Machine Learning & Data Mining

Prova scritta 29 giugno 2018

1) Concept learning

1.a) Which is the difference between a biased larner and an unbiased learner?

1.b) Which is the algorithm with stronger inductive bias between Find-S and Version space Candidate-Elimination? Why?

2) Decision trees

2.a) Describe the general structure of an algorithm for learning a decision tree (Hunt 's Algorithm)

2.b) Which are the advantages of classification models based on decision trees with respect to other kinds of classification models?

3) Algorithm evaluation

3.a) How is defined the *true* error of an hypotheis ? and why in general it cannot be computed?
3.b) What is a confusion matrix? Give an explanation using an example of this matrix.

4) Neural networks

4.a) Specify which are the termination conditions of the Backpropagation algorithm
4.b) What is the weight momentum?

5) Bayesian Learning

If an attribute value never appear in the training examples, what can we do to compute the probabilities used by the Naive Bayes Classifier?