Composers Desktop Project

About CDP *GrainMill*

Granular sound processing by Trevor Wishart
Graphic program by Richard Dobson

What does it do?

GrainMill breaks up a soundfile into sound-grains of user-defined length, and then manipulates them in pitch, amplitude spatial placement and density to create flowing textures of a granular nature. Its many time-varying parameters give it considerable shaping power and flexibility.

Typical *GrainMill* Effects

- Timestretching (to extreme degrees - up to 256 times!)

- Pitch shifting and continuously changing pitch transposition contours

- Echo and reverb effects

- Chorusing and double-tracking

- Generation of dense 'clouds' of sound, or sparse pointillist textures

- Subtle and extreme random panning and spatialization (doesn't sound 'mechanical')

- Add 'human' erratic and random shimmers and wobbles to over-exact synthetic sounds

- 'Brassage' or shuffling effects where a large chunk of the source sound is searched for grains – the start and end of the source may overlap in the result, and some bits may even sound backwards.

- Most importantly, by means of Time Contours, effects and transformations can be 'morphed' into each other.

Key Features

- Most parameters can be constants, or time-varying, with upper and lower limits – with the latter each grain is adjusted by a random value within the specified range.

- The granulation process proceeds gradually through the entire length of the input soundfile.

- There is a built-in breakpoint editor which includes audition and visual comparison of the time contours for upper and lower range limits – this makes it much easier to design these limits.

- There is a sophisticated Preset mechanism that saves in both binary and text format, with or without reference to a specific source soundfile.

- There is built-in Help, supported by a more extensive external Reference Manual in HTML.
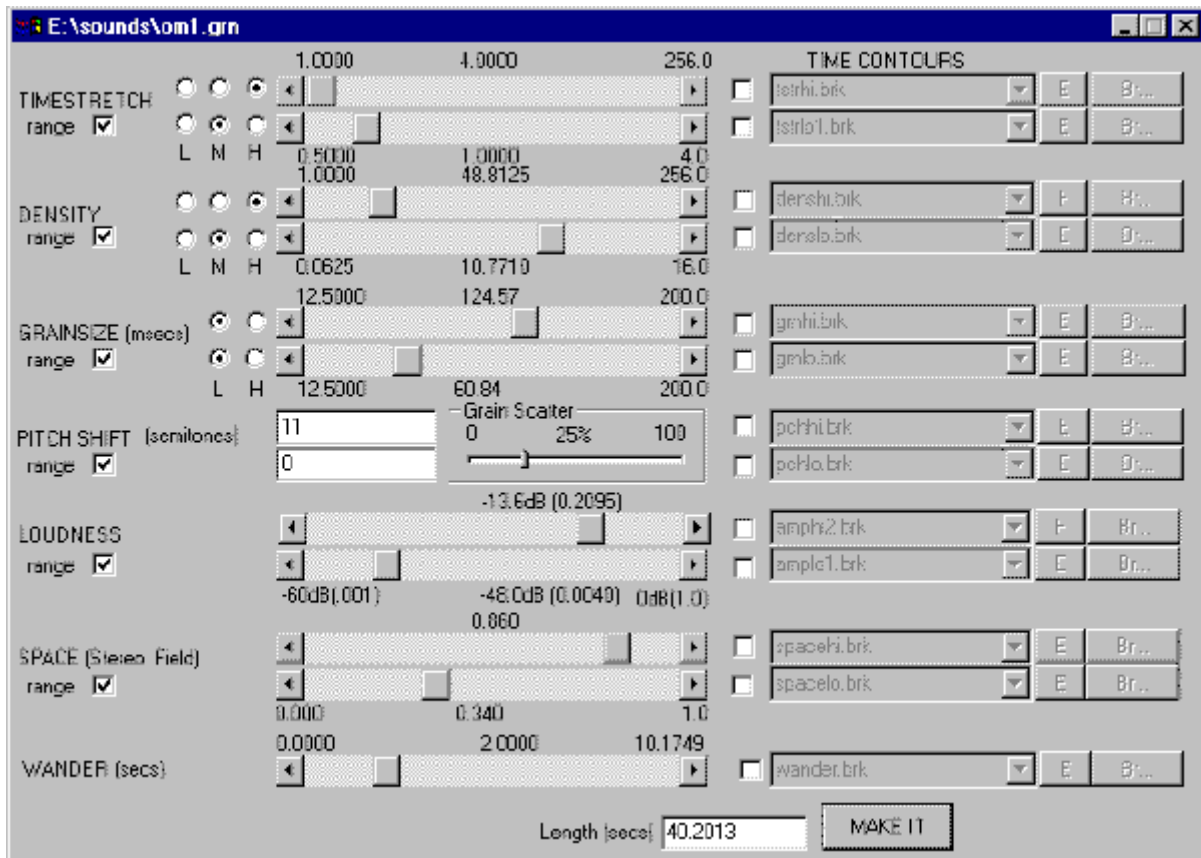
3 GrainMill Screenshots

1. GrainMill 'Progress Bar'
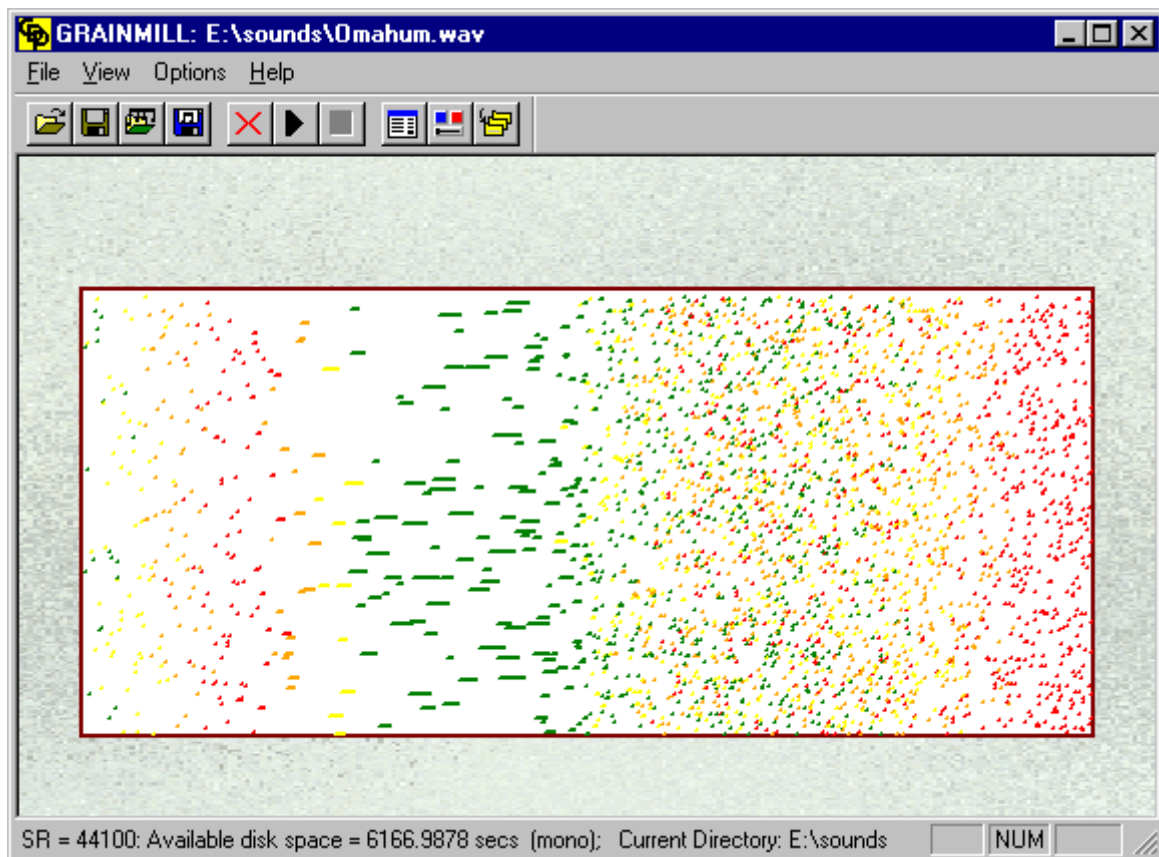
Dynamic grain output display while processing

This screen, shows 15 seconds-worth of grains. **Colour** shows loudness, **height** shows pitch, and **length** shows grain length. You can play the sound as soon as processing is completed.

2. GrainMill parameter dialogue box

When Range is ticked, upper and lower limits are activated.

There are thirteen time-variable parameters. Most of these are in pairs – upper and lower limits for a parameter type so that pitch, for example, can vary between a constant, a single changing value, or a random value within a (time-varying) range.

On the next page, we have a screen from the built-in breakpoint editor, **Brkedit**.

- Here an envelope previously extracted with **BrkEdit** from a speech sound (in red) is being compared to a pitch contour (in black and green).

- Notice that curves can be drawn (Span Settings), as well as straight-line segments.

- Also notice the PLAY button - you can audition your time-contour (whatever its range) as either loudness, or as pitch, and even save that sound to a file – a mini-synthesizer!

3. Time-contour ('breakpoint') graphic editor
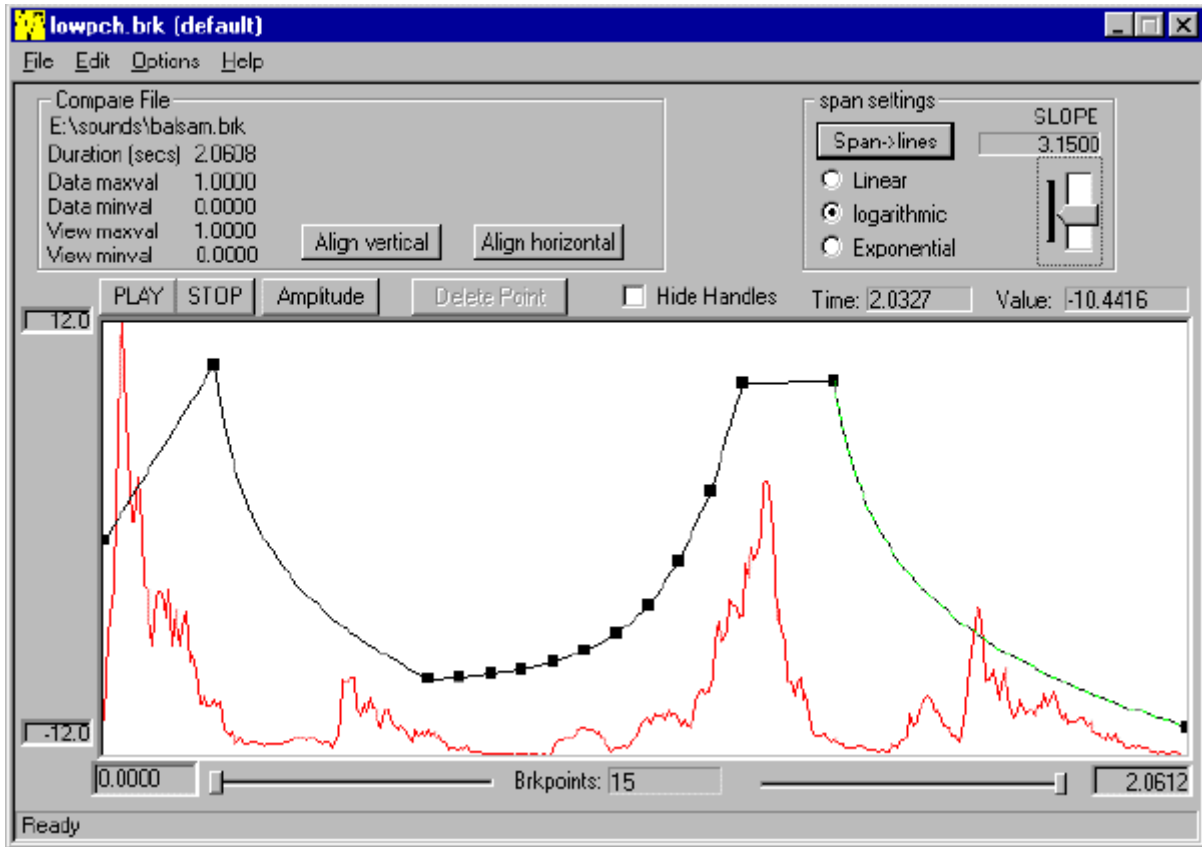
This image shows two time-contours.

See our LINKS page for a downloadable Demo version of *GrainMill*.

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~ Composer Tools for Sound Design ~