Abstract

A multiple-input-multiple-output (MIMO) system can be implemented to enhance the capacity of a wireless link. The optimal decoder is based on the maximum likelihood principle. But as the number of the antennas in the system and the data rates increase, the maximum likelihood decoder becomes too complex to use. Examples of less complex decoding techniques are sphere decoder and K-best decoders have been implemented at the price of reduced
performance at the receiver. In this work, a new type of decoding algorithm called improved K-best decoding algorithm is combined with the gold code which approaches near-maximum-likelihood performance for multiple-input–multiple-output detection. In computer simulations, it will be shown that the decoder with the improved algorithm has the performance nearer to ML decoder without increase in the decoding complexity.

Reference

Performance Enhancement of Improved K-best Decoder using Gold Code for MIMO System


Index Terms

Computer Science

Wireless

Communications

Key words

MIMO

Maximum likelihood

K-best decoder

Gold code