

แนวข้อสอบ Final วิชา Artificial Intelligence

ข้อสอบเป็นแบบปรนัย + อัตนัย

อัตนัย มีโจทย์การสร้าง Tree Search ด้วย BFS, DFS

Topics:

1. Pre-Midterm Machine Learning (ออกน้อย)
 - a. Supervised vs Unsupervised learning
 - b. Regression vs Classification
 - c. k-NN
 - i. 1-NN vs 20-NN
 - ii. Overfitting
 - d. Linear Regression
 - i. MSE cost function
 - ii. Normal equation
 - iii. L1/L2 Regularization
 - e. Gradient Descent
 - f. Logistic Regression
 - i. Sigmoid function
 - g. SVM
 - i. Hard vs Soft Margin
 - ii. Kernel

2. Decision Tree
 - a. การตีความ Decision Tree
 - b. การหา class probability
 - c. Gini impurity
3. Neural Network
 - a. Linear Threshold Unit (LTU)
 - b. Single-Layer Perceptron
 - i. ข้อจำกัด (XOR problem)
 - c. Multilayer Perceptron
 - d. Backpropagation รู้แค่ว่าทำอะไร
 - e. Softmax Layer
4. NLP
 - a. rule-based vs statistical approach
 - b. text classification
 - c. word representation
 - i. one-hot/ bag-of-words (มีข้อเสียอย่างไร)

- ii. word embedding
- 5. Searching
 - a. Search Problem
 - i. State space
 - ii. action / cost
 - iii. successor function
 - iv. start / goal
 - b. State space graph
 - c. Search Tree
 - d. Search Algorithm
 - i. State space graph -> Search Tree
 - ii. Depth-First Search (DFS)
 - iii. Breath-First Search (BFS)
 - iv. Iterative Deepening
 - e. Search algorithm properties
 - i. Complete?
 - ii. Optimal?
 - iii. Time/Space Complexity?
 - 1. Branching factor (b)
 - 2. Max depth (m)
 - 3. Shallowest Solution depth (s)
 - f. DFS/BFS in python
- 6. Lab
 - a. Decision Tree
 - i. DecisionTreeClassifier()
 - ii. One-Hot Encoding
 - iii. Graphviz
 - iv. max_depth
 - b. MNIST with Keras