论文与报告

Bernoulli-Gaussian白噪声的一种似然比检测方法

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摘要
Bernoulli-Gaussian白噪声的检测存在于具有跳变输入的Kalman滤波与最优平滑等问题中, 邻近信号间的干扰和信号点数目无限增多是其中存在的两个主要问题. 针对上述问题提出了一种基于最优平滑反卷积的Bernoulli-Gaussian白噪声检测方法和新的多值信号建模方法, 并基于固定区间平滑的频域性质和极大似然原理, 给出了一个最优似然比检测指标. 仿真表明, 该方法具有好的分辨率, 为存在波形重叠信号的高分辨检测提供了新的途径.
关键词　信号检测　最优平滑　极大似然估计　似然比判据　码间干扰
分类号

Optimal Likelihood-Ratio Detection of Bernoulli-Gaussian Processes

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Abstract
In detection of Bernoulli-Gaussian processes for Kalman filtering and optimal smoothing with jumping input sequences, two main traditional difficulties are the interference from adjacent signals and the infinite increase of the number of detected signals. To solve these problems, a new detection method based on optimal deconvolution and a new modeling strategy for the multi-valued input signals are proposed. Then, based on the frequency-do- main properties of fixed-interval optimal smoothing and maximum-likelihood principle, an optimal likelihood-ratio detection index is derived. Simulation shows that the proposed method has high resolution and is a good candidate for the detection of signals with intersymbol interference.
Key words　Detection　optimal smoothing　maximum-likelihood estimation　likelihood-ratio index　intersymbol interference

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