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论文

基于变长Turbo码的低复杂度联合信源信道译码

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摘要:

基于变长Turbo码的联合信源信道译码通过构造联合译码平面网格图,具有比比特级译码更好的性能.但平面网格图复杂,使变长Turbo码译码复杂度高.基于此,构造了一个空间网格图,提出基于变长Turbo码的低复杂度联合信源信道译码方法.仿真结果表明,该算法比平面网格图计算复杂度减少约3.8%,在SER(symbol error ratio)为10^{-4}时,获得E_b/N_0增益约为0.2dB.

关键词: 联合信源信道编译码 变长Turbo码 空间网格图 VLS-APP

Low-complexity joint source-channel decoding based on variable length encoded Turbo codes

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Abstract:

Variable length encoded Turbo codes (VL Turbo codes) with constructed joint decoding plane trellis has better decoding performance than the bit-level decoding algorithm. However the plane trellis is complicated, resulting in a high decoding complexity of VL Turbo codes. We construct a space trellis and propose a low-complexity JSCD approach based on VL Turbo codes. Simulation results show that the proposed approach reduces the decoding complexity by 3.8%, compared to the plane trellis, and the gain of E_b/N_0 is about 0.2dB at SER=10^{-4}.

Keywords: JSCC/D VL Turbo codes space trellis VLS-APP

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