Week 3 – Task 2

Yash Pradhan

USN : PES1201700262

Question

Prepare a brief report on how to choose the:

- Target experience?
- Target function?
- Representation for the Target Function?
- Function Approximation Algorithm?

Report

The target experience:

We must choose the type of training experience from which our system will learn. It can be of two types, direct or indirect. This can be explained using an example:

In learning to play checkers, the system might learn from direct training examples consisting of individual checkers board states and the correct move for each. Alternatively, it might have available only indirect information consisting of the move sequences and final outcomes of various games played.

A second important attribute of the training experience is the degree to which the learner controls the sequence of training examples. The learner might have the complete control on its next move and explore what is the best move at each point or the learner might rely on the teacher to select informative board states and to provide the correct move for each.

A third important attribute of the training experience is how well it represents the distribution of examples over which the final system performance P must be measured– If Checkers learner only plays itself will it be able to play humans?

Target function:

The next design choice is choosing a target function, which is to determine exactly what type of knowledge will be learned and how this will be used by the performance program.

Example: In a program to find the legal moves for a checkerboard, we can use a function such as:

ChooseMove - select move based on board

Choosing a representation for target function:

We must choose a representation that the learning program will use to describe the function that it will learn. In general, this choice of representation involves a crucial tradeoff. On one hand, we wish to pick a very expressive representation to allow representing as close an approximation as possible to the ideal target function V. On the other hand, the more expressive the representation, the more training data the program will require to choose among the alternative hypotheses it can represent.

Choosing a Function Approximation Algorithm:

In order to learn the target function f we require a set of training examples, each describing a specific board state b and the training value V(b). This approximation is used to find out the values for coefficients in the function V(b).