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Lecture 1 and March 1 papers multiple choice questions

Lecture 1:

1. Critical point f'(x) is a point with zero slope in gradient descent algorithm (neural networks learns).

a. Critical point maybe a local minimum or local maximum or a saddle point
b. Critical point can be local maximum only not local minimum
c. Critical point is a saddle point only and not local minimum or maximum
d. None of the above

Answer: A

2. The learning rate **Ɛ** is a positive scalar that tells us the size of the steps in which the slope should move to attain minimum or maximum. This can be achieved through
   a. Set **Ɛ** to a small constant
   b. Evaluate **f(x-Ɛ δxf(x))** for several values of **Ɛ** and choose the one that results in smallest objective function value.i.e line search
   c. Both a and b
   d. Set **Ɛ** to largest constant to reach the minima or maxima faster

Answer C

Paper 1: A Few Useful Things to Know about Machine Learning

In section 5 – Overfitting (variance)

1. The authors have explained the solution to over fitting using bias and variance using dart throwing as an example. What combination of bias-variance according to the authors gives better fitted classifier that is not over fitted? (bias - tendency to learn wrong things consistently
   variance - tendency to learn random things irrespective of the real signal
   and additionally strong false assumptions are better than weak true assumptions)

a. low variance and High Bias
b. Low variance and low bias
c. High variance and high bias
d. Low bias and high variance

Answer: b. Low variance and low bias

1. Overfitting is overcome using one of the solutions when data is scarce:

a. cross validation
b. chi-square test
c. regularization fun added to evaluation function
d. All the above

Answer: d. All the above

Paper 2: Deep Learning – Review

1. Deep learning or representation learning modules transform the representation at each of the layer using the weighted sum of the previous layer. The modules are :
   a. Linear modules only
   b. Non- Linear modules
   c. Either a or b
   d. None of the above

   Answer b. Non- Linear modules

2. The issue of representation in the language-based models using neural networks are to choose between logic-inspired and neural -network paradigm. Which would you choose for your language-based model:
   a. Logic inspired paradigm where the instance of a symbol is either identical or not and to reason with symbols they must be bound to variables as much as possible with the rules of inference
   b. The neural networks paradigm uses big activity vectors, matrices, scalar non-linearities to perform to do intuitive inferences that gives easy reasoning
   c. Test first with A and then B to make my decision
   d. None

   Answer: B