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week3

1) Define Machine Learning.

Machine Learning is one of the field of Artificial Intiligence in which an algorithum or a program will be able to perform a specific task without any human interference after it has been trained by human by some known data.Basicially the algorithum act like a small brain which do a task after it has been told and teached what to do.The algorithum is written insuch a way that it learns automaticall if we provide data and will be able to perform work .

There are three main types of ML:

1.supervised learning:(human interference is required at first to train the model)

eg : faceductution

2.unsupervised learning

eg:recgonising the things surrounding

3.Reinforcement learning

eg:sufia(a first robot to get citizenship)

2)How do you know a program is machine learinng program are not?

Machine learing program is a one which learns by some specific input and out and learn the sequence by it self ,and after traning the program til some required acquricy the program will be ready to do its work on its own withot any human help .

Means, now the programs are capeable of doing their work on own ,and the will predict the output by the data provided during its traning.

At last i would say that if the program has these properties then it is a machine learning program else not

3)which of the followning involve machine learning

Matrix multipication

youtube hime page

flipkart ecommerce site

quick sort algorithum

according to me youtube homepage and flipkart site use some part of machinelearning in them

supporting sentences

1)youtube home page: in youtube it is clearly seen that at sttarting it will recumend you some random video and as you going on seening then the algorithum learns that you are interested in such topic which you were watching

and stored it .now again if you login your account it will recument you similar types of video which you have watched previously.

2) flipkart: it also works on the same principle but in youtube its video but hear its the products the program go on recumending you the products which you searched for then in your prevoius busy and views.

4)desine a P T E parameters for a checkrs problem?

T : number of times it played checker

P : number of times program won against the opponent

E : number of times it played aagingt itself

5)define the characteristic of well posed learning problem.for a speach recognisation problem formulate a well posed learning problem

1.Task

2.Performance measure

3.Training experience

For speach recognisation

1.Task : speaking in front of the algorithum

2.Performance measure : words recognised accucurately by algorithum which are spoken by human

3. Traning experience ; number of times it is trained by providing words

6)1.difference between tatget consept and approximation function

target consept :

bassacially in this v need to know what is out destination and try to reach that destination .

In this out program also tryes to reach that destinatin by some mathamitical formulation and all thich is done in approximation,

as it knows the destinatin and if it reach that destination it gives it a point saying that “those moves were really good” else it redused the points on those muves saying” those moves were bad ”

.And as the machine know to play on its own it goes on playing amd goes on revarding itself by increasing points.

Approximation function:

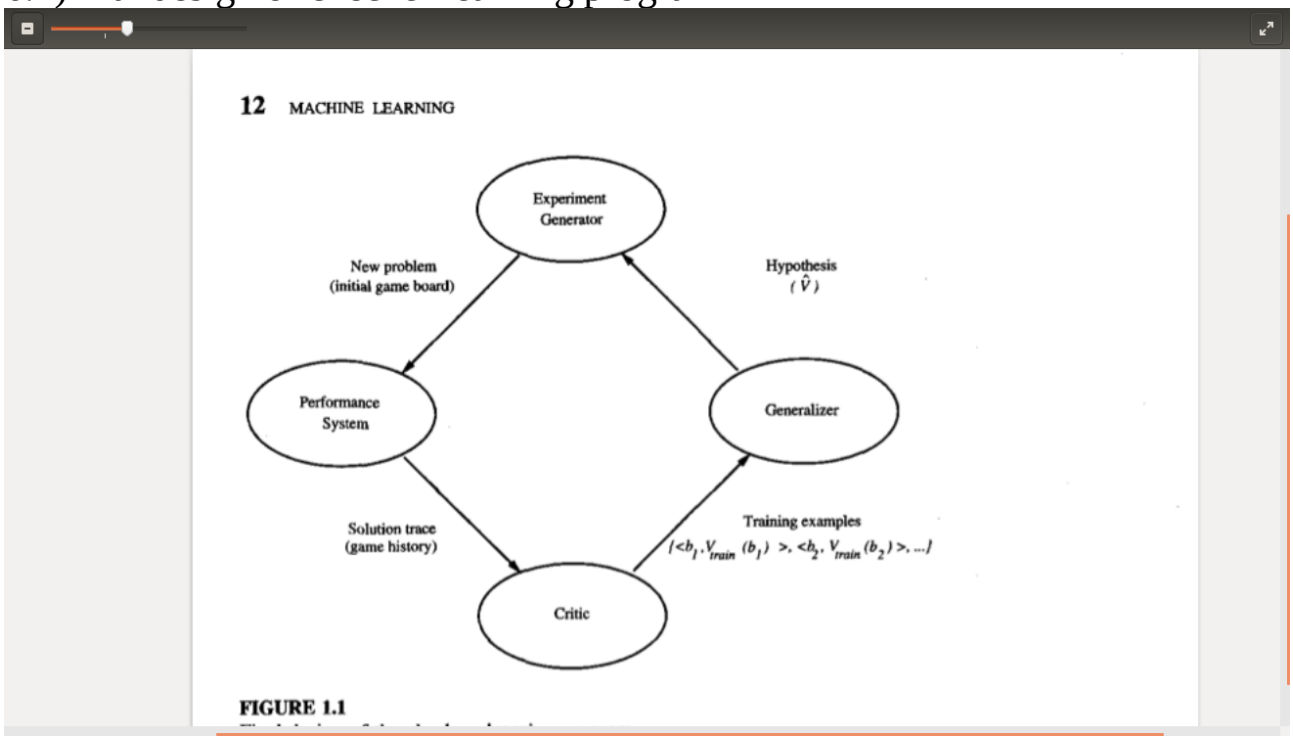
in this their will be a mathamitical formula

(v(b)=w0+w1*x+w2*x^2.....)

in which w0 w1 ,, valuse are to be calculated by the program .whenever a new problem is given then according to those the prograam will change those w0 w1 valuse so that the program should be more accurate.

Eg: in checkers game they use lease mean squate to reduse the error in the program

6.2)final design of checker learning program



firstly problem system:

in this it takes a new problem as input in formulate it and solve the given problem by the known data to reach the destination .

Critic :

The Critic takes as input the history or trace of the game and produces as output a set of training examples of the target function.

Generaliser :

it takes the traning examples as input and generate the output to reach to destination,it generalises the whole exuations like least mean square (LMS)in checkers game

Expirement generator :

as the program playes against it self this expirement generator generate problems in all the way which may occure while testing time and this is again solved by problem system and this cycle continues

6.3)choises in cource design

1.Determine Type of Training Experienc :1.game agains experts
2.game against self
3.table to correct itself

2.determining target function :1.board move and board value

3.representation of linear function:1.polymial
2.artifucial network

4.determining learning algorithums:1.gradent decent

2.learning programing

5.Key issues in machine learning.

1.what settings will particular algorithms converge to the desired function, given sufficient training data?
2.which algorium will be best to perform work efficiently?
3.how much data is required to train the model?
4.how is it linked to genersliSing the coefficient of the variable and traning expirence?
5.is preior knowladge is usefull even if it is not accequrate?
6.how can we choose the best next traning expirence?
7.what is the best way to increase the learning task withot affecting the performance of the program?

Quetions in ppt

1. How do you know a program is machine learinng program are not?

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2.Characteristics of a well posed Machine Learning Problem

the program which learns by itself.bassically it finds the best fit constant for the equation given for that learning process

redused errors and more accuquracy

3. target function

The first design choice we face is to choose the type of training experience from
which our system will learn.the system will learn based on out expression by awarding a reward to itself for good or bad move
it is important to learn stepby step as if only one step is good and rest is not then their is a chances of failing as it is necessary to learn sstrp by step
targer expression:

target expression is one of the important thing by which a system can learn as this is the mathamatical expression for learning .Learning in the sense giving a proper valuse for constants present in the expression.giving the values for those expression is done using target expression and this expression should be in such a way that the error should be redused as much as posible
function approximation algorithum:

this function shou;d be in such a way that the error is as small as possible like in cheakers game LMS(least mean square) is used as an approximation function.in simal way the function sholud reduse the error as much as possible