

Pattern Classification and Machine Learning

FEN3202

Points for Lecture 2

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I. DISCUSSION AGENDA

- 1) Distribution learning or density estimation, **Page 67-68 of the text book.**

Discussion points: Importance of density estimation, an ill-posed problem, parametric density, conjugate prior.

- 2) Binary variables **Section 2.1 of the text book.**

Discussion points: Bernoulli distribution, equation 2.1 - 2.8, a coin tossing example; Binomial distribution, equation 2.9-2.12; Beta distribution, why? a prior as $p(\mu)$, motivation for conjugacy, equation 2.13-2.16; Bayesian treatment: equation 2.17-2.18; Figure 2.3 - sequential approach of learning, equation 2.19-2.20 (detail explanation).

- 3) Multinomial variables **Section 2.2 (upto page 76) of the text book.**

Discussion points: 1-of-K scheme (practical examples), equation 2.25-2.35; the Dirichlet distribution, equation 2.37-2.41.