Massachusetts Institute of Technology
Department of Electrical Engineering and Computer Science

6.432 Stochastic Processes, Detection and Estimation

Recitation 11 Outline

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Linear Detection from Continuous Time Processes

1. Problem: detection in continuous time white noise (not necessarily Gaussian)
2. Objective: Maximize SNR at output of linear processor
3. Solution: Matched filter

Karhunen–Loeve Expansions and Whitening Filters

1. Karhunen–Loeve expansions and Mercer's theorem
2. Construction of whitening filter from KL expansion
    - Analogies to discrete time and PCA
3. Example: Hypothesis Testing in Correlated Gaussian Noise