

Audio signal compression method using Wavelet transform

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Abstract: This thesis deeply researches speech and audio signal compression techniques based on the power of the Discrete Wavelet Transform (DWT). The theory covers foundational knowledge of acoustic physics, physiological characteristics of human hearing, and the common MPEG audio compression standard. The author compares the traditional Fourier transform with wavelet transforms (CWT, DWT, Wavelet Packet), thereby proposing a signal compression model through filtering, discarding insignificant decomposition coefficients, and combining a psychoacoustic model to optimize the compression ratio while preserving audio quality. These algorithms are implemented and simulated for testing on the Matlab platform.

Keywords: Audio compression, Wavelet transform, DWT, Psychoacoustic, digital signal processing, Matlab

References

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