

Annotated Bibliography

MUMT 621 - Assignment 2

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Herre, Jurgen, and Sascha Dick. 2019. "Psychoacoustic Models for Perceptual Audio Coding-A Tutorial Review." *Applied Sciences* 9 (14): 2854.

This paper reviews and provides a tutorial overview of commonly used psychoacoustic models for perceptual audio coding. Introducing the spectral and temporal masking effects, models for perceptual audio coding, models for multichannel audio coding, and models for parametric audio coding. In addition, some recent models are reviewed and discussed. The researchers describe different masking effects with illustrations, but no illustrations for classic models (such as the MPEG-1 model). This paper hides the mathematical details for perceptual coding and explains them in sequential order, thus is easy to understand. Moreover, a detailed list of abbreviations is placed at the end of the article for reference.

Plack, Christopher]. 2018. "Loudness and Intensity Coding." In *The Sense of Hearing*, Third edition, 110–27. New York: Routledge.

This chapter of the book introduces the analysis process and the representation of physical sound intensity in the auditory system. The author provides an overview of hearing range, loudness, representation of sound intensity in the auditory system, and intensity comparisons across frequency and across time. For psychoacoustic models, the absolute threshold is introduced. The loudness pattern of noise with different bandwidths is related to critical bands, which is utilized in various perceptual compression.

Spanias, Andreas, Ted Painter, and Venkatraman Atto. 2007. "Psychoacoustic Principles." In *Audio Signal Processing and Coding*, 113–44. Hoboken, **New Jersey**: Wiley-Interscience.

This chapter of the book covers the fundamental principles for building psychoacoustic models, including the absolute threshold of hearing, the Bark scale, the critical bands, two kinds of masking effects, the perceptual entropy, and the perceptual bit allocation. A detailed step-by-step procedure for MPEG-1 psychoacoustic model 1 is also provided. Compared to Herre and Dick (2019)'s article, this article describes the preliminary knowledge for psychoacoustic models in great details, with both mathematical representations and illustrations.