For this quarter, I mostly learn about the information theory, and especially talking about:

- Entropy, conditional entropy, and theorems
- Information and mutual information and theorems
- Kl Divergence and theorems
- Sanov's Theorem
- Gibbs variational principle
- A little bit about the applications and large deviation theorem

For the application, I read a paper on the GPU acceleration, but since that involves some concepts in the electric engineering, so I did not choose this as the application case in my presentation. I also read the Shannon's paper on the information theory, reading about the meaning and case behind the introduction of entropy.

For the presentation, since I want to make everything on the slides easy to understand, I choose only entropy and the KL Divergence to introduce. Originally, I plan to include the concept information, but it was hard to find a way to cooperate that concept with the other two, so I just put the entropy, KL Divergence, and the examples and applications for each concept.

The special project I started at the end of the quarter is simply using KL divergence for hypothesis testing. In this project, starting with LRT and large sample size, from the expected value of lambda and finally get the form of test statistics with the difference between two divergence.