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HISTORY AND FUTURE OF ARTIFICIAL INTELLIGENCE

Artificial intelligence (AI) is the technology that is used almost everywhere from your phone to your car. While science fiction often portrays AI as robots with human-like characteristics, AI can encompass anything from Google's search algorithms to IBM's Watson to autonomous weapons. The history of this technology begins in the middle of the 20th century.

The British mathematician Alan Turing invented `Turing machine` in 1936. He applied his theories to prove that a computing machine would be capable of executing cognitive processes, provided they could be broken down into multiple, individual steps and represented with an algorithm. His machine helped a lot in the Second World War. He left a great foundation for this technology to be further developed.

In 1966 the first chat bot, «ELIZA», was invented by the German-American computer scientist Joseph Weizenbaum of the Massachusetts Institute of Technology. The chat bot used scripts to simulate various conversation partners such as a psychotherapist. J. Weizenbaum was surprised by the simplicity of the means required to create the illusion of a human conversation partner.

In 1972 AI was firstly used in medical equipment. The expert system developed by Ted Shortliffe at Stanford University was used for the treatment of illnesses. Expert systems were computer programs that bundled the knowledge from a specialist field using formulae, rules, and the knowledge database. They were used for diagnosis and treatment support.

In 1986 the computer talked for the first time. Terrence J. Sejnowski and Charles Rosenberg taught their 'NETtalk' program to speak by inputting sample sentences and phoneme chains. NETtalk was able to read words and pronounce them correctly, and could apply what it had learned to unfamiliar words. It was one of the early artificial neural networks – programs that were supplied with large datasets and were able to draw their own conclusions on this basis. Their structure and function were similar to those of the human brain.

In 1997, the machine beat the human in the game of chess for the first time. The 'Deep Blue' AI chess computer from IBM defeated the incumbent chess world champion Garry Kasparov in a tournament. That was considered a historic success in the area previously dominated by humans. Critics, however, find fault with Deep Blue for winning merely by calculating all possible moves, rather than with cognitive intelligence.

In 2011, almost every great company developing new technology, had its own AI. Apple's 'Siri' came to the market in 2011, Microsoft introduced the 'Cortana' software in 2014, and Amazon presented Amazon Echo with the 'Alexa' voice service in 2015. What is more, Sophia, the most intelligent robot in the world, is also powered with special AI.

In June of 2018 'Project Debater' from IBM debated complex topics with two master debaters – and performed remarkably well. A few weeks before, Google demonstrated at a conference how the 'Duplex' AI program phoned a hairdresser and conversationally made an appointment – without the lady on the other end of the line noticing that she was talking to a machine

The experts predicted networked AI will amplify human effectiveness but also threaten human autonomy, agency and capabilities. They spoke of the wide-ranging possibilities that computers might match or even exceed human intelligence, and capabilities on tasks such as complex decision-making, reasoning and learning, sophisticated analytics and pattern recognition, visual acuity, speech recognition and language translation. They said "smart" systems in communities, in vehicles, in buildings and utilities, on farms and in business processes would save time, money and lives and offer opportunities for individuals to enjoy a more customized future.

Many people focused their optimistic remarks on health care and lots of possible applications of AI in diagnosing and treating patients or helping senior citizens live better lives. They were also enthusiastic about AI's role in contributing to broad public health programs built around massive amounts of data

that may be captured in the coming years about everything from personal genomes to nutrition. Additionally, a number of these experts predicted that AI would abet long-anticipated changes in both formal and informal education systems.

In spite of decades of research, artificial intelligence is comparatively still in its infancy. It needs to become more reliable and secure against manipulation before it can be used in sensitive areas, such as autonomous driving or medicine. Another goal for AI systems is to learn to explain their decisions so that humans could comprehend them and better research how AI thinks.