Diary Entry - Week 10

Date: 16-09-2024 to 20-09-2024

Summary:

Week 10 encompassed an exploration of various machine learning topics, including K-Nearest Neighbors (KNN), supervised and unsupervised learning, expectation maximization, stacks, object detection evaluation and strategies. Additionally, coursework focused on predicting the price of football players.

K-Nearest Neighbors (KNN):

- Delved into the K-Nearest Neighbors (KNN) algorithm, a simple yet effective method for classification and regression tasks.
- Studied the underlying principles of KNN, including distance metrics, model evaluation, and hyperparameter tuning.

Supervised and Unsupervised Learning:

- Explored the distinction between supervised and unsupervised learning paradigms, understanding their respective applications and algorithms.
- Learned about popular supervised learning algorithms such as decision trees, random forests, and gradient boosting, as well as unsupervised learning techniques like clustering and dimensionality reduction.

Expectation Maximization (EM):

- Investigated the Expectation Maximization (EM) algorithm, a powerful tool for estimating parameters in probabilistic models with latent variables.
- Explored the iterative nature of the EM algorithm and its application in various domains such as image segmentation and mixture modeling.

Object Detection Evaluation and Strategies:

- Reviewed object detection evaluation metrics and strategies introduced in the previous week, focusing on refining and applying these techniques to real-world scenarios.
- Discussed best practices for optimizing object detection models, including model selection, hyperparameter tuning, and performance evaluation.

Coding Challenge - Week 6:

- Engaged in the Week 6 coding challenge, which involved practical exercises related to machine learning algorithms and model evaluation.
- Applied learned concepts to tasks such as predicting the price of football players, reinforcing understanding and skills in predictive modeling.