Diary Entry - Week 7

Date: 26-08-2024 to 30-08-2024

Summary:

Week 7 was characterized by an intensive exploration of hypothesis testing, machine learning (ML) algorithms, coursework focusing on Bayesian learning, a coding challenge, and delving into Convolutional Neural Networks (CNN) in deep learning.

Hypothesis Testing:

- Engaged in a comprehensive study of hypothesis testing, a fundamental statistical method for making inferences about population parameters based on sample data.
- Explored various hypothesis testing techniques such as t-tests, chi-square tests, and ANOVA, understanding their applications and significance in statistical analysis.

Machine Learning (ML) Algorithms:

- Delved deeper into the realm of machine learning, studying a diverse array of ML algorithms including decision trees, support vector machines (SVM), k-nearest neighbors (KNN), and ensemble methods.
- Analyzed the strengths, weaknesses, and practical applications of each algorithm, gaining insights into their suitability for different types of data and tasks.

Coursework on Bayesian Learning:

- Participated in coursework focusing on Bayesian learning, a probabilistic approach to machine learning that involves estimating probability distributions over parameters.
- Explored Bayesian inference methods, Bayesian networks, and Bayesian optimization techniques, applying theoretical knowledge to practical problem-solving scenarios.

Coding Challenge:

- Engaged in a coding challenge aimed at testing problem-solving skills and proficiency in algorithmic implementation.
- Tackled coding problems related to machine learning, statistical analysis, and data manipulation, honing coding skills and algorithmic thinking abilities.

Convolutional Neural Networks (CNN) in Deep Learning:

- Introduced to Convolutional Neural Networks (CNN), a specialized type of artificial neural network designed for processing structured grid data such as images.
- Explored CNN architectures, including convolutional layers, pooling layers, and fully connected layers, understanding their role in image recognition and classification tasks.

Reflection:

Week 7 provided a diverse and enriching learning experience, covering a wide range of topics in statistics, machine learning, and deep learning. The coursework, coding challenges, and practical exercises enhanced problem-solving abilities and deepened understanding across various domains of data science.