

Abstract

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Design of a Merged Algorithm for Luby Transform Decoders

Luby Transform exhibits near-optimal performance over Binary Erasure channel. However, on AWGN channel, Luby decoding technique suffers from error propagation. Consequently, a soft decoding strategy -Belief Propagation- similar to the LDPC has been adopted. In this strategy, the check node equation complexity is still a persistent problem affecting hardware implementation in terms of speed and area. We propose an encoding scheme that uses both Luby decoding technique and the soft input available at the receiver to reduce the check node equation complexity. In the proposed algorithm, error propagation has been mitigated thus reducing the signal-to-noise ratio significantly.