Diary Entry - Week 6

Date: 19-08-2024 to 23-08-2024

Summary:

Week 6 was focused on practical implementations and advanced topics in machine learning. The week covered the usage of Streamlit and Flask for building interactive web applications, model evaluation and selection techniques, and the implementation of Multi-Layer Perceptron (MLP) in TensorFlow. Additionally, the week included the second coding challenge, aimed at reinforcing concepts learned during the previous weeks.

Streamlit and Flask:

- Explored Streamlit and Flask frameworks for developing web applications with Python.
- Learned to create interactive and data-driven web interfaces using Streamlit, facilitating quick prototyping and deployment of machine learning models.
- Implemented Flask for building more customized web applications, gaining a deeper understanding of backend development and RESTful APIs.

Model Evaluation and Selection:

- Covered techniques for evaluating machine learning models and selecting the most appropriate model for a given task.
- Discussed metrics such as accuracy, precision, recall, F1-score, and ROC-AUC for assessing model performance and comparing different models.
- Explored strategies for cross-validation, hyperparameter tuning, and model selection to optimize model performance.

Implementation of MLP in TensorFlow:

- Delved into the implementation of Multi-Layer Perceptron (MLP) neural networks using TensorFlow, a powerful deep learning framework.

- Learned to design MLP architectures with multiple hidden layers and activation functions, understanding the principles of forward and backward propagation.
- Implemented MLP models for various tasks such as classification and regression, gaining hands-on experience in building and training neural networks.

Coding Challenge Week 2:

- Engaged in the second coding challenge, which aimed to reinforce concepts learned in previous weeks.
- Challenged to solve coding problems related to Python programming, data structures, and algorithms, enhancing problem-solving skills and algorithmic thinking.

Reflection:

Week 6 provided a comprehensive exploration of practical machine learning implementations and advanced topics in deep learning. The hands-on experience with Streamlit, Flask, model evaluation techniques, and MLP implementation in TensorFlow enriched understanding and proficiency in machine learning methodologies.