

Minor Assignment

Supervised Machine Learning

April 4, 2024

Assignment Questions

1. What is overfitting and how can it be solved?
2. What is underfitting and how can it be solved?
3. What is bias and variance, and how are they related to overfitting, underfitting, and finding the optimal model in machine learning?
4. Given the table below, find the principal components and draw the graph showing the line of eigenvector:

X_1	5	7	13	12
X_2	11	5	4	17

5. Derive the equations for M and C in simple linear regression dealing with one feature.
6. Derive the equation for the gradient descent algorithm used in logistic regression.
7. Write the algorithms for Batch/Vanilla Gradient Descent, Stochastic Gradient Descent, and Mini-batch Gradient Descent.
8. Differentiate between unsupervised and supervised machine learning.
9. What is Data cleaning? What are the four basic operations of Data Cleaning? Why do we need it?