Audio Coding - Practice Lessons

Seminar 6 – Parameter Tuning

Homework Assignment 6

Goal:

- Get maximum compression without loss of audio quality (i.e., audible quantization noise)
- Use Seminar 4 – Combination of Perceptual Model & Quantization

How to achieve that:

- Take your audio coder and tune the parameters with three different signals (music, speech, castanets)
  → will be provided in Moodle
- Be creative and come up with ideas (use what you've learned so far)

How to evaluate improvements:

- **encode given audio files using HW 4 program as well (before improvement)**
- **Calculate SNR for both cases**

Homework Assignment 6

Task:

- Play with the parameters that have an effect on the coding gain and the perceptual model
- Some examples:
  - Calculation of the spreading functions (linear function → exponential function)
  - Tonality index (better way to determine whether noisy or tonal signal)
  - Simultaneous masking (change offset to the signal sound pressure levels)
  - Change quantization (uniform quantization → non-uniform quantization)
  - Change quantization stepsize/scalefactor (change values, or more sophisticated calculation)

Homework Assignment 6

Questions to answer:

- Which signal works best (i.e., best compression with least loss of quality) and why?
- Which parameters have the biggest impact on the result?
- What is your best setup? (You'll find several ones on your way to the best result)
- How are the effects on the computational complexity (computational time)?