Data Compression of One or Multidimensional Signals Utilizing an Energy Based Split Vector Quantizer via Multiple Transform Domain Representations

UCF engineering professors have designed a scheme where each signal vector is projected into multiple transform domains that will encode the signals more efficiently. Allocating transform domain for representing the signals improves upon the system’s bandwidth enabling a better recovery and reconstruction of the signal. Moreover, the invention utilizes energy-based, sub-bands in different domains which are encoded using a variety of codebooks that optimize the representation for that specific transform domain. In other words, each domain uses a coding scheme for data compression such that the coder selects transforms from the domain that best represents the signal vector. This customized selection increases transmission bandwidth, encoding and decoding speed, and reconstruction qualities producing a more efficient means, with faster data transmissions.

Benefits

- Increased signal to noise ratio, thereby minimizing errors in the reconstructed signals
- Increased bandwidth (data transmission) and processing capacities
- Higher Reconstruction quality
- Increased encoding and decoding speeds

Applications

- Speech coding
- Signal compression
- Telecommunications
- Voice over Internet Protocols (VoIP)
- Speaker recognition

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