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adaptive coding of transform coefficients

by finding the correct weights (input excitations) to the elements comprising the array.

adaptive coding of transform coefficients coding technique that is carried out by threshold sampling and exploiting masking effects by variable quantization for different blocks. High detail blocks are coded with more quantization error than low detail blocks. This is done to take into account masking and boundary distortion effects. Transform coding becomes more attractive compared with DPCM when adaptive coding is used. The main drawback of adaptive transform coding is its sensitivity to transmission bit errors due to synchronization problems at the decoder. *See also* DPCM.

adaptive coding a coding scheme that adapts itself in some fashion to its input or output.

adaptive control a control methodology in which control parameters are continuously and automatically adjusted in response to measured/estimated process variables to achieve near-optimum system performance.

adaptive critic learning technique where the system learns to evaluate the actions of a system (usually a controller) so as to provide a reinforcement signal that is an estimate of the future value of the system's current action.

adaptive differential pulse code modulation (ADPCM) a modulation scheme in which only the difference between successive signal samples is encoded for transmission, and the quantization of the coding is adapted to the characteristics of the signal source.

adaptive filtering a filtering strategy in which filter coefficients or governing parameters evolve over time according to some updating strategy to optimize some criterion.

adaptive FIR filter a finite impulse response structure filter with adjustable coefficients. The

adjustment is controlled by an adaptation algorithm such as the least mean square (LMS) algorithm. They are used extensively in adaptive echo cancellers and equalizers in communication systems.

adaptive fuzzy system fuzzy inference system that can be trained on a data set through the same learning techniques used for neural networks. Adaptive fuzzy systems are able to incorporate domain knowledge about the target system given from human experts in the form of fuzzy rules and numerical data in the form of input-output data sets of the system to be modeled. *See also* neural network, fuzzy inference system.

adaptive intrafield predictors a technique used for picture signal prediction based on local properties of the signal or side information if portions of local properties have not been transmitted. Intrafield methods require correlation with local information for prediction purposes.

A common technique is to use a measure of the directional correlation based on local pixels that have already been transmitted. A predictor is chosen from a set to give minimum prediction error. For example, the previous line or previous pixel can be used for prediction, and the switching can then be done as follows:

$$\begin{aligned}\cap X &= \text{predictor for element } X \\ &= \begin{cases} A & \text{if } \|B - C\| < \|A - B\| \\ C & \text{otherwise} \end{cases}\end{aligned}$$

An extension of this concept is called contour prediction where the direction of pixel A is determined by searching among E , B , C , or G .

adaptive logic network tree-structured network whose leaves are the inputs and whose root is the output. The first hidden layer consists of linear threshold units and the remaining layers are elementary logic gates, usually AND and OR gates. Each linear threshold unit is trained to fit input