Eight sketches: duet for one pianist

This is probably the first piano "duet" for a single pianist: in addition to the pianist's part, a second part is played on the same piano - an acoustic piano, with keys, strings and hammers - by a computer which follows the pianist's performance. This requires a special piano - here a Yamaha Disklavier - equipped with MIDI input and output. On this piano, each key can be played from the keyboard, but it can also be activated by electrical signals: these signals trigger motors which actually depress or release the keys. Each key also sends out information as to when and how loud it is played. The information to and from the piano is in the MIDI format, used for synthesizers. A Macintosh computer receives this information and sends back the appropriate signals to trigger the piano playing: the programming determines in what way the computer part depends upon what the pianist plays.

In these eight sketches, I have tried to explore and demonstrate different kinds of live interaction between the pianist and the computer.

Double. The pianist plays alone, then on the repeat the computer adds ornaments. These are prerecorded: they are called when the pianist plays certain notes; their tempo can be influenced by the tempo of the pianist.

Mirrors. Each key played by the pianist is echoed by a key stroke, symmetrical with respect to a certain pitch - a process used in Webern's second *Variation opus 27*, quoted at the beginning (and also at the end with time reversal). The symmetry center and the response delays are changed during the piece to vary the effects.

Extensions. To the arpeggioes played by the pianist, the computer adds additional notes transposed in pitch.

Fractals. To each note played, the computer adds five notes spaced approximately - but not exactly - one octave apart. Thus the pitch patterns played by the pianist are distorted in strange ways: an octave jump is heard as a semitone descent.

Stretch. Pitches are added, as in *Extensions,* but the intervals are not merely transposed: they are stretched by a factor ranging between 1.3 and 2.7. This extends the harmony as well as the melodies played by the pianist.

Resonances. At the beginning and the end, the computer plays long sustained chords. In the middle section, the pianist plays mute chords: the strings are set in resonance by the sequences played by the computer.

Up Down. Quasi-octave arpeggioes are triggered by the pianist, whose few notes can thus generate many notes. The tempo of the arpeggioes is set first by the tempo of certain patterns played by the pianist; later by the pitch he plays; then by the loudness.

Metronomes. This begins by a short canon: the computer echoes the pianist on transposed pitches and at different tempos. It later plays simultaneously different sequences at different tempos. Then it repeats the same pitches, but again at different metronomic tempos, either preset or set by the pianist.