Machine Learning 2

https://tinyurl.com/mtp3vxtp

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Agenda

- Get connected
- List interest
- Overview
- Connect the topics
- Set the Expectation

List Interest

https://forms.gle/pYdkGqVuaY5s2Uzj9

Overview

Regularization

1) Session 16: Regularization Part 1 | Bias-Variance Tradeoff
   - Why we need to study Bias and Variance
   - Expected Value and Variance
   - Bias and Variance Mathematically
2) Session on Regularization Part 1 | What is Regularization
   - Bias Variance Decomposition
   - Diagram
   - Analogy
   - Code Example
   - What is Regularization?
   - When to use Regularization?
3) Ridge Regression Part 1
   - Types of Regularization
   - Geometric Intuition
   - Sklearn Implementation

Overview

Naive Bayse

1. Session 19: Crash course on Probability Part 1
    - 5 important terms in Probability
        - ❖ Random Experiment
        - ❖ Trials
        - ❖ Outcome
        - ❖ Sample Space
        - ❖ Event
    - Some examples of these terms
    - Types of events
    - What is probability
    - Empirical vs Theoretical probability
    - Random variable
    - Probability distribution of random variable
    - Mean of 2 random variable
    - Variance of Random variable
2. Crash course on Probability Part 2
    - Venn diagrams
    - Contingency table
    - Joint probability
    - Marginal probability
    - Conditional probability
    - Intuition of Conditional Probability
    - Independent vs Dependent vs Mutually Exclusive Events
    - Bayes Theorem

3. Session 20: Naive Bayes
    - Intuition
    - Mathematical formulation
    - How Naive Bayes handles numerical data
    - What if data is not Gaussian
    - Naive Bayse on Textual data

Overview

Gradient Boosting and XGBoost

1. Session 25: Gradient Boosting
   - Boosting
   - What is Gradient Boosting
   - How
   - What
   - Why

2. Gradient Boosting
   - How Gradient Boosting works?
   - Intuition of Gradient Boosting
   - Function Space vs. Parameter Space
   - Direction of Loss Minimization
   - How to update the function
   - Iterate
   - Another perspective of Gradient Boosting
   - Difference between Gradient Boosting and Gradient Descent

Introduction to XGBoost
   - Introduction
   - Features
     - ❖ Performance
     - ❖ Speed
     - ❖ Flexibility

XGBoost for Classification
   - Classification Problem Statement
   - Step-by-Step Mathematical Calculation

Session 26 : DNN:
   - MLP and Backpropagation
   - Regression MLP
   - Implementing MLP with Keras
   - Fine tuning NN hyperparameters
   - Activation function
   - Batch normalization
   - Monte Carlo droupout
   - Tensor Flow's API
   - Dataset with Keras
   - Deep Computer Vision using CNN

Connect The Topics

https://www.mermaidchart.com/raw/35614d80-106e-46ef-b94e-2785beb1ffde?theme=light&version=v0.1&format=svg

Set The Expectation

https://www.menti.com/al7gcjdhm88h

What is you preferred method of communication?