Machine Learning Advance

Prerequisites (1 days)

- Learning Python.
- Laptop setup for workshop.

Data Science (2 days)

- Libraries (numpy and pandas)
- Data acquisition
- Data relation
- Statistics and code representation
- Data pre-processing
- Data Visualization (Matplotlib, Seaborn)

Machine Learning (3 days)

- Types of learning
- Regression models
- Classification models
- Clustering models
- Ensemble algorithms (Bagging and Boosting)
- Model metrics
    - Accuracy
    - Precision
    - Recall
    - F1-Score
    - Confusion matrix

Deep Learning (3 days)

- Basics

    - Perceptron Model
    - Forward and Back Propagation
    - Activation Functions
- Neural Networks
    - CNN
    - RNN
    - ANN
    - GNN
    - GANN

Natural Language Processing (3 days)

- Text preprocessing
    - Tokenization
    - Stop word removal
    - Lemmatization
    - Normalization
- Feature Extraction
    - N-gram extraction
    - TF-IDF vectorization
    - Word embeddings
- NLP tasks
    - Named Entity Recognition
    - Part of speech tagging

ML - Web Integration (1 days)

- ML Microservice
- FastAPI
- Frontend Integration
- Deployment