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Abstract
This thesis considers a signal parameter estimation system in which observations at a remote sensor are sampled and quantized, and then transmitted to a processor for parameter estimation. The sensor is linked to the discrete parameter estimator by a transmission channel. Due to the potential communication constraint on the channel, the observations have to be sampled and quantized. Here, the sampling and quantization problems are investigated. Two issues are discussed in detailed. One is the trade-off between sampling rate and the number of quantization levels. The other is the quantization design and bit allocation among different samples. These problems are studied theoretically and illustrated by means of numerically examples.
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