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基于**Turbo**均衡和信道估计的单通道盲信号恢复算法

Blind data recovery of single-channel mixed signals based on Turbo equalization and channel estimation

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中文摘要：

　　定时同步是单通道盲信号接收端处理的难点，提出了一种无需定时同步基于Turbo均衡的单通道盲信号恢复算法。该算法将定时同步偏差等效为符号间干扰（ISI，inter-symbol interference）信道，通过信道估计和Turbo均衡相互反馈软信息来改善源信号信息恢复性能。重点研究了初始盲均衡算法、信道估计算法、混合信号的MMSE均衡算法以及三者间的软信息交互。算法复杂度低、计算量小，适用于高阶调制信号。仿真结果表明，对BPSK、QPSK和8PSK信号，该算法都能得到较好的性能，且对等功率和不等功率信号同样适用。

英文摘要：

　　The timing synchronization is the key technique of the single-channel blind signal receiver. The single-channel blind recovery algorithm based on Turbo equalization was proposed, which does not require the timing synchronization. In the algorithm, the timing offset is taken as inter-symbol interference channel, which can improve the restorability of source signals by the feedback soft information between channel estimation and the turbo equalization. The primary works include the research on initial blind equalization algorithm, the channel estimation algorithm, MMSE equalization algorithm for the mixed signals and the soft information interaction among those three algorithms. The proposed algorithm has low computational complexity and small computational load, which can be applied to high-order modulated signals. Simulation results show that, good performance could be achieved for BPSK, QPSK and 8PSK modulated signals. In addition, the proposed algorithm is suitable for both equal power and unequal power signals.

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