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References:


NOTE: All these books have been reserved for this course (教授指定參考書) in the NCKU Library.

Course Outline

I. Detection Theory

1. Introduction
2. Bayes Detector
3. Minimax Detector
4. Neyman-Pearson Detector
5. Composite Hypothesis Testing
6. Generalized Likelihood Ratio Test
7. Sequential Detection
8. Summary

[Midterm exam]
II Estimation Theory

1. Introduction
2. Linear model
3. Classical Estimation Techniques
   - Minimum Variance Unbiased Estimator (MVUE)
   - Cramer-Rao Lower Bound (CRLB)
   - Best Linear Unbiased Estimator (BLUE)
   - Maximum Likelihood Estimator (MLE)
   - Least Squares (LS)
4. Bayesian Estimation Techniques
   - Minimum Mean Square Error Estimator (MMSE)
   - Maximum A Posteriori Estimator (MAP)
   - Linear MMSE Estimator
5. Kalman filter (if time allows. This topic is covered in the course Adaptive Signal Processing taught by Prof. 張名先.)
6. Summary

[Final exam]