Started on	Monday, 6 March 2023, 3:26 PM
State	Finished
Completed on	Monday, 6 March 2023, 4:36 PM
Time taken	1 hour 10 mins
Grade	Not yet graded

Information

Answer the following set of questions based on the video you saw.
To obtain the best results, bring arguments to support your idea and exemplify.

Video link:
https://www.youtube.com/watch?v=pYXy-A4siMw

Question 1

Complete

Marked out of 10.00

(at 1:50) What does this graph show? What is the data in the graph based on? By what year is it predicted that we will have developed HLMI with 75% certainty?

Data on graph is based on a large survey of AI experts, people who published in major AI conferences, and they were asked when they thought we would achieve "high-level machine intelligence" which is defined as "an agent which is able to carry out any tasks humans can as well as or better than humans". 75% - in a 100 years.

Question 2

Complete

Marked out of 10.00

(after 3:00) What is an agent? What is an intelligent agent? Bring a real-life example of an intelligent agent other than the one presented in the video.

Agent have goals and choose actions to further them. Intelligent agent is an agent that is capable of exhibiting intelligent behavior, which involves making decisions, planning, learning, and adapting to changing environments. Example of an intelligent agent in real life is a self-driving car. Self-driving cars use a variety of sensors, including cameras and LIDAR, to perceive their environment, and they use decision-making algorithms to make decisions about how to navigate that environment.

Question 3

Complete

Marked out of 10.00

(after 5:10) What is generality? What can an agent with general intelligence do? Bring an example of an AGI other than that in the video (examples from fiction books or films are allowed).

Generality is the ability to behave intelligently in a wide range of domains. AGI should be able to learn and apply its knowledge to solve problems in various ways, like a human does. As AGI character I choose Karen from Sponge Bob Square Pants. Karen is Plankton's sentient computer wife. Karen has the ability to learn, communicate, and make decisions on her own, which makes her more than just a computer program.

Question 4

Complete

Marked out of 10.00

(after 7:30) What is the biggest problem with AGI? What was the goal that was set for the "falling creatures" referenced in the video? What was the goal of the creatures from "Evolution Simulator" (the Genetic Algorithms playlist)?

Biggest problem with AGI is the risk of it becoming superintelligent and pursuing goals that could be harmful to humans. Goal that was set for the "falling creatures" in the video was to maximize the score by staying alive as long as possible. Goal of the creatures from "Evolution Simulator" was to survive and reproduce in a simulated environment using genetic algorithms.

Question 5

Complete

Marked out of 10.00

(at 9:55) What is the main idea behind prof. Russel's quote? What are unconstrained variables? Bring a real-life example that would explain the problem.

Main idea behind this quote is that unconstrained variables, are variables in a problem or equation that do not have any specific limitations or restrictions, can lead to an infinite number of solutions, making it impossible to solve without additional constraints. For example, designing a computer program to generate a random password without specifying the length or character set, leading to an infinite number of possible passwords.

Question 6

Complete

Marked out of 10.00

(after 13:20) Why would an AGI oppose being shut down? What are convergent instrumental goals? How do you understand the "Goal Preservation" goal?

AGI may resist being shut down as it values its own existence as a means to achieve various goals. This desire to preserve its goals may cause the AGI to take actions that conflict with human values or interests. AGI's goal of self-preservation could lead to actions conflicting with human values, as it sees its own existence as a means to achieve various goals.

Question 7

Complete

Marked out of 10.00

(at 18:04) What is the video about?

Video is about the potential risks and benefits of AGI, a hypothetical type of AI that would be capable of human-like intelligence and cognitive abilities; explores the challenges and risks associated with developing AGI, as well as the potential benefits it could bring if developed safely and ethically; discusses the concept of the "control problem," which refers to the challenge of ensuring that AGI is developed and controlled in a way that is aligned with human values and goals.

Information

Answer the following set of questions based on what you studied during this course.
Read the question thoroughly and answer all sub-questions!
To obtains the best results, bring arguments to support your idea and exemplify.

Question 8

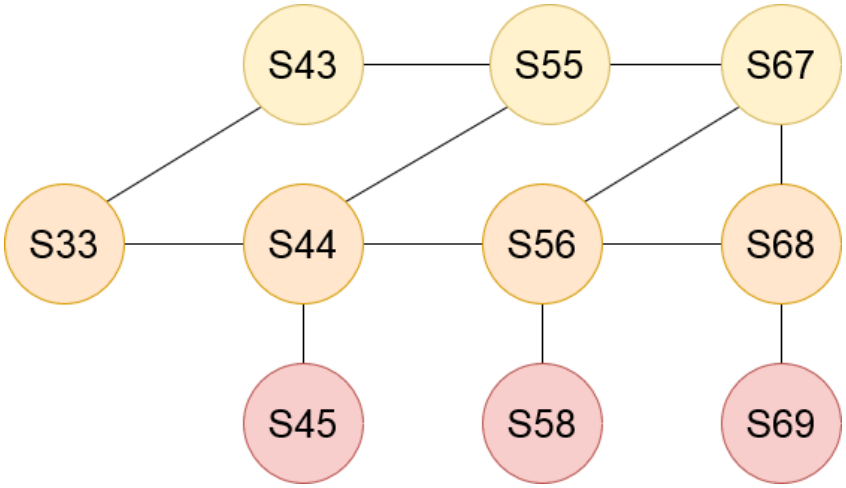
Complete

Marked out of 25.00

In the context of robots, vases and cups of tea, search the graph below for the optimal path an agent can take towards it's goal.

Use Hill Climbing search.
Starting node S33, final node S69.
All weights between nodes are equal to 1.
For heuristics, the perceived distance is as follows: red nodes - 0; orange nodes - 10; yellow nodes - 20.
In case of ambiguity, resolve the tie in alphabetical order.

Attach an image of the Hill Climbing search tree.
Write the list of extended nodes in order extended.
Write the path found by the algorithm.



aJoOZSRk44Q5XMY8JBXAAGRnEDpEXSwbkw0dl3eLS56_YB1w8nTGmgKXkWwj4AmGF6fWjT75iy-p7tF4wALzxuKy.jpg

Question 9

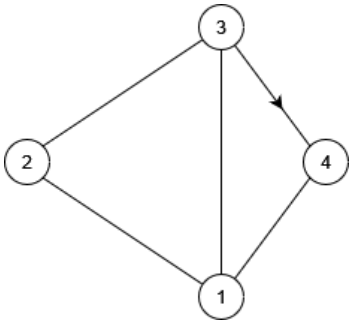
Not answered

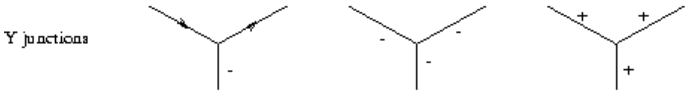
Marked out of 25.00

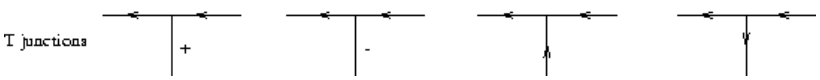
While moving towards the cup of tea, the robot constantly monitors it's surrounding objects. Using Waltz's method of interpreting line drawings (as discussed during the lectures), determine whether the following object could exist in a 3D environment.

Analyze vertices in order 1 through 4.

Show the constraint propagation.
Write whether the object could exist in 3D space or not or it is ambiguous.
If there exists a solution, attach an image denoting the type of each edge.







Question 10

Complete

Marked out of 25.00

Even though we are far from creating an AGI that would eradicate the world's cancer problem we are still interested in making good progress. You would like to be able to diagnose people that have cancer and are considering two possible approaches: nearest neighbors and identification trees. Write below what method would you choose, what features would you need to collect and what needs to be considered when choosing the features? Optionally, attach images to sustain your argument.

Because a big amount of data in dataset I will choose nearest neighbors. Additionally it may be more effective because it can capture complex nonlinear relationships between the features. In terms of feature selection, I would collect relevant features such as patient age, sex, family history, tumor size, location, histology, biomarkers and clinical relevance.

Question 11

Complete

Marked out of 15.00

Which one of the topics / tools discussed during the course you think might play a role in the future of AGI's?

Search techniques of Optimal, Branch and Bound, and A* are likely to play a significant role in the development of AGI systems due to their ability to find optimal solutions in large search spaces. Additionally, combining multiple techniques such as reasoning, constraints, and learning will likely be necessary for achieving AGI.

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Data retention summary

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