INTRO TO AI
& AI ETHICS

AI6101

Dr. Melvin
Chen

1   AI Timeline (Extended)

📅 AI Timeline (2010s-2020s)

2020	Gary Marcus's hybrid AI manifesto about the next decade in AI.
2019	Spot (Boston Dynamics) was launched.
2018	*Edmond de Belamy*, a generative adversarial network portrait painting constructed by Paris-based arts-collective *Obvious*, was sold at a Christie's auction for $432,500.
2017	AlphaGo Master (Google/DeepMind) defeated Ke Jie 3–0 in a 3-game go match.
2017	Release of Taryn Southern's single 'Break Free', a human-AI collaboration.
2016	AlphaGo (Google/DeepMind) defeated Lee Sedol 4–1 in a 5-game go match.
2016	MogIA (Sanjiv Rai) predicted that Trump would defeat Clinton in the U.S. presidential election.
2016	Google Assistant (Google) was launched as an intelligent virtual assistant.
2014	Alexa (Amazon) was launched as an intelligent virtual assistant.

📅 AI Timeline (2000s-2010s)

2014 · · · · · · ● Eugene Goostman was supposed to have passed the Turing test.

2011 · · · · · · ● 0.27% error rate in handwriting recognition using convolutional neural networks reported by AI researchers at IDSIA (Switzerland).

2011 · · · · · · ● 99.46% accuracy achieved by a convolutional neural network and winner of the German Traffic Sign Recognition competition.

2011 · · · · · · ● Watson (IBM) defeated Brad Rutter and Ken Jennings in *Jeopardy!*.

2010 · · · · · · ● Demonstration of the ability of 20 dance bots to dance in harmony at Shanghai's 2010 World Expo.

2010 · · · · · · ● Launch of the ImageNet Large Scale Visual Recognition Challenge (ILSVCR), an annual AI object recognition competition.

2009 · · · · · · ● Development of Stats Monkey, a program capable of writing sport news stories without human intervention, at Northwestern University.

2008 · · · · · · ● Appearance of a Google app with speech recognition on the Apple iPhone.

2007 · · · · · · ● Setting up of ImageNet, a large database of annotated images designed to aid in visual object recognition software research, at Princeton.

2006 · · · · · · ● Publication of Geoffrey Hinton's 'Learning Multiple Layers of Representation', summarizing ideas that have resulted in new deep learning-based approaches.

2004 · · · · · · ● The 1st DARPA Grand Challenge, a prize competition for autonomous vehicles.

2002 · · · · · · ● Creation of Roomba, an autonomous vacuum cleaner for the home.

2001 · · · · · · ● Release of Steven Spielberg's *A.I. Artificial Intelligence*, a film about David (a childlike android).

📅 AI Timeline (1980s-2000s)

2000 · · · · · ● Release of Kismet, a robot capable of recognizing and simulating emotions, by Cynthia Breazeal at MIT.

1998 · · · · · ● Creation of the 1st pet robot, Furby, by Dave Hampton and Caleb Chung.

1997 · · · · · ● Deep Blue (IBM) defeated Garry Kasparov $3\frac{1}{2}$–$2\frac{1}{2}$ in a 6-game chess match.

1995 · · · · · ● Development of the chatbot A.L.I.C.E (Artificial Linguistic Internet Computer Entity) by Richard Wallace.

1994–2003 · · · · · ● The Cog Project at MIT by Rodney Brooks, Lynn Stein, & Daniel Dennett.

1990 · · · · · ● Rodney Brooks's Physical Grounding Hypothesis.

1989 · · · · · ● Successful application of a backpropagation algorithm by Yann LeCun and researchers at AT&T Bell Labs to a multi-layer neural network, allowing for the recognition of handwritten ZIP codes.

1988 · · · · · ● Design of Rollo Carpenter's chatbot Jabberwacky.

1988 · · · · · ● Publication of Judea Pearl's *Probabilistic Reasoning in Intelligent Systems*.

1987–1993 · · · · · ● The 2nd AI winter.

1987 · · · · · ● Paul Smolensky's Subsymbolic Hypothesis.

1987 · · · · · ● The founding of the International Neural Network Society (INNS).

1986 · · · · · ● Design of the 1st driverless car, a Mercedes-Benz van equipped with cameras and sensors, at Bundeswehr University in Munich.

📅 AI Timeline (1960s-1980s)

1986 ·······• Discovery of backpropagation by Rumelhart, Hinton, & Williams.

1984 ·······• Prediction of a coming AI winter by Roger Schank and Marvin Minsky at the annual meeting of AAAI.

1980 ·······• John Searle's Chinese room argument.

1979 ·······• The founding of Association for the Advancement of Artificial Intelligence (AAAI).

1976 ·······• Newell & Simon's Physical Symbol System Hypothesis.

1976 ·······• Summary of the early work on NLP (natural language processing) in Raj Reddy's 'Speech Recognition by Machine: A Review'.

1974–1980 ·······• The 1st AI winter.

1972 ·······• The Lighthill report by Sir James Lighthill.

1973 ·······• Development of AARON, a computer program written by Harold Cohen that is capable of creating original artistic output.

1972 ·······• Conversation between ELIZA & PARRY hosted by Vint Cerf.

1972 ·······• Kenneth Colby's PARRY.

1972 ·······• Development of MYCIN, a rule-based expert system for identifying bacteria causing severe infections, at Stanford.

1969 ·······• Minsky & Papert's identification of the linear separability problem and the limitations of simple neural networks in *Perceptrons: An Introduction to Computational Geometry*.

📅 AI Timeline (1950s-1960s)

1969 ⋯⋯⋯● Development of Shakey, the 1st general-purpose mobile robot able to make decisions about its own actions by reasoning about its surroundings.

1968 ⋯⋯⋯● Development of SHRDLU, an early natural language understanding computer program, by Terry Winograd at MIT.

1968 ⋯⋯⋯● Appearance of HAL 9000, a sentient computer, in *2001: Space Odyssey.*

1966 ⋯⋯⋯● Joseph Weizenbaum's ELIZA.

1965 ⋯⋯⋯● Development of DENDRAL, the 1st expert system capable of automating the decision-making process and problem-solving behaviour of organic chemists, at Stanford University.

1965 ⋯⋯⋯● Publication of Hubert L. Dreyfus's 'Alchemy & Artificial Intelligence', in which it is argued that the human mind is not like a computer and that there are necessary limits to the progress of AI.

1961 ⋯⋯⋯● Development of SAINT (Symbolic Automatic INTegrator), a heuristic program for solving symbolic integration problems in freshman calculus, by James Slagle.

1961 ⋯⋯⋯● Commencement of operations for the 1st industrial robot, Unimate, at a General Motors assembly.

1959 ⋯⋯⋯● Coining of the term 'machine learning' by Arthur Samuel.

📅 AI Timeline (1760s-1950s)

1958 ······• Development of Lisp, a popular programming language for AI research, by John McCarthy.

1958 ······• Frank Rosenblatt's perceptron.

1951 ······• Development of SNARC (Stochastic Neural Analog Reinforcement Calculator) by Marvin Minsky and Dean Edmunds, the 1st artificial neural network.

1956–1974 ······• The golden age of AI research.

1956 ······• Dartmouth summer conference on AI & unveiling of Logic Theorist.

1950 ······• The formulation of the Turing test by Alan Turing.

1949 ······• Donald Hebb's learning rule of synaptic reinforcement.

1947 ······• The McCulloch-Pitts model of the neuron.

1929 ······• Development of Gakutensoku, the 1st robot from Asia, by Makoto Nishimura.

1927 ······• The 1st robot was depicted on film in *Metropolis*.

1925 ······• Release of a radio-controlled driverless car in New York City.

1921 ······• Introduction of the term 'robot' in Karel Čapek's play *Rossum's Universal Robots*.

1914 ······• Debut of *El Ajedrecista*, a chess-playing automaton by Leonardo Torres y Quevedo.

1898 ······• Demonstration of Nikola Tesla's radio-controlled vessel at a Madison Square Garden exhibition.

1854 ······• Publication of George Boole's *An Investigation of the Laws of Thought* about the algebra of logic and how logical reasoning could be performed systematically.

1763 ······• Publication of Thomas Bayes's *An Essay towards Solving a Problem in the Doctrine of Chances* and the development of a Bayesian framework for reasoning about the probability of events.