COMPSCI 271 - Machine Learning
Homework Due 9/13/07

1 Discrete Probability I

Do problem 1.3 from the text.

2 Discrete Probability II

In this problem, we will consider a situation with "extra" evidence. First, show:

$$P(A|BC) = \frac{P(AB|C)}{P(B|C)},$$

then show that Bayes's rule also generalizes to the case where there is "extra" evidence:

$$P(A|BC) = \frac{P(B|AC)P(A|C)}{P(B|C)}$$

3 Probability Densities

Suppose $p(x)$ is uniform on the interval $[a, b]$, compute the mean and variance of x.

4 Probability Densities

Suppose $p(x, y)$ is uniform on the rectangle defined by (a, b) and (c, d). Compute $p(x)$ by integrating out y.

5 Maximum Likelihood

Do problem 1.11.

6 Entropy (Discrete Probability)

Do problem 1.39. (Skip making the diagram.)