MUS 406A Final Paper Proposal

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**Title:**

**A Comprehensive Overview into the Psychoacoustic Phenomenon of Auditory Masking**

**Abstract:**

This paper aims to present a comprehensive overview into the psychoacoustic phenomenon of auditory masking. Auditory masking occurs when the perception of one sound is affected by the presence of another sound. This psychoacoustic effect exists for all humans (to different degrees) and can often be used in a number of ways to the researcher or engineer’s advantage.

Determining amplitude thresholds for masking are crucial to the perceived output of the summed signal and are variable depending on masking signal used. Masking can occur both in the frequency domain (leading to frequency analysis model) and in the time domain (pre/post masking) but by using Auditory Scene Analysis (a process by which the human auditory system separates a summed signal that is received from the natural world into its individual parts based on a number of heuristic processes) the qualities of masking in the frequency and time domains, and the definition of the masking threshold can be elaborated on further.

Models for perceptually-transparent compression and audio coding are often based on a masking function which is characterized by the frequency analysis model defined by the critical bands for the human auditory system. Masking is without a doubt essential to many processes in audio production and delivery.

**Sources:**

* Albert Bregman – Auditory Scene Analysis
* Albert Bregman – When Will We Hear Separate Events in a Sequence of Sounds?
* Ambikairajah et. al. – Auditory Masking and MPEG Audio Compression
* Aniruddh Patel – Music, Language, and the Brain
* Brandenburg – Introduction to Perceptual Coding
* Moore – Frequency Analysis and Masking