COMP9444 Neural Networks and Deep Learning

Quiz 2 (Probability and Backprop Variations)

This is an optional quiz to test your understanding of the material from Week 2.

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1. Write the formula for a Gaussian distribution with mean μ and standard deviation σ.
2. Write the formula for Bayes' Rule, in terms of a cause A and an effect B.
3. Write the formula for the Entropy H(p) of a continuous probability distribution $p()$
4. Write the formula for the Kullback–Leibler Divergence $D_{KL}(p \parallel q)$ between two continuous probability distributions $p()$ and $q()$.
5. Write the formulas for these Loss functions: Squared Error, Cross Entropy, Weight Decay. (remember to define any variables you use)
6. In the context of Supervised Learning, explain the difference between Maximum Likelihood estimation and Bayesian Inference.
7. Briefly explain the concept of Momentum, as an enhancement for Gradient Descent.

Make sure you try answering the Questions yourself, before checking the Sample Answers