The MNIST database of handwritten digits is a dataset of 60,000 training examples and 10,000 testing examples. Each example is a 28×28 grayscale image of a handwritten digit, between 0 and 9.

The MNIST dataset is a classic example of a machine learning benchmark, and it has been used to develop a wide variety of machine learning algorithms.







Source: https://en.wikipedia.org/wiki/MNIST_database

The MNIST database is a public dataset and can be downloaded from a variety of sources. The most common format for the MNIST dataset is the HDF5 format, which can be read by a variety of machine learning libraries. The MNIST dataset is relatively small, and it can be

trained on a standard laptop computer.

Machine learning algorithms struggle with the MNIST dataset. Algorithms find it difficult to recognize hand-drawn digits due to the variation in human handwriting. Despite this, several machine learning algorithms have been developed using MNIST dataset which perform excellently.

Convolutional Neural Network (CNN) is one of the most common forms of machine learning algorithm used in training over the MNIST dataset. They are type of artificial neural networks that are mainly applied for image recognition tasks. It has been noted that CNNs have achieved state-of-the-art performance on the MNIST dataset with error rates below 1 percent.

Other algorithms which have been used to train on MNIST include Random Forests, and K-nearest neighbors (KNN), and Support Vector Machines (SVM). On this note, they are also known for their high accuracies in dealing with the MNIST database.

The MNIST dataset is an important resource for researchers and implementers in machine learning. It is a good dataset having a large number of instances and it has helped develop many different kinds of machine learning algorithms. In addition, The choice of MNIST as a benchmarking task for evaluating ILA performance on images allows comparison among other computer vision tasks.

References:

- Convolutional Neural Networks by Jürgen Schmidhuber
- Hands-On Machine Learning with Scikit-Learn, Keras, and TensorFlow by Aurélien Géron

- Deep Learning for Computer Vision with Python by Rajalingappaa Shanmugamani

Related posts:

1. How to implement Convolutional neural network in Python
2. Can a textual dataset be used with an openCV?
3. Name some popular machine learning libraries.
4. What is Machine Learning ?
5. Types of Machine Learning ?
6. Applications of Machine Learning
7. Data Preprocessing
8. Data Cleaning
9. Handling Missing Data
10. Feature Scaling
11. Labeled data in Machine learning
12. Difference between Supervised vs Unsupervised vs Reinforcement learning
13. Machine learning algorithms for Big data
14. Difference between Supervised vs Unsupervised vs Reinforcement learning
15. What is training data in Machine learning
16. What is Ordinary Least Squares (OLS) estimation
17. Scalar in Machine Learning
18. Scalars in Loss Functions | Machine Learning
19. Linear Algebra for Machine Learning Practitioners
20. Supervised Learning
21. Top Interview Questions and Answers for Supervised Learning
22. Define machine learning and explain its importance in real-world applications.
23. Differences Between Machine Learning and Artificial Intelligence

24. Machine Learning works on which type of data ?
25. What is target variable and independent variable in machine learning
26. Machine Learning Scope and Limitations
27. What is Regression in Machine learning
28. Statistics and linear algebra for machine learning
29. Finding Machine Learning Datasets
30. What is hypothesis function and testing
31. Explain computer vision with an appropriate example
32. Explain Reinformcement learning with an appropriate exaple
33. Reinforcement Learning Framework
34. Data augmentation
35. Normalizing Data Sets in Machine Learning
36. Machine learning models
37. Unsupervised machine learning
38. Neural Network in Machine Learning
39. Recurrent neural network
40. Support Vector Machines
41. Long short-term memory (LSTM) networks
42. Which python libraries are used to load the dataset ?
43. Convolutional neural network
44. Top Neural Network APIs for Python: TensorFlow, PyTorch, Keras, and More
45. Python Library Updates
46. What does it mean to train a model on a dataset ?
47. Introduction to Machine Learning
48. Some real time examples of machine learning
49. Like machine learning, what are other approaches in AI ?
50. Statistics and Linear Algebra for Machine Learning ?

51. What is convex optimization in simple terms ?
52. What is data visualization in simple terms ?
53. What is data preprocessing in machine learning ?
54. What are data distributions, and why are they important ?
55. What is data augmentation in machine learning ?
56. What is labelled and unlabelled data set in Machine Learning ?
57. What is neural networks in Machine Learning ?
58. How are convolutional neural networks related to supervised learning ?
59. Fundamentals of Neural Networks
60. Linearity vs non-linearity in Machine Learning ?
61. Machine Learning Short Exam Notes
62. Machine Learning Short Exam Notes – Quick and Easy Revision Guide