Artificial Intelligence (IT-511)

Assignment no. 5

Question no. 1.

Garry Kasparov

Soviet born chess master who became world chess champion in 1985. He was the youngest world champion (at the age of 22) and first chess champion to be defeated by a supercomputer in a competitive match.

Deep Blue

Deep blue was a super-computer developed by IBM specially for playing chess and was best known for being first artifical intelligence construct to ever win chess match against a reining world champions , grand master Garry Kasparov, under regular time control.

Alan Turing

Alan Turing considered as a father of modern computer science, was famous for his work of developing first modern computers, decoding encryption of German enigma machines during world war 2 and detailed a procedure named as turning test, and forming basics for AI.

John McCarthy

He is known as “Father of AI” for his fantastic work in AI. He coined term “AI” in 1950. He defined it as “ the science and engineering of making machines that are smart”

Geoffrey Hinton

He is known by to many to be “God Father of deep learning” Asides from his seminal 1986 paper on back , Hinton was invented several foundational deep learning techniques throughout his decade-long career.

Go

GO is statically typed, concurrent and garbage collected programming language created by Google in 2009. it is a simple, efficient, early to learn, choice for building network services, web applications and command tools.

Lee sedol

Lee Sedol is a former south Korean professional GO player of 9 Dan rank. As of Feb 2016, he ranked 2nd in international titles, behind only cheng-ho (21).

Deepmind AlphaGo

AlphaGo is first Computer Program to defeat a professional human Go player, a landmark achievement that experts believe was a decade ahead of its time.

Move 37

Move 37 in AI is a famous move made by an artificial intelligence program called AlphaGo in a game of Go against a human player, Lee Sedol, in 2016. It was a move that surprised and puzzled the experts, as it was considered very unconventional and risky.

Atlas

Atlas is the name of a humanoid robot developed by Boston Dynamics, a company that specializes in creating advanced machines that can move and interact with their environment. Atlas is designed to perform various tasks, such as walking, running, jumping, climbing stairs, carrying objects, etc.

Charles Babbage

Charles Babbage was a brilliant and influential English mathematician, philosopher, inventor and mechanical engineer who is widely regarded as the father of the computer. He conceived the idea of a digital programmable computer and designed two machines that could perform calculations using different methods.

Ada lovelace

Ada Lovelace was an English mathematician and writer who is widely regarded as the first computer programmer. She wrote the first algorithm for Charles Babbage’s proposed mechanical general-purpose computer, the Analytical Engine, in 1843.

Mars Rover

Over the years, NASA sent 5 robotic vehicles called rovers to Mars.It is designed to explore martian surface looking for sign of past and present life on planet to contribute to NASA’s Mars exploration Program's science goals.

Question no. 2. What is the reason for two AI winters?

Answer :

There have been two major AI winters in the history of the field, approximately from 1974 to 1980 and from 1987 to 2000.AI winters are periods of reduced funding and interest in artificial intelligence research, caused by various factors such as unrealistic expectations, technical limitations, economic downturns, and social and ethical concerns.

1st AI Winters, led to a general disillusionment with AI and natural language processing, and a decrease in research grants and publications.

2nd AI winter was caused by a combination of factors, such as the collapse of the Lisp machine market, which was a specialized hardware for AI programming.

Question no. 3. What are the challenges related to AI?

Answer :

Some of the challenges related to AI are:

* Computing power: AI algorithms require a lot of processing power and resources, which can be expensive and inaccessible for many developers and users.
* Trust deficit: AI decisions are not always transparent, explainable, or fair, which can lead to mistrust, confusion, or discrimination among stakeholders.
* Security and privacy: AI systems are vulnerable to attacks, misuse, or abuse, which can compromise the data, integrity, or functionality of the systems or the users.

Question no. 4. Define AI paradigm to solve a real-world complex problem?

Answer

[An AI paradigm is a way of thinking about and solving a specific AI-related problem using a particular set of concepts, methods, and tools1](https://www.forbes.com/sites/cognitiveworld/2018/08/22/ai-knowledge-map-how-to-classify-ai-technologies/" \t "https://edgeservices.bing.com/edgesvc/_blank).

To solve a real-world complex problem using AI, one may need to choose an appropriate AI paradigm or combine multiple paradigms depending on the nature and requirements of the problem. For example, if the problem involves understanding natural language, one may use symbolic AI to represent the syntax and semantics of language, and connectionist AI to learn from large corpora of text. If the problem involves designing an optimal solution for a complex optimization problem, one may use evolutionary AI to search the solution space and find the best candidate.