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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

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

1949: Louis Fine begins building 'RAYDAC,' a digital automatic computer. Completed in 1953

1949: "The Manchester Baby" runs its first program

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

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

1957: The term "Computer Science" was coined by Louis Fein

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

1958: Mechanisation of Thought Processes
The 1st International Symposium on Artificial Intelligence held in England.

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

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

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

1970: "From three to eight years we will have a machine with the general intelligence of an average human being" -Marvin Minsky

1980-1987 AI Boom

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

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

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

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

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

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

1989: CYBERFACE
VR glasses created
LeepVR

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

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

Internet Boom

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

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

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

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

SOCIAL MEDIA

1997: Six Degrees
First social media platform

1998: FURBY
First pet robot
By Caleb Chung

1997: Speech Recognition Software

2002: ROOMBA
i-Robot

2002: Digital information storage surpasses non-digital information storage

2003: Mars Rover
Navigates Mars without human intervention

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: UX Algorithms
Used to enhance advertising and user experience

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

2012: The Rise Of DEEP LEARNING:

AlexNet
Developed by Alex Krizhevsky et al., a convolutional neural network architecture developed for image classification tasks

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: 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

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

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

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

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

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

2019: GPT-2 introduced: massive scale-up, trained with a zero-shot learning approach.

2019: AlphaStar
Beats Grandmaster at StarCraft2

2020 The Rise Of GENERATIVE AI

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

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

2022: chatGPT Launched
An AI chatbot that uses GPT as its base.

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 Improved AI
Updated version that can interpret images, carry on complex conversations, and answer open ended questions

2024: Noble Prize:
Hopfield & Hinton are awarded the nobel prize for using tools from physics to construct methods that helped lay the foundation for today's powerful machine learning

1940's | 1950's | 1960's | 1970's | 1980's | 1990's | 2000's | 2010's | 2020's

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: "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."

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

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

1956: The first AI program
Logic Theorist - prove 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

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

1959: "Machine Learning"

Introduced into the nomenclature by Arthur Samuel at IBM

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

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

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

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

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

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

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

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

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

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

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

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

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

1984: "Winter is Coming"
-Schank & Minsky

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

1987: A new architecture of cognition:
Parallel Distributed Processing Vol.1 & 2
'Foundations' & 'Psychological and Biological Models' by James L. Mcclelland & David E. Rumelhart

1988: JABBERWACKY
Amusing chatbot
Created by: Rollo Carpenter,

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

1987-1994
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

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

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

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

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

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

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

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

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

"BIG DATA"
Introduced into the nomenclature

2000: da Vinci
First robot surgical system

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

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

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 "Gorilla"
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

2011: SIRI
Apple releases virtual assistant

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

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: 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: 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

2018: Generative Pre-trained Transformer 1 (GPT-1) was the first of OpenAI's large language models following Google's invention of the transformer architecture in 2017. Introduced the concept of a pre-trained transformer.

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

2021: GPT-3 introduced: massive scale-up, (175 billion parameters)

2022: Is LaMDA Sentient?
Blake Lemoine ignites the AI consciousness debate

2025: Agentic AI
Artificial intelligence focused on autonomous decision-making and action.

Information collected and poster designed by Danielle J. Williams, PhD

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*some sources report the checkers program was developed in 1959