

## **Cut'n go ahead V.0.1: Cello DJ - abstract**

This is an extension of the instrument of a scratch turntablist, i.e. the combined use of the mixer (mainly the crossfader) and one turntable to transform audio material on the record.

*Cut'n go ahead V 0.1* is the first version of a digital extension for scratching. It consists of a Max/MSP patch in combination with an RANE Empath DJ-mixer.

*Cello DJ* is the first piece that I realized hereby. For this I made recordings of a Cello and cutted these on vinyl. The sounds are mostly noise-like.

### **Setup:**

Among the pictures there is one which shows the hardware setup of the system. Important are the CD-trigger functions of the Rane Empath mixer. Here, the mixer sends analog pulses on extra outputs when the cross fader is opened or closed. In addition, a third pulse when the crossfader is moved completely to the left. These pulses, as well as the audio signal are routed through an interface into the computer and analyzed by the software. The resulting data are the control parameters for the processes that take place in the software (see below in **Parameters**).

### **Course:**

Another picture shows graphically the course of the piece respectively the system. Read it from left to right and from the top to the bottom.

The system consists of 16 sections (In the picture the numbers 1 - 16). The third pulse (cross fader completely to the left) switches the software to the next section.

Within the sections different processes are taking place:

- 1 Loop-creation and ring modulation.
- 2 Buffering (recording sound material (Buffer A B C D).
- 3 - 7 Granular transformations. Only with the direct signal from disc (3), then with the recorded sound materials (4-7).
- 8 - 11 A beat pattern builds up, is varied and the DJ scratches on the beat. The beat is also generated from the recorded material, along with drum samples.
- 12th The last pattern is recorded along with the Scratch signal.
- 13th This recording is played backwards.
- 14th The recording is varied by ring modulation. This part is recorded again.
- 15th The recording of section 14 is transformed granular.
- 16th The pitch level slowly goes to zero and the signal disappears (end).

## **Parameters:**

As already described above, the cross fader movements and the record movement are used as control parameters for the transformation processes within the ring modulation and the granular sections.

Other control parameters are derived within the software from the crossfader pulses.

Overall, there are the following parameters:

1 Crossfader (CF) - open

2 CF - close

3 CF - open time counter (time elapsing between the opening and closing)

4 CF - close time counter (between closing and opening)

5 Cuts / s (number of CF movements per second)

6 Record movement through the FFT delta value of the audio signal (the Fast Fourier analysis of the scratch signal provides the FFT delta value. These are changes within the audio spectrum in time.)

## **Mapping:**

The mapping of the control parameters, i.e. the application of the parameters on the synthesis settings, varies from section to section. This makes it interesting to use the system.

For example in Section 1 the CF-open triggers the frequency of the sine wave generator of the ring modulation to rise abruptly to a higher value and then dropping down again within 0.5 seconds. Thereafter, the CF-open-time-counter ensures that the rate increases again. In addition, the record motion is scaled and added to the frequency.

The exact application of the parameters within the various sections can be found in the appendix of the detailed documentation pdf.

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