

1. Chapter 1

Read Chapter 2 in Thomas Cover's book <Elements of information theory>

Quantities: Entropy, mutual information, information divergence, chain rule, Fano's inequality

Problems in chapter 2

2.1 2.4 2.5 2.6 2.14 2.29

2. Chapter 7

Section 7.1 7.2 7.3

Be familiar with the channel models in the above sections and can compute the channel capacity by Channel Coding Theorem for some classical channel models.

1. Binary Symmetric Channel
2. Binary Erasure Channel
3. Symmetric channel

Problems in chapter 7

7.4 7.5 7.8 7.18 7.28

Prove $H(x_1, x_2, x_3) \leq (H(x_1, x_2) + H(x_2, x_3) + H(x_3, x_1)) / 2 \leq H(x_1) + H(x_2) + H(x_3)$