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NEW QUESTION: 1

What does TRL stand for?

- A. Technical Robotic Level.
- B. Transform Reinforced Learning
- C. Technology Readiness Level.
- D. Transport Ready Level.

Answer: C ([LEAVE A REPLY](#))

Explanation

Technology Readiness Level (TRL) Technology Readiness Levels (TRL) are a method of estimating the technology maturity of Critical Technology Elements (CTE) of a program during the acquisition process.

<https://acqnotes.com/acqnote/tasks/technology-readiness-level#:~:text=Technology>

%20Development-, Technolog TRL stands for Technology Readiness Level and is a measure of how close a technology is to being ready for use in a real-world environment. TRL is used to assess the progress of research and development of a technology, ranging from basic research (TRL 1) to fully operational (TRL 9). TRL is used to help determine the level of completion of a technology and its potential success in a real-world environment.

References:

[1] <https://www.bcs.org/upload/pdf/foundation-certificate-ai-syllabus-v1.pdf> [2] <https://www.apmg-international>

NEW QUESTION: 2

Narrow or weak AI can be useful to robots.

Which of the following is an example of narrow AI?

- A. Conscious simul-ation.
- B. Artificial General AI.
- C. Conscious integration.

D. NLP - Natural LanguageProcessing.

Answer: D (LEAVE A REPLY)

Explanation

NLP - Natural Language Processing is an example of narrow AI. It is a type of AI system that is able to understand, interpret, and generate natural language. NLP has become increasingly popular over the past few years, as it has been used to create applications such as chatbots, virtual assistants, and search engines. NLP systems are able to learn language and the context in which it is used, and they are able to understand the nuances of language and its different meanings. References: BCS Foundation Certificate In Artificial Intelligence Study Guide, <https://bcs.org/certifications/foundation-certificates/artificial-intelligence/>

NEW QUESTION: 3

If AI undertakes routine and monotonous tasks and takes these away from humans, what will humans do?

- A. Higher value work.**
- B. Leisure activities**
- C. Change jobs.**
- D. Sabotage the AI.**

Answer: (SHOW ANSWER)

Explanation

AI is designed to take on routine and monotonous tasks, freeing up humans to take on more complex, higher value work. This can include tasks such as research, problem-solving, and decision-making. This shift in work roles is expected to increase productivity and efficiency, allowing humans to focus on more creative and innovative tasks. For example, robots can be used to automate mundane manufacturing processes, freeing up human workers to take on jobs that require more creative thinking and problem-solving.

References:

[1] <https://www.bcs.org/upload/pdf/foundation-certificate-ai-syllabus-v1.pdf> [2] <https://www.apmg-international>

NEW QUESTION: 4

An intelligent robot uses AI to do what?

- A. Sense, plan and act**
- B. Plan, act and speak.**
- C. Perceive, plan and act.**
- D. Sense, plan and move.**

Answer: C (LEAVE A REPLY)

Explanation

An intelligent robot uses Artificial Intelligence (AI) to perceive its environment, plan its actions and then act on them. This is sometimes referred to as the "sense, plan, act" cycle, and is at the heart

of what makes a robot intelligent. By using AI, robots can sense their environment, plan their actions accordingly and then act on them in order to complete their tasks.

For more information, please refer to the BCS Foundation Certificate in Artificial Intelligence Study Guide: <https://www.bcs.org/category/18076/bcs-foundation-certificate-in-artificial-intelligence-study-guide>.

NEW QUESTION: 5

Para View allows large data sets to be visualised on a parallel computer.

Which of the following is one of the techniques used?

- A. Dashboard.
- B. Eigen function analysis.
- C. Norm calculation.
- D. Contour plot

Answer: D ([LEAVE A REPLY](#))

NEW QUESTION: 6

A vector in vector calculus is a quantity that has magnitude and direction.

What is a vector in computer programming?

- A. An array with onedimension.
- B. A two-dimensional array of scalars.
- C. An array of complex numbers
- D. A constant

Answer: A ([LEAVE A REPLY](#))

Explanation

In computer programming, a vector is a data structure that contains a collection of elements that are all of the same type. Each element in the vector has an associated index, which can be used to access and modify the element at that index. Vectors are commonly used to store collections of numerical values (e.g., integers or floating-point numbers) or strings, but they can also be used to store any type of data.

References: [1] BCS Foundation Certificate In Artificial Intelligence Study Guide, Page number 36

[2] APMG International, "What is a Vector in Computer Programming?", <https://apmg-international.com/en/blog/what-is-a-vector-in-computer-programming/> [3] EXIN, "What is a Vector in Computer Programming?", <https://www.exin.com/blog/what-is-a-vector-in-computer-programming/>

NEW QUESTION: 7

The EU and United Nations have made designing for all individuals a core principle. What is this type of design called?

- A. Core design
- B. Universal design.
- C. Biophilic design.

D. Utopic design.

Answer: B ([LEAVE A REPLY](#))

Explanation

<https://universaldesign.ie/What-is-Universal-Design/>

Universal design is a type of design that takes into account the needs of all individuals, regardless of age, ability, or physical condition. It is a principle that is embraced by the European Union and the United Nations, and it is based on the idea that products, services, and environments should be designed to be usable by the widest range of people possible. Universal design emphasizes accessibility, usability, and inclusivity, and it is often used to create products and services that are easy to use for people of all ages and abilities.

References: <https://www.bcs.org/more/certifications/foundation-certificate-in-artificial-intelligence/>
<https://www>

NEW QUESTION: 8

What are monotonous and repetitive tasks, that require accuracy BEST suited to?

A. Artificial General Intelligence.

B. Human plus machine.

C. Machine.

D. Human.

Answer: ([SHOW ANSWER](#)**)**

NEW QUESTION: 9

Ensemble learning methods do what with the hypothesis space?

A. Select a combination of hypothesis to combine their predictions

B. Use stochastic gradient descent to optimise a network.

C. Extract ergodic solutions.

D. Test multiple hypotheses simultaneously.

Answer: ([SHOW ANSWER](#)**)**

Explanation

https://link.springer.com/referenceworkentry/10.1007/978-0-387-73003-5_293#:~:text=Definition,and%20comb It works by selecting different subsets of the data, or different combinations of the hypothesis, and combining the results of each prediction in order to create a single, more accurate result. This is useful in situations where different hypothesis may be accurate in different parts of the data, or where a single hypothesis may not be accurate in all cases. Ensemble learning is used in a variety of applications, from computer vision to natural language processing.

References: [1] BCS Foundation Certificate In Artificial Intelligence Study Guide, BCS [2] Apmg-international.com, "What is Ensemble Learning?", APMG International, <https://apmg-international.com/en/about-apmg/blog/what-is-ensemble-learning/> [3] Exin.com, "Ensemble Learning", EXIN, <https://www.exin.com/en-us/learn/ensemble-learning>

NEW QUESTION: 10

What does Prof David Chalmers describe the hard consciousness problem to be as complex as?

- A. Psychology.
- B. Turbulence.
- C. Quantum mechanics.
- D. The universe.

Answer: D (LEAVE A REPLY)

Explanation

Prof David Chalmers describes the hard consciousness problem to be as complex as the universe. He argues that understanding consciousness is as hard as understanding the universe itself, due to the number of variables and dimensions involved. He has compared the complexity of the problem to that of turbulence, quantum mechanics, and psychology, but believes that the problem of consciousness is even more complex than all of these.

References:

[1] <https://www.bcs.org/upload/pdf/foundation-certificate-ai-syllabus-v1.pdf>

[2] <https://www.apmg-international>

David J. Chalmers, "The Hard Problem of Consciousness", in J. Shear (ed.), Explaining Consciousness:

The "Hard Problem", MIT Press, 1997.

NEW QUESTION: 11

What function is used in a Neural Network?

- A. Linear.
- B. Activation.
- C. Statistical.
- D. Trigonometric.

Answer: B (LEAVE A REPLY)

Explanation

Activation Functions

An activation function in a neural network defines how the weighted sum of the input is transformed into an output from a node or nodes in a layer of the network.

<https://machinelearningmastery.com/choose-an-activation-function-for-deep-learning/#:~:text=An%20activation> An activation function is a mathematical function used in a neural network to determine the output of a neuron. Activation functions are used to transform the inputs into an output signal and can range from simple linear functions to complex non-linear functions. Activation functions are an important part of neural networks and help the network learn patterns and generalize data. Types of activation functions include sigmoid, ReLU, tanh, and softmax.

References: BCS Foundation Certificate In Artificial Intelligence Study Guide,

<https://bcs.org/certifications/foundation-certificates/artificial-intelligence/>

NEW QUESTION: 12

Sustainability focuses on which three core areas?

- A. Scientific, Environmental and Economic.
- B. Social, Economic and Environmental.
- C. Social, Economic and Entrepreneurial.
- D. Social, Entrepreneurial and Environmental.

Answer: B ([LEAVE A REPLY](#))

Explanation

The term sustainability is broadly used to indicate programs, initiatives and actions aimed at the preservation of a particular resource. However, it actually refers to four distinct areas: human, social, economic and environmental - known as the four pillars of sustainability.

<https://www.futurelearn.com/info/courses/sustainable-business/0/steps/78337#:~:text=However%2C%20it%20ac> Sustainability focuses on these three core areas because they all have an impact on the environment and society. Social sustainability is concerned with the relationships between people and how to create a society that is equitable and fair for all members. Economic sustainability focuses on the creation of a viable economic system that provides for the needs of the present without compromising the ability of future generations to meet their own needs. Environmental sustainability focuses on protecting natural resources, ecosystems and habitats, and minimizing the impact of human activities on the environment.

References: <https://www.bcs.org/more/certifications/foundation-certificate-in-artificial-intelligence/>
<https://www>

NEW QUESTION: 13

Splitting data into Training and Test data sets is part of what?

- A. Machine learning data preparation.
- B. Batch learning.
- C. Machine learning post processing.
- D. High performance computing strategy.

Answer: A ([LEAVE A REPLY](#))

Explanation

Splitting data into training and test data sets is an important step in the machine learning data preparation process. This process involves splitting the data into subsets, usually in a 70:30 ratio, to create a training set and a test set. The training set is used to train the machine learning model, while the test set is used to evaluate the model's performance. This process allows for the model to be tested and evaluated on data that it has not seen before, in order to ensure that it is accurate and able to generalize to new data. References: BCS Foundation Certificate In Artificial Intelligence Study Guide, <https://bcs.org/certifications/foundation-certificates/artificial-intelligence/>

NEW QUESTION: 14

What technique can be adopted when a weak learners hypothesis accuracy is only slightly better than 50%?

- A. Over-fitting
- B. Activation.

C. Iteration.

D. Boosting.

Answer: (SHOW ANSWER)

Explanation

* Weak Learner: Colloquially, a model that performs slightly better than a naive model.

More formally, the notion has been generalized to multi-class classification and has a different meaning beyond better than 50 percent accuracy.

For binary classification, it is wellknown that the exact requirement for weak learners is to be better than random guess. [...] Notice that requiring base learners to be better than random guess is too weak for multi-class problems, yet requiring better than 50% accuracy is too stringent.

- Page 46, Ensemble Methods, 2012.

It is based on formal computational learning theory that proposes a class of learning methods that possess weakly learnability, meaning that they perform better than random guessing. Weak learnability is proposed as a simplification of the more desirable strong learnability, where a learnable achieved arbitrary good classification accuracy.

A weaker model of learnability, called weak learnability, drops the requirement that the learner be able to achieve arbitrarily high accuracy; a weak learning algorithm needs only output an hypothesis that performs slightly better (by an inverse polynomial) than random guessing.

- The Strength of Weak Learnability, 1990.

It is a useful concept as it is often used to describe the capabilities of contributing members of ensemble learning algorithms. For example, sometimes members of a bootstrap aggregation are referred to as weak learners as opposed to strong, at least in the colloquial meaning of the term. More specifically, weak learners are the basis for the boosting class of ensemble learning algorithms.

The term boosting refers to a family of algorithms that are able to convert weak learners to strong learners.

<https://machinelearningmastery.com/strong-learners-vs-weak-learners-for-ensemble-learning/> The best technique to adopt when a weak learner's hypothesis accuracy is only slightly better than 50% is boosting. Boosting is an ensemble learning technique that combines multiple weak learners (i.e., models with a low accuracy) to create a more powerful model. Boosting works by iteratively learning a series of weak learners, each of which is slightly better than random guessing. The output of each weak learner is then combined to form a more accurate model. Boosting is a powerful technique that has been proven to improve the accuracy of a wide range of machine learning tasks. For more information, please see the BCS Foundation Certificate In Artificial Intelligence Study Guide or the resources listed above.

NEW QUESTION: 15

From the EII's ethics guidelines for AI, what does 'The Principle of Autonomy,' mean?

A. Robots will havefreewill.

B. AI agents will behave as humans.

C. AI systems will be human-centric

D. AI systems will preserve human agency.

Answer: (SHOW ANSWER)

Explanation

The Principle of Autonomy from the ELL's ethics guidelines for AI states that AI systems should be designed in a way that preserves human agency and responsibility. This means that AI systems should be designed in a way that allows humans to remain in control of their decisions, and that the AI system should not be able to act without human input or permission. References: BCS Foundation Certificate In Artificial Intelligence Study Guide, <https://bcs.org/ai/certificate/> and APMG International, <https://www.apmg-international.com/qualifications/artificial-intelligence-foundation-certificate>.

NEW QUESTION: 16

In Machine learning what are a brain's axons called?

- A. Dendrites
- B. Edges
- C. Tetrahedra.
- D. Nodes

Answer: D (LEAVE A REPLY)

Explanation

In Machine Learning, the brain's axons are referred to as nodes. Nodes are the components of a neural network that are responsible for processing the input data and generating the output. A node is a mathematical function that takes input data, performs a computation on it, and produces an output. Each node is connected to other nodes in the network via edges, which represent the strength of the connection between the respective nodes. The strength of the connection between two nodes is determined by the weights assigned to each edge.

The weights are adjusted during the training process to generate the desired results.

For more information, please refer to the BCS Foundation Certificate In Artificial Intelligence Study Guide (<https://www.bcs.org/upload/pdf/bcs-foundation-certificate-in-artificial-intelligence-study-guide.pdf>) or the EXIN Artificial Intelligence Foundation Certification (<https://www.exin.com/en/exams/artificial-intelligence-foundation>).

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NEW QUESTION: 17

What is defined as a machine that can carry out a complex series of tasks automatically?

- A. A robot
- B. A production line.
- C. A computer.
- D. An autonomous vehicle.

Answer: ([SHOW ANSWER](#))

Explanation

<https://en.wikipedia.org/wiki/Robot#:~:text=A%20robot%20is%20a%20machine,control%20may%20be%20em>

A computer is defined as a machine that can carry out a complex series of tasks automatically. Computers are used in a variety of applications, including artificial intelligence (AI), robotics, production lines, and autonomous vehicles. Computers are able to carry out complex tasks thanks to their ability to process large amounts of data quickly and accurately.

For more information, please refer to the BCS Foundation Certificate in Artificial Intelligence Study Guide:

<https://www.bcs.org/category/18076/bcs-foundation-certificate-in-artificial-intelligence-study-guide>.

NEW QUESTION: 18

A human manipulates what using their intelligence?

- A. Environment
- B. Space
- C. Objective
- D. Mission

Answer: A ([LEAVE A REPLY](#))

Explanation

Humans use their intelligence to manipulate their environment in order to achieve their objectives and complete their mission. This can involve a wide range of activities, such as building tools, constructing shelters, and creating strategies to solve problems. References: BCS Foundation Certificate In Artificial Intelligence Study Guide, <https://bcs.org/ai/certificate/> and APMG International, <https://www.apmg-international.com/qualifications/artificial-intelligence-foundation-certificate>.

NEW QUESTION: 19

With a large dataset, limited computational resources or frequent new data to learn from, we can adopt what type of machine learning?

- A. Batch learning.
- B. Big Data learning.
- C. Patchwork learning.
- D. Online learning.

Answer: D ([LEAVE A REPLY](#))

Explanation

Batch learning describes learning from large data sets. All of the data are used to train and test the algorithm. The computer resources required are governed by the volume, velocity, variety and veracity of data. This learning is done offline. Online learning is undertaken with data in small or mini batches. Learning occurs as data become available. **BCS Example** is a system that learns from stock market prices.

Online learning is a type of machine learning that can be used when a large dataset is limited in computational resources or if the data is frequently changing. It allows the system to learn from new data as it is being presented, rather than having to re-train the entire dataset each time new data is added. This makes it more efficient and effective than batch learning, as it only needs to process the new data and not the entire dataset.

Online learning is often used in applications such as fraud detection, where new data is constantly being added and needs to be analyzed quickly.

For more information, please refer to the BCS Foundation Certificate In Artificial Intelligence Study Guide (<https://www.bcs.org/upload/pdf/bcs-foundation-certificate-in-artificial-intelligence-study-guide.pdf>) or the EXIN Artificial Intelligence Foundation Certification (<https://www.exin.com/en/exams/artificial-intelligence-foundation>).

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