**Ficson**

**Description of the sounds designed to be added to the vehicles.**

4 different families of sounds, corresponding to progressive degrees of organisation: on one extreme more chaotic/random textures, on the opposite more organised/musical forms.

The user will interact with a circular area per vehicle in which he/she will be able to choose among/blend these different sound materials (a different one per axis) and define the desired level of transients/dynamics (exterior/interior: the exterior line of the circle corresponding to max transients, i.e. original texture, interior point corresponding to a smoothed out texture. From points to lines spectrally speaking).

All textures will then pass through a band-pass filter that will follow the actions observed on the video. As a result of this, only a part of these raw broad textures will be perceived, enhancing the feeling of acceleration/deceleration, and of relaxation/attention from the pedestrian’s perspective.

Each vehicle will have a similar set of sounds (4 equivalent sonic textures) which dynamic and spectral characteristics will then be tuned to their specific behaviour: envelope, basal tone, harmonic structure, etc. This specific design should help the observer to establish an intuitive link between each vehicle and its sounds, and distinguish them when listening to several running in parallel within the same audiovisual space.

1. On the “chaos/random” extreme: a texture produced from white noise, filtered with an fft-based noise filter. The filtering sample used here (sample n.1) corresponds to the white noise itself. We obtain a random distribution of points with a lower density. Different textures (density, subjective “speed”) can be obtained by using different fft sampling rates and filtering. Maybe this first family could be represented by the same sound for the 4 vehicles…?)
2. Second family, produced with granular synthesis (samples 21/20/22). The idea is to provide a texture with an “embryonic” harmonic structure (even if still unprecise, quite spread) which rhythmical/dynamic form remains still quite rough and undefined. The distance between the different harmonic lines is based on always the same interval for each of the examples (a Mayor 3rd, a 4th, a 5th). Starting from a grain (very short periodic pulses of a single sine tone), this sonic textured gets “pitchshifted” up at a regular interval and feedbacked to itself, so that this interval gets repeated endlessly in vertical within the hearing range creating a harmonic structure. The feedback process can be modified in terms of time delay, in order to create different rhythmical textures and densities. Very hard to describe with words, much more simple to understand while listening, but maybe it helps for generating an equivalent in WebAudioXml…?

Based on Johannes Kreidler example on Granular live Feedback (3.7.2.2.: <http://www.pd-tutorial.com/english/ch03s07.html> )

1. Multiple bandpass filtering of the first noise-based sample (nr.1) following a natural harmonic series. While presenting a clear harmonic structure, this family is characterised by a random grainy texture. The three samples presented (nr.29, 30 31) are based on different frequencies; ideally, they could also present 3 different densities of points for the 3 different vehicles.
2. Vertical structure following the natural harmonic series (~~samples 18, 11, 19~~). Each harmonic line is made of regular sine tone pulses presenting all the same envelope characteristics (ADSR) – but they should be different and specific to each vehicle, depicting their specific modes of motion. ~~In this 4~~~~rd~~ ~~family of sounds, the rhythmical structure is still essentially random, following a system of proportions (in my examples, multiples of 100 msec, they should also probably be different for each vehicle, providing different sensations of speed).~~ Each sine-tone pulse is out of synch from the other frequencies, in order to avoid perceptually harmonic structures and keeping thus some vertical independency important when the band-pass filter will enter in action.
3. ~~Same than the 4~~~~rd~~ ~~family, but presenting~~ ~~a more rigid rhythmical structure:~~ Regarding rhythmical patterns, each sine-tone pulse is coming back at proportionally faster tempi when going up in the spectrum (e.g. 220hz/5000msec, 440hz/2500msec, 660hz/1667msec, 880hz/1250msec, etc.). ~~As in family 3, the pulses should be out of synch to avoid as far as possible harmonic structures.~~ (samples 17/13/16)

4 & 5 are just two different rhythmical variations of the same idea. Family nr.4 disappears, replaced by the new family nr.3 (more interesting in terms of texture and less “musical”).

In this way, we get two distinct types of sound materials: families 1 and 2 will be more noise-based in perceptual terms, while the following ones are more “musical” in rhythmical and harmonic terms.