CIE6020 Reading Assignment 1

Due: 23:55, 20 Jan 2019

Read Shannon's 1948 paper [1] and write a report to answer the following questions:

1. List as much as possible the different information theory problems discussed in the paper. For example, in Chapter I, two problems are discussed. For each problem you list, use couple sentence to introduce the problem.

2. Choose one problem to elaborate in your report with details in the following directions.

   - Describe the problem using your own words and notations accurately so that others can understand the problem without reading the paper. Justify the significance of the problem.

   - Discuss the solution of Shannon. Fill the mathematical gaps, if exist. You may also give your own solution if you have different ideas.

   - Search the literature and find the following up papers about the problem, including generalizations and extensions. Summarize the state of the art.

References

[1] C. E. Shannon, "A mathematical theory of communication," *Bell Systems Technical Journal*, 1948. [Online]. Available: `http://dl.acm.org/citation.cfm?id=584093`.