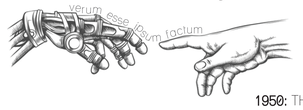
A brief mostly complete history of Artificial Intelligence

starting around the cybernetics movement

From cybernetics to AI

The idea that humans and machines are essentially the same gives rise to a project where scientists began to seriously consider what it would take to develop machines with human-like intelligence.



The "birth of AI" in the wake of the cybernetics movement
Bringing together the functioning of machines and organic beings



1940's

1942: Accelerated code breaking
Alan Turing used the Bombe machine to decode messages encrypted using the Enigma machine at an accelerated pace during WWII

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



1948: "Cybernetics"
the study of control and communication in the animal and the machine
by Norbert Wiener

1948: Mark 1 Prototype
The first stored program computer also known as the "Manchester Baby"
A proof of concept to test the first electronic random-access memory (RAM) device
Built by Tom Kilburn & Freddie Williams

1949: "The Manchester Baby" runs its first program

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."



1950: THESEUS
Robotic, maze-solving mouse that could "remember" its path.
Claude Shannon, Bell Labs



1950: The Imitation Game
Computing Machinery and Intelligence
by Alan Turing

1952: Program the can play Checkers is developed by Arthur Samuel*

1955: First AI Workshop Proposed to be held at Dartmouth in **1956**
McCarthy, Minsky, Rochester, Shannon

1956: "AI will beat a human at chess within the next 10 years"
-Herbert Simon



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

1957: The Perceptron learns to identify shapes; an early form of machine learning
Created by Frank Rosenblatt

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

1958: LISP (List Processing) First Programming Language
Created by: John McCarthy

1959:
"Machine Learning"
Introduced into the nomenclature by Arthur Samuel at IBM

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

1961: UNIMATE
First Industrial Robotic arm available commercially
Created by George Devol



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



1963: RAND
First tablet and stylus created
RAND Corporation

1964: STUDENT
Lisp-based program that solved algebra word problems
Created by Daniel Bobrow

1964: ELIZA Chatbot
Natural Language Processing
Created by Weizenbaum

1964: Facial Recognition
Used "landmarking" techniques to identify facial features
Created by Bledsoe, Wold, & Bisson

1965: DENDRAL
Expert System:
hypothesis formation and science
Inferences & Logical Conclusions
Feigenbaum & Lederberg

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



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

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



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

1970's

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

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

1972: MYCIN
"The granddaddy of expert systems"
- Newell Simon
Expert System: Blood Disease Diagnosis with a 65% accuracy Rate

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



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

1974-1980

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

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

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

1979: Gammanoid beats champion at back-gammon
Created by: Hans Berliner

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

1980-1987
AI Boom

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

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

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

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

1984:
"Winter is Coming"
-Schank & Minsky

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

1985: Teddy Ruxpin
The World's First Animated Talking Toy.
Created by Ken Forsse

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

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

1987: A new architecture of cognition
"Parallel Distributed Processing"
Feldman, Hayes, McClelland, Rumelhart

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

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

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

1988: Shift from rule-based to probabilistic methods of machine translation
IBM T.J. Watson Research Center

1988: JABBERWACKY
Amusing chatbot
Created by: Rollo Carpenter,

1988: WABOT-2
Humanoid robot that communicated with people, read music, and played music on an electronic organ
Waseda University

1989: CYBERFACE
VR glasses created
LeepVR

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

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

1989: Hyperlinks and hypertext Invented allowing for the invention of the web
by Tim Berners-Lee

1990:
"AUGMENTED REALITY"
Introduced into the nomenclature by Tom Caudell

1990:
machine learning shifts from knowledge driven approaches to data-driven approaches

1992: TD-Gammon
Artificial Neural Net trained to play backgammon
IBM

1987-1994

2nd 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

1993: FERET Program
Developed to create algorithms for automatic face recognition software and to create a database of faces

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

1995: Launch of the web browser

1995: A.L.I.C.E.
First chatbot that also collected data

1997: Six Degrees
First social media platform

1997: Speech Recognition Software

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

1997: KISMET
"Lifelike" social robot inspired by child developmental psychology that could recognize and display emotions

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

1998: COMPAS
Softer 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

1998: FURBY
First pet robot
By Caleb Chung

1999:
"BIG DATA"
Introduced into the nomenclature

2000: da Vinci
First robot surgical system

2000's

2002:
ROOMBA
i-Robot

2002: Digital information storage surpasses non-digital information storage

2003: Mars Rover Navigates Mars without human intervention

2004: BigDog
Boston Dynamics creates dynamically stable quadruped military robot

2004: STANLEY
first autonomous vehicle to win the Defense Advanced Research Projects Agency's 'Grand Challenge' by successfully navigating a 132-mile course in the Mojave Desert on it's own
Stanford AI Lab

2005: Mechanical Turk
Service that recruited humans to hand label over 3 million images across 5k categories for computer vision tasks

2006:
"Deep Learning"
coined by Geoffrey Hinton to explain new algorithms that can be trained to recognize objects and text in images and videos

2007: ImageNet
Visual Database designed to use in visual recognition software research
20,000 categories

2007: UX Algorithms
Used to enhance advertising and user experience

2010: "AlexNet"
Convolutional Neural Network achieves 15.3% error rate with image recognition using deep learning
In **2015** it was discovered that the AI mislabels images featuring people with dark skin as "Gorrilla"
As a solution, Google+ removes the Gorilla label entirely.
As of 2023, the label is still removed from the database

2010: MASSIVE DATA
Access to massive volumes of data made training systems on image classification and recognition possible

2010's

2010: XBOX 360 Kinect
First gaming hardware to track body movements and translate it into gaming directions

2011: SIRI
Apple releases virtual assistant

2011: WildCat
Boston Dynamics creates the fastest quadruped robot on Earth

2011: Video Recognition
Google X uses a neural network of 16,000 computer processors with 1 billion connections to browse YouTube. The AI identifies cats as a common image.

2011: WATSON created & wins on Jeopardy!

2013: Atlas
First iteration of the humanoid robot is created for search and rescue tasks
Boston Dynamics

2013:
Word2Vec program that converts language into math is created by Google
In **2015** it was discovered that the model produced biased results such as refusing to categorize women as doctors generating concerns about biased training data

2014: Generative Adversarial Networks produce completely new images for the first time rather than working on pre-existing images.
developed by Ian Goodfellow

2015: DeepDream
Convolutional Neural Net that using deep learning produced hallucinogenic imagery

2015: SWARM AI
A real-time online tool that makes predictions based on converging information from various sources within a network predicted the winning horse at the Kentucky Derby
Unanimous AI

2016: Google AI's AlphaGO beats Lee Sedol at GO

2016: SOPHIA
Humanoid Robot becomes the first "robot citizen"
Created by David Hanson Jr.

2016: The Next Rembrandt
Deep learning algorithm creates realistic portrait style painting using 3D printing

2017: Google Deep Mind AI avatar teaches itself how to walk

2017: AlphaGo Zero beats AlphaGo using a self-training model

2017: Dialog Agents
Chatbots programmed in English and designed to negotiate with each other invented their own language
Facebook AI Research Lab

2018: BERT
First bidirectional unsupervised learning model for natural language tasks
Created by GOOGLE

2018: Language processing AI beats human intellect on a Stanford reading and comprehension test for the first time
Created by e-commerce giant Alibaba

2019: AlphaStar Beats Grandmaster at StarCraft2

2020's

2020: AlphaFold
OpenAI deep learning system identifies three-dimensional structures of proteins

2020: GPT-3
Uses deep learning to create code, poetry, and other language writing tasks.
OpenAI

2021: DALL-E
OpenAI's diffusion model generative AI that can process images to create accurate captions

2023
The Rise Of
GENERATIVE AI

2023: GEMINI
First AI to outperform humans at massive multi-task language understanding tasks.
Google DeepMind

2023: GPT-4
The next iteration of OpenAI's GPT system
A large multimodal model that accepts images and texts as inputs.
Passed the Bar Exam scoring in the top 10%

2023: Alibaba's limproved AI
Updated version that can interpret images, carry on complex conversations, and answer open ended questions

1955:
"Artificial Intelligence"
Introduced into the nomenclature by John McCarthy

"The construction of computer programs that engage in tasks that are currently more satisfactorily performed by human beings because they require high-level mental processes such as: perceptual learning, memory organization and critical reasoning."
- Marvin Minsky

The birth of neural networks

*some sources report the checkers program was developed in 1959

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