History of AI

1937 Alan Turing points out the limits of intelligent machines with the halting problem.
(In computability theory, the **halting problem** is the problem of determining, from a description of an arbitrary computer program and an input, whether the program will finish running, or continue to run forever. Alan Turing proved that a general algorithm to solve the halting problem for all possible program-input pairs cannot exist.)

1943 McCulloch and Pitts model neural networks and make the connection to propositional logic.

1950 Alan Turing defines machine intelligence with the Turing test and writes about learning machines and genetic algorithms.

1951 Marvin Minsky develops a neural network machine. With 3000 vacuum tubes he simulates 40 neurons.

1955 Arthur Samuel (IBM) builds a learning checkers program that plays better than its developer.

1956 McCarthy organizes a conference in Dartmouth College. Here the name Artificial Intelligence was first introduced.
Newell and Simon of Carnegie Mellon University (CMU) present the Logic Theorist, the first symbol-processing computer program.

1958 McCarthy invents at MIT (Massachusetts Institute of Technology) the high-level language LISP. He writes programs that are capable of modifying themselves.

1959 Gelernter (IBM) builds the Geometry Theorem Prover.

1961 The General Problem Solver (GPS) by Newell and Simon imitates human thought .

1963 McCarthy founds the AI Lab at Stanford University.

1965 Robinson invents the resolution calculus for predicate logic.

1966 Weizenbaum's program Eliza carries out dialog with people in natural language.

1969 Minsky and Papert show in their book Perceptrons that the perceptron, a very simple neural network, can only represent linear functions.

1972 French scientist Alain Colmerauer invents the logic programming language PROLOG.
British physician de Dombal develops an expert system for diagnosis of acute abdominal pain.

1976 Shortliffe and Buchanan develop MYCIN, an expert system for diagnosis of infectious

diseases, which is capable of dealing with uncertainty.

1981 Japan begins, at great expense, the "Fifth Generation Project" with the goal of building a powerful PROLOG machine.

1982 R1, the expert system for configuring computers, saves Digital Equipment Corporation 40 million dollars per year.

1986 Renaissance of neural networks through, among others, Rumelhart, Hinton and Sejnowski . The system Nettalk learns to read texts aloud.

1990 Pearl, Cheeseman, Whittaker, Spiegelhalter bring probability theory into AI with Bayesian networks. Multi-agent systems become popular.

1992 Tesauros TD-gammon program demonstrates the advantages of reinforcement learning.

1993 Worldwide RoboCup initiative to build soccer-playing autonomous robots.

1995 From statistical learning theory, Vapnik develops support vector machines, which are very important today.

1997 IBM's chess computer Deep Blue defeats the chess world champion Gary Kasparov. First international RoboCup competition in Japan.

2003 The robots in RoboCup demonstrate impressively what AI and robotics are capable of achieving.

2006 Service robotics becomes a major AI research area.

2009 First Google self-driving car drives on the California freeway.

2010 Autonomous robots begin to improve their behavior through learning.

2011 IBM's "Watson" beats two human champions on the television game show "Jeopardy!". Watson understands natural language and can answer difficult questions very quickly.

2015 Daimler premiers the first autonomous truck on the Autobahn.
Google self-driving cars have driven over one million miles and operate within cities.
Deep learning enables very good image classification.
Paintings in the style of the Old Masters can be automatically generated with deep learning. AI becomes creative!

2016 The Go program AlphaGo by Google DeepMind beats the European champion 5:0 in January and Korean Lee Sedol, one of the world's best Go players, 4:1 in March. Deep learning techniques applied to pattern recognition, as well as reinforcement learning and Monte Carlo tree search lead to this success.