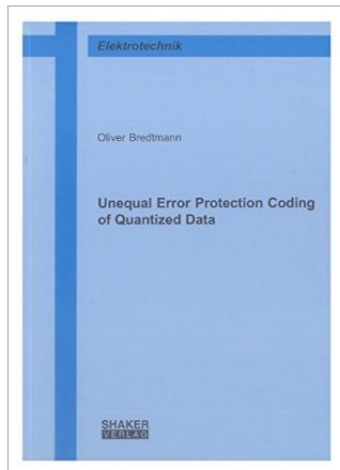


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Unequal Error Protection Coding of Quantized Data

By Oliver Bredtmann

Shaker Verlag Feb 2011, 2011. Taschenbuch. Condition: Neu. Neuware - A system is considered where single analog data are quantized to be transmitted over a digital communication system. Channel coding schemes are investigated that are designed to provide a low mean square error (MSE) in the analog data instead of providing large minimum distances. In case of transmission errors, the influence of a bit error in the quantized word on the analog value is much larger when it corrupts the most significant bit compared to the least significant bit. Accordingly, a channel code should provide more protection to the foremost bits than to the backmost bits of a quantized word, more precisely, it should offer a continuous increase of protection from the last to the first bit. In this thesis it is shown that a channel code with such properties can be obtained by truncation of a convolutional code. Usually, the convolutional encoding procedure starts in a predefined state, therefore, the decoder has a-priori information about the first states which leads to an increased protection of the foremost bits. Furthermore, the truncation of convolutional codes leads to a low protection of the backmost bits. It is shown that when truncated...

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