject matter and the context and has created the knowledge representation branch of linguistics, rather than just learning how sentences are structured

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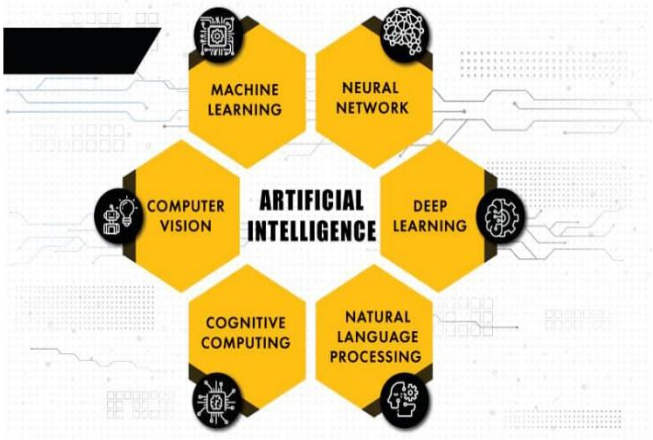
IV. Components of Artificial Intelligence



I. Machine Learning

The AI app for Machine Learning (ML) allows computer systems to learn and improve experience automatically without explicit programming. ML is concerned with developing algorithms capable of analyzing and predicting data. In addition to predicting what Netflix movies are like or the best way forward for your Uber, machine training applies for the healthcare, pharmaceuticals, and life sciences sectors to help diagnosis, interpretation of medical images and to accelerate the development of drugs.

II. Deep Learning

Deep learning is an artificial neural networking subsection of machine learning that uses information processing. Neural artificial network imitates the human brain's biological neural networks. Many layers of artificial neural networks are coordinated to govern a single output from many inputs, for instance, to identify a face from a tile mosaic. The machines learn by strengthening the tasks they carry out positively and negatively, which requires constant processing and strengthening.

III. Neural Network

Neural networks enable in-depth study. Neural networks are computer systems that are modeled on brain neural connections. A human neuron's artificial equivalent is a perception. Just as neural bundles build neural networks in the brain, perception stacks generate artificial neural networks in computer systems.

Training examples will enable the neural networks to learn. The best examples are large data sets such as a series of 1,000 cat photographs. The machine can generate a single output by handing out the many metaphors (inputs), answering to the question, "Is the picture a cat?"

This process analyzes data several times to identify associations and to make previously undefined information meaningful. The machine is taught that the object has been successfully identified through various learning models, such as positive strengthening.

IV. Cognitive Computing

Another essential component of AI is cognitive computing. It aims to imitate and improve human-machine interaction. In this case, cognitive computing tries to recreate the human thinking process by sympathetic human language and the connotation of the pictures in a computer model.

V. Natural Language Processing (NLP)

Natural Language Processing or NLP enables computers to interpret, detect and produce human speech and language. NLP's ultimate aim is to allow the machineries we use every day to interact with each other by teaching systems to understand the human language and provide logical answers.

VI. Computer Vision

Computer hallucination is a technique that provides a thorough understanding and pattern of the image content; the graphs, tables, and pictures are included in PDF documents and the rest of the videos and texts. Computer vision is a comprehensive AI field for computers to recognize, progression and interpret visual information.

V. Effect of AI on the Human

There are many developments at the moment, especially in Technology filed, and with this broad growth, which has grown amazingly and led to the inclination of many people to be attracted to it, particularly after artificial intelligence appeared. After its widespread use, where its uses are multiplied in all different fields of life such as industry, education, Retail, and Health Care, etc., which led many to think that in the future it could be a reason threatening the human race after what they were able to establish in the first robot based on artificial intelligence. It has become widely used in all areas of life, for example, manufacturing, education, and so forth. Despite its advantages, it has led many to believe that humanity may in the future face a threat of extinction particularly when they can create the first AI-based robot for a world like a human.

Nowadays, many people think that AI will Control in humans. The topic started to spread due to the wrong thought through movies, fiction, and scientific research that are widely spread, as the idea of most of these films revolves around the fact that artificial intelligence and robots invade the planet and eliminate the human race. Where we find that in these films the focus is on negatives and not looking at the Positives. Artificial intelligence isn’t at this point to change us. It increases our skills and improves our performance. Because AI algorithms learn differently from humans, they look differently at things. You can see relationships and models fleeing us. This partnership with human beings offers numerous chances.

VI. REFERENCES

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