

## TUNING IN TECHNICAL REALIZATION

### General

HW environment: PC, Pentium III, 600MHz.

SW environment: Csound synthesis software ((c) Barry Vercoe, MIT Media Laboratory) (Windows).

### Track / Piece

1. ...Tuning in White noise is sent to dynamically adjusted resonating filter banks (objects). Different filter objects' fundamentals are tuned in a 8/7 frequency ratio. A "natural room" reverberation used (nreverb). Slight HRTF (head-related transfer function) spatialization has been used. Output is binaural (headphone) 3D audio. May be well listened also from transaural (loudspeaker) playback, but then most of the 3D effect will be lost. (January 2002)
2. Ray 1 Metallic percussion waveguide models made. Also FM and AM used for its excitation generation. For background FOG used as well. SCM used for "coloring" inside the waveguide instrument. Set of string resonators used for reverberation. (January-February 2002)
3. Ray 2 Same technical means as in the previous (track 2). (February 2002)
4. Ray 3 Same technical means as in the previous (track 2). (February 2002)
5. Hazy Granular synthesis (granule) used. A one thousand point reverberator designed. (February-March 2002)
6. Ray 4 Cross-synthesis between two audio signals using FFTs (cross2). Forward and backward reverberation. (March 2002)
7. Ray 5 Sound warping (sndwarp) that can alter the time-scale and pitch independently from each other. A five hundred point stereo reverberator. (March-April 2002)
8. Snowing Approach: 15 files of synthesized sounds (e.g. modelled percussive or pitched instruments) as raw material. Use of "sound warping". Clouds of overlapping sound objects as a result.. (April 2002)
9. Ray 6 Approach: Same as in Snowing (track 8), but a huge number of clouds of overlapping sound objects. (April-May 2002)
10. Tuning Inn The first piece (track 1) as a starting point. Time-scale changed to fit the piece in ca one minute less duration: first in an accelerated tempo, then slowing down a little. New reverberation design (increased echo density, longer reverberation time). Material from all previous pieces are processed with different techniques (distortion, forward and backward reverberation, modulation, flanging) onto the background. Slight HRTF spatialization. (May-June 2002)