

A brief mostly complete history of Artificial Intelligence

starting around the cybernetics movement

NOW WITH notable prehistory!

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Information collected and poster designed by Danielle J. Williams, PhD
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1946: First Computer Manual
"A Manual of Operation for the Automatic Sequence Controlled Calculator"
Written by Grace Hopper

1945: ENIAC
Electronic Numerical Integrator and Computer
First programmable, electronic, general-purpose digital computer

1936: "On Computable Numbers, with an Application to the Entscheidungsproblem"
Alan Turing introduces what we now call the "Turing Machine"

1931: DIFFERENTIAL ANALYZER
Mechanical analogue computer designed to solve differential equations.
Created by: Vannevar Bush at MIT

1930s

1600s-1700s

1641: First calculating machine
Developed by: Blaise Pascal

1679: Gottfried Wilhelm Leibniz formalizes the binary number system which would form the basis of modern communications and digital computing

1770: MECHANICAL TURK fools everyone
Chess-playing machine that housed a secret human.
By: Wolfgang von Kempelen

1800s

1804: Jacquard Loom Invented by J.M. Jacquard.
The loom used interchangeable punched cards to automatically control fabric patterns, creating a foundational concept for the programming and data storage used in modern computers.

1834: Analytical Engine
Conceptualized by Charles Babbage

1834: First Computer Program:
Ada Lovelace describes a method of using the Analytical Engine to calculate Bernoulli numbers.

1840: The Flute Player
Life-size, flute playing automaton.
Created by: Innocenzo Manzetti

1854: Boolean Numbers
George Boole writes "An Investigation of the Laws of Thought"
Uses the numbers 0 and 1 as the foundational values in his algebraic system of logic to represent the empty set (false/none) and the universal set (true/all).

1860-1910: The Golden Age of Automata

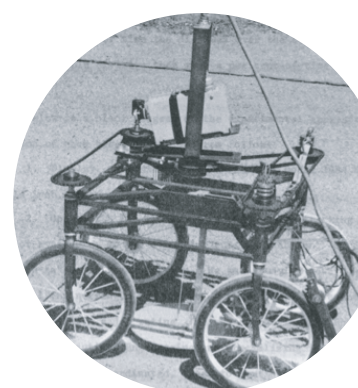
1943: Machines and behavior
"Behavior, Purpose, and Teleology"
by Rosenblueth, Wiener, & Bigelow

1943: "Artificial Neurons"
A Logical Calculus of the Ideas Immanent in Nervous Activity
by McCulloch & Pitts

The birth of "neural networks"

"Artificial Intelligence"
Introduced into the nomenclature by John McCarthy

(Although McCarthy says that the term was likely independently coined by 6-10 different people working at the time)



1961: "The Stanford Cart"
first autonomous vehicle
created by James Adams

1968: Artist Vera Molnar uses punch card instructions to create digital art using the Fortran program- the first "dehumanized art"



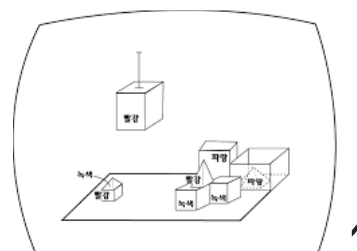
1949: "Giant Brains: Or Machines That Think"
Edmund Berkeley compares machines to human brains if it were made of "hardware and wire instead of flesh and nerves."

1954: "FORTRAN The first successful, widely-used high-level programming language."
Created by: a team of 9 interdisciplinary researchers at IBM

1956: The first AI program
Logic Theorist - proved theorems in symbolic logic from Whitehead and Russell's Principia Mathematica
Created by Newell & Simon

1957: General Problem Solver
Means-End Problem Solving
Newell, Simon, & Shaw

1961: SAINT (Symbolic Automatic INtegrator)
heuristic problem-solving program for symbolic integration in calculus
Created by James Slagle



1968: SHRDLU
Natural language processing program that controlled a block world using English language instructions
created by Terry Winograd

1974-1980 1st AI Winter
Perceptions failed to live up to expectations. Discoveries made failed to make the promised impact

1971: Microprocessor Invented by Ted Hoff
Ushering in the "Golden Age" of Expert Systems
Hoff received the national medal of technology & innovation in 2010

1987: Market for specialized LISP-based hardware collapses
Low consumer, public, and private interest in AI

1976: "THE ELIZA EFFECT"
Weizenbaum writes about the tendency to project human traits—such as experience, semantic comprehension, or empathy—onto rudimentary computer programs. (The phrase was initially popularized by Sociologist Sherry Turkle)

1979: The Stanford Cart successfully navigates a room without human assistance

1980: XCON
First expert system on the commercial market
Used to configure customer orders and reduce shipping times

1975: SAM
Program meant to "understand" stories run on scripts
Created by Roger Schank

1968: The concept now known as "deep learning" is first introduced by Alexey Ivakhnenko in "Group method of data handling"

1971: AARON
Autonomous Drawing Program
creates the first "AI Art" - paints a "turtle"
Designed by Harold Cohen

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1970s

1973: Reduced funding for AI due to lack of promised progress in Britain

1976: Physical Symbol System Hypothesis
"Computer science as empirical inquiry Symbols and Search"
by Newell & Simon

1972: WABOT-1
The first "android"
Walked, communicated in Japanese and gripped objects
Waseda University

AI Boom

1980: 1st National Conference on Artificial Intelligence
Held at Stanford University, August 18-21

1972: PARRY
A computer chatbot that simulated a paranoid patient.
Created by: Kenneth Colby

1966: ARPANET
Cross-institutional computing network that would eventually become the internet.
Shut down in 1990

1966: SHAKEY
First robot to perceive its surroundings, navigate, plan a route, adjust for errors, and improve its abilities using English language communication
Stanford Research Institute

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1987: VPL Data Glove
A VR glove that controlled a virtual hand

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1981: 5th Generation Computer Project
Japan spends \$850 million to create computers that could translate and use human language + express human-level reasoning

1988: Eigenface
Linear Algebra is used to advance facial recognition programs
Sirovich & Kirby

1989: The "web" is invented by Tim Berners-Lee

1983: The problem of "knowledge acquisition" acknowledged as a barrier to AI progress

1985: RBX5
Using self-learning software the robot would advance from simple responses to making predictions about the future from past events
RB Robot Corporation

1983: The problem of "knowledge acquisition" acknowledged as a barrier to AI progress

1980s

1984: "Winter is Coming"
-Schank & Minsky

1986: Back-Propagation for networks of neuron-like units
"Learning representations by back-propagating errors"
by Rumelhart, Hinton, & Williams

1989: First successful application of the backpropagation algorithm
Used to recognize handwritten zip codes
AT&T Bell Labs

1980: WABOT-2
Humanoid robot that communicated with people, read music, and played music on an electronic organ
Waseda University

1984: First computer-authored book: "The Policeman's Beard is Half Constructed."
Written by: "Racter" (Warner Software)

1986: First Driverless Car.
Could drive up to 55 mph
Mercedes-Benz

1989: The terms "Hyperlink" and "hypertext" are coined by Tim Berners-Lee

1987-1994 Expert Systems AI Winter
Limitations of if-then reasoning apparent. Expert systems based on if-then reasoning failed because software was hard to maintain and couldn't handle novel information

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VR glasses created
LeapVR

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1998: MrMind & The Blurring Test
A chatbot that flips the script on the Turing Test. Can humans articulate what makes them thinking uniquely human?
Developed by Prologix

"Deep Learning"
coined by Geoffrey Hinton to explain new algorithms that can be trained to recognize objects and text in images and videos

1997: LSTM
RNN used for handwriting and speech recognition
Created by Hochreiter & Schmidhuber

1995: A.L.I.C.E.
First chatbot that also collected data
3x Loebner Prize winner.
Popularized open-source chatbot framework

1997: Six Degrees
First social media platform

1998: FURBY
First pet robot
By Coleb Chung

1994: GPU
3D graphics introduced with the Play Station 1 home gaming console

1990: driven approaches to data-driven approaches

1990: The "web" is invented by Tim Berners-Lee

1990: WorldWideWeb
The first web browser is launched
Created by Tim Berners-Lee

1996: CLIPPY
Helper bot for Microsoft Word Documents
Created by: Kevin Akeberg

1997: Speech Recognition Software

2001: Smarterchild
Instant Messenger Assistant
Precursor to modern virtual assistants

1997: Deep Blue beats Grand Master at Chess
IBM Expert System that used a systematic brute force system
41 years after Simon's prediction

1998: COMPAS
Software that assigns an algorithmic score for recidivism risk is used across several states to determine sentencing
In 2016, it was shown that the algorithm was giving biased assessments based on race

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"Lifelike" social robot inspired by child developmental psychology that could recognize and display emotions

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2002: ROOMBA i-Robot

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First gaming hardware to track body movements and translate it into gaming directions

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2012: The Rise Of DEEP LEARNING:

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