



Top 20 Artificial Intelligence Interview Questions and Answers

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Artificial Intelligence Interview Questions and Answers

In today's world, artificial intelligence plays a crucial role, offering numerous job opportunities. Whether you're starting your career or aiming for advancement, understanding AI is essential. This article is your go-to resource, focusing on commonly asked interview questions to help you succeed in the AI field. We'll cover topics relevant to various AI roles, ensuring you're well-prepared for your next interview. Let's dive in and equip you with the knowledge needed to thrive in the ever-evolving landscape of artificial intelligence.

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Artificial Intelligence Interview Questions and Answers

1. What is Artificial Intelligence?

Artificial Intelligence (AI) is the process of designing computer systems capable of performing tasks usually associated with human intelligence. These tasks include learning from data, recognizing patterns, making decisions, understanding natural language, and solving problems. AI technologies aim to replicate cognitive functions associated with human intelligence and find applications in virtual assistants, autonomous vehicles, medical diagnosis, and recommendation systems.

2. What are the programming languages used for Artificial Intelligence?

Artificial Intelligence (AI) can be developed using various programming languages, each with its own strengths and areas of application. Here are some of the programming languages frequently utilized in the field of AI:

- **Python:** Simple, extensive libraries (TensorFlow, PyTorch), ideal for machine learning and deep learning.
- **R:** Great for statistical analysis and data visualization, favored in academia.
- **Java:** High performance and portability, libraries like Deeplearning4j.
- **C++:** High performance for real-time AI applications, libraries include Shark and Dlib.
- **Julia:** Excellent for numerical and computational tasks, libraries like Flux.jl and MLJ.jl.
- **Lisp:** Supports symbolic reasoning, used in specialized AI applications.
- **Prolog:** Ideal for logic programming and rule-

Answers

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based AI systems.

- **Scala:** Works well with big data tools like Apache Spark, AI libraries like Breeze and DL4J.
- **MATLAB:** Used for numerical computing, offers comprehensive toolboxes for AI.
- **JavaScript:** Gaining popularity for web-based AI applications, libraries like TensorFlow.js.

3. What are the types of Artificial Intelligence?

Artificial Intelligence (AI) can be categorized into several main types based on their capabilities and functionalities:

- **Narrow AI (Weak AI):** Designed for specific tasks, like virtual assistants or facial recognition.
- **General AI (Strong AI):** Can perform any intellectual task that a human can, but this is still theoretical.
- **Superintelligent AI:** Far surpasses human intelligence, currently hypothetical.
- **Reactive Machines:** React to specific inputs without memory or learning, like IBM's Deep Blue chess computer.
- **Limited Memory:** Can learn from past experiences, used in self-driving cars.
- **Theory of Mind:** Understands human emotions and beliefs, still in development.
- **Self-Aware AI:** Possesses self-awareness and consciousness, currently speculative.

4. What is a Neural Network?

A neural network is a computational model that draws inspiration from the neural networks present in the human brain. These layers include:

- **Input Layer:** Takes in initial data.
- **Hidden Layers:** Processes data through transformations; can have multiple layers.
- **Output Layer:** Produces the final output.

Neural networks learn complex patterns and are

used in applications like image and speech recognition, natural language processing, and predictive analytics.

5. Can you explain the difference between AI, Machine Learning, and Deep Learning?

Within the field of computer science, there exists a hierarchy of terms regarding machine intelligence: Artificial Intelligence (AI), Machine Learning (ML), and Deep Learning (DL).

- AI is the broadest concept, encompassing the endeavor to create intelligent machines capable of mimicking human cognitive abilities such as learning and problem-solving. It represents the ultimate goal.
- ML is a subset of AI. It focuses on algorithms that can improve their performance on a specific task through experience with data, without the need for explicit programming. Think of ML as a specific technique to achieve AI.
- DL is a subfield of ML, inspired by the structure and function of the human brain. It employs artificial neural networks with multiple layers to handle intricate data processing tasks. Deep learning is a powerful tool within the ML toolbox, particularly adept at handling challenging tasks.

6. What is Reinforcement Learning?

Reinforcement Learning (RL) is a machine learning method where an agent learns by interacting with its environment, striving to maximize rewards through experimentation. It's applied across various domains, such as robotics and gaming, facilitating adaptive decision-making in scenarios with limited explicit instructions.

7. What are Decision Trees?

Decision trees are a type of algorithm used in machine learning for classification and regression

tasks. They work by splitting the dataset into smaller subsets based on the features that best separate the data. These splits create a tree-like structure where each internal node represents a decision based on a feature, and each leaf node represents the outcome or prediction. Decision trees are intuitive and easy to interpret, making them popular for tasks where understanding the reasoning behind predictions is important.

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8. How does Natural Language Processing (NLP) function?

NLP enables computers to comprehend and process human language, performing tasks such as text analysis and translation by breaking down text, analyzing meaning and relationships, and employing statistical or deep learning methods for functions like summarization and translation.

9. What does TensorFlow do, and why is it significant in the field of AI?

TensorFlow is a tool made by Google for building and training machine learning models. It's important in AI because it offers a flexible framework that makes it easier to create and deploy various types of models, from simple to complex. TensorFlow is widely used because it's user-friendly and supports both research and real-world applications, helping to advance AI technology.

10. What does the term Natural Language Processing (NLP) refer to?

Natural Language Processing (NLP) refers to the branch of artificial intelligence (AI) that focuses on enabling computers to understand, interpret, and manipulate human language in a way that's both meaningful and useful. It involves a variety of tasks,

such as text classification, sentiment analysis, language translation, and more. NLP algorithms process and analyze large amounts of natural language data, allowing computers to extract insights, generate responses, or perform other language-related tasks.

11. What is Fuzzy Logic?

Fuzzy Logic is a type of logic that deals with situations where things are not just true or false, but can be somewhere in between. It helps in making decisions when things are uncertain or not clear-cut. This approach is handy in various fields, like controlling systems and recognizing patterns.

12. How is AI used in autonomous vehicles?

AI helps autonomous vehicles see the world around them, make decisions, and drive safely without human help. Sensors collect data about the environment, like other cars and obstacles, and AI uses this data to understand what's happening and decide how to drive. This lets autonomous vehicles navigate roads on their own.

13. How do Strong Artificial Intelligence and Weak Artificial Intelligence differ?

Aspect	Strong Artificial Intelligence	Weak Artificial Intelligence
Intelligence Level	Equivalent to human intelligence, capable of solving any problem.	Tailored for specific tasks, lacks broad learning capabilities.
Application Scope	Aims to mimic human-like intelligence.	Focuses on specific, limited tasks.

Present Existence	Theoretical concept, not realized yet.	Currently implemented in existing AI systems.
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14. What is Artificial Narrow Intelligence (ANI)?

Artificial Narrow Intelligence (ANI), or Weak AI, refers to AI systems specialized in particular tasks, lacking broad learning abilities and confined to predefined contexts. Examples include language translation and image recognition programs. While ANI performs well within its designated tasks, it cannot generalize knowledge or adapt beyond its programmed capabilities.

Artificial Intelligence Salary

15. What is Turing test?

The Turing test evaluates a machine's ability to mimic human intelligence. It involves a conversation where a human evaluator interacts with both a human and a machine without knowing which is which. If the evaluator cannot differentiate between them based on the conversation, the machine is considered to have passed the test.

16. What is an A* algorithm search method?

The A* algorithm is a search method used to find the shortest path from a start node to a goal node in a graph. It combines the benefits of uniform-cost search and greedy best-first search by considering both the cost of reaching a node from the start and the estimated cost to reach the goal from that node.

17. What benefits do neural networks offer?

Neural networks offer several advantages in machine learning and artificial intelligence

applications. They are adept at learning complex patterns from data and excel in tasks like image and speech recognition. Their ability to generalize well to new data ensures accurate predictions on unseen inputs. Additionally, neural networks efficiently handle large datasets, making them suitable for big data applications. They automatically extract relevant features from the data, reducing the need for manual feature engineering. Moreover, these networks can be trained directly from raw data, streamlining the learning process without requiring manual intervention.

18. Describe cognitive computing and its types.

Cognitive computing mimics human thought processes. It has two types: analytical, which analyzes data for insights, and interactive, which interacts with humans. Analytical cognitive computing uses techniques like data mining and predictive analytics. Interactive cognitive computing includes virtual assistants and chatbots that engage with users in natural language.

19. What is Overfitting?

Overfitting occurs when a machine learning model learns the training data too well, capturing noise or random fluctuations in the data rather than the underlying patterns. As a result, the model performs well on the training data but poorly on unseen data, as it fails to generalize. Overfitting often happens when the model is too complex relative to the amount of training data available, leading to poor performance on new data.

20. What are the techniques used to avoid overfitting?

Methods to prevent overfitting in machine learning models include:

- **Regularization:** Techniques like L1 and L2 regularization penalize large coefficients,

reducing model complexity.

- **Cross-validation:** Splitting the data into training and validation sets to assess model performance and adjust hyperparameters accordingly.
- **Early stopping:** Monitoring performance on a validation set and stopping training when performance begins to degrade.
- **Feature selection:** Choosing only the most relevant features to reduce model complexity.
- **Data augmentation:** Increasing the size of the training dataset by applying transformations like rotation or cropping to the existing data.
- **Ensemble methods:** Combining predictions from multiple models to reduce overfitting and improve generalization.

Artificial Intelligence Training

Conclusion

In conclusion, proficiency in AI Interview Questions and Answers is crucial for success in the field. Candidates who grasp concepts like neural networks, deep learning, and natural language processing can showcase their expertise effectively. Techniques such as preventing overfitting and strategies in cognitive computing are vital for developing robust AI solutions. With thorough preparation and practice, candidates can confidently navigate AI interviews, underscoring their proficiency in this dynamic and influential domain. Ready to enhance your AI skills? Join our [AI Training in Chennai](#) today!

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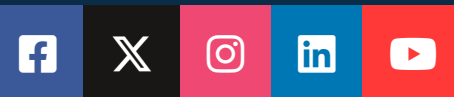
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