Introduction to Machine Learning

Exam Topics

December 11, 2023

1. Tests for Artificial General Intelligence.
2. Techniques for generative AI.
3. Text to image models.
4. The computational model for Foraging Ants and the details of its workings.
5. The Schelling model and it's working on examples.
6. Basic ethical frameworks for technology.
7. Different approaches to machine learning (i.e., supervised, unsupervised and reinforcement learning) and their basic premises, data requirements and limitations.
8. The basic concept of supervised learning.
9. Supervised learning by decision trees.
10. The basic concept of unsupervised learning.
11. The working mechanism of k-means algorithm.
12. The mechanism of reinforcement learning.
13. The Q-learning method.
14. Deep Learning methods. Value learning and policy learning.
15. The policy gradient algorithm.
16. The basic concept of evolutionary algorithms.
17. Optimization by genetic algorithm.
18. The basic concept of genetic programming. Differences compared to genetic algorithms.
19. The basic concept of swarm intelligence.
20. Optimization by Particle Swarm Optimization.
21. More recent swarm intelligence techniques. The firefly algorithm. Grey wolf optimizer.
22. The basics of neural networks.
23. Perceptron. Perceptron training.
24. The basic concept of CRISP-DM