MicroTuner: An Interactive Tuning System for the MAX Environment
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MicroTuner is a collection of MAX patches to ease editing, storing and restoring microtune data of synthesizers and samplers. With this program one can tune MIDI instruments real-time interactively. A wide variety of control of microtune data is possible by the performance informations gathered by different MAX objects.

The appearance of MIDI controllable synthesizers and samplers with an acceptable microtuning capability has created an opportunity for composers and performers to use sophisticated tuning systems also in real-time computer music. However the control of the tuning is very limited, when programmed from the "desktop" of these instruments. Editing of microtune data is very slow and complicated, storing and restoring of these data has restrictions and there is no way to affect microtuning parameters with the synthesizers' own controllers or a MIDI controller keyboard.

"Microtuner" is a program written with MAX, which creates MIDI system exclusive data for microtuning. It enables musicians to create and perform tuning systems interactively in real time, and control their changes with optional performer gestures or data gathered by Listener Objects [Wessel 1991, Winkler 1992].

The program is a collection of Max objects, each with a special function. There is an interface created for easy programming and connecting microtuning objects to each other and to Listener and Composition Objects [Wessel 1991, Winkler 1992]. There are several simple Listening and Composing objects built into the "Microtuner", which are dealing with converting musical structures and gestures into data for microtuning and vice versa.

Microtuning objects can be divided into two groups:
- objects for editing and storing microtune data - invented for easy and quick editing in three different ways:
  - storing of x,y pars of numbers together,
  - graphically in forra of tables,
  - with mathematical algorithms.

The result of these objects can be triggered and loaded later via real-time objects.
- real-time objects - specialized in generating microtune data reacting to a gesture or musical structure via controllers and Listener Objects (Wessel 1991, Winkler 1992). These MAX patches specify for example the range of the affected keys, the amount, direction, frequency and order of pitch changes, etc. Although these patches should be very "personal" and dependent on the actual user, there was an effort made to create a package of general MAX-objects for this purpose.

"Microtuner" is intended to be used together with other MAX patches or Macintosh programs running concurrently. It creates a powerful environment for composers, researchers and students, who wish to extend time-varying musical processes toward tuning systems, and explore relationships between different fields of musical expression.

The problem of storing and restoring of large collections of tuning systems is also solved by using MicroTuner. The program will be supplemented with a bank of 124 tuning systems described in [Jeno Keuler: Mikralap I-II]. It will contain traditional, historical, ethnomusical and modern microsystems of natural and artificial origin (like for example quart-quat-gruit and chains, greek scales, javain pelog-slendro system, equal-step scales, "Hindemith-tuning, etc.)

References

J. Keuler: "Mikralap I-II." Institute for Musicology, Budapest.