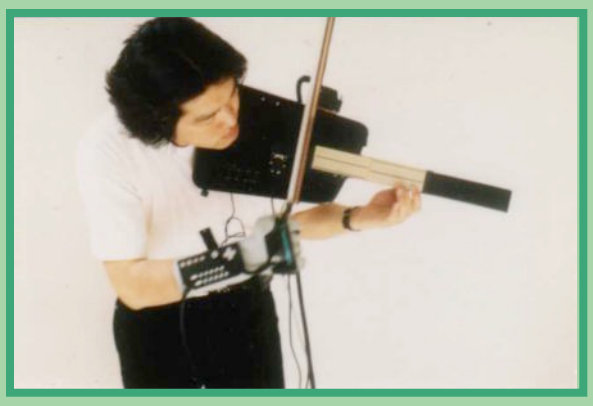
SuperPolm and VirtualAERI II

Suguru Goto

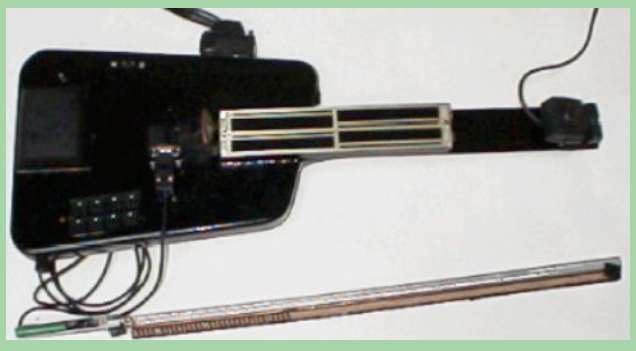
Virtual Musical Instrument and Composition



1. Introduction

I have been working numerous compositions and performances with Virtual Musical Instruments. These refer to a system that a gesture of performer is translated into electric signals. One may control sound or video image of computer with movement of body in real time.

Virtual Musical Instrument may be regarded as an interface between the performer and the computer insofar as they translate the energy derived from body movements into electrical signals.



2. Virtual Musical Instrument

Virtual Musical Instrument, or controllers, cannot produce sounds by themselves. They merely send signals that produce sounds by means of a computer or a sound module. They may be regarded as an interface between the performer and the computer insofar as they translate the energy derived from body movements into electrical signals. At the same time however, they allow the performer to express complex musical ideas. With the help of a controller, a tiny gesture can trigger any number of complex musical passages at one and the same time in a real time context, whereas a traditional instrument can produce only a limited range of sounds.

3. SuperPolm

On "SuperPolm", there is neither string nor hair of bow. A gesture of performance with a violin is merely modeled.

"SuperPolm" can be assigned new functions by programming, so as to take into account the compositional needs of each piece

One of Virtual Musical Instrument that I created is Virtual Violin "**SuperPolm**". There is neither string nor hair of bow. A gesture of performance with a violin is merely modeled.

The SuperPolm is played in a similar manner to the violin, except that the fingers touch sensors on a finger board instead of pressing strings. Sounds may also be modified by movements of the bow, which records variations in resistance. An eight-button keyboard situated on the body of the instrument can change both the programme and the sounds as well as triggering different pitches, like a normal keyboard.

The SuperPolm was built in such a way as to respond to body movements. However it can be assigned new functions by programming, so as to take into account the compositional needs of each piece : for instance a sensor can be used to trigger sounds in one composition, whereas in another it can be used to change the pitch.

The SuperPolm can also control the parameters of images in real time. For instance, it can superimpose live or sampled images on top of each other, add effects, such as delay, and speed up, reverse or repeat these images. It can also mix several images in different proportions and modify their color, brightness and distortion, while the sampled images can be started and stopped at any point.

The basic idea behind the SuperPolm is to interface gestures that resemble the playing of a musical instrument in order to control sound or images. These gestures are translated into parameters of position, pressure or distance by sensors. The resulting voltage is converted by an analogue to digital interface into MIDI signals that can be fed into a computer. The computer controls or generates the sounds in real time and can modify these signals by means of algorithms. For example a single channel signal can be altered to become a rich and complex sound, such as an orchestral sound.

The SuperPolm was built in 1996 . It was originally intended for use in a piece I composed for IRCAM in 1995 - 1996, entitled "VirtualAERI". The first performance of this piece was given in 1997 at IRCAM's Espace de Projection, in Paris, France. It consisted of four sections, each of which dealt with a different kind of space, large, medium and small. The SuperPolm was designed as an interface for small-scale gestures, and one particular section of the composition focused specifically on the possibilities opened up by the controller.

4. Composition: VirtualAERI II (1998) For SuperPolm and Interactive Video

The SuperPolm, MIDI Violin was built in 1996 . It was originally intended for use in a piece I composed for IRCAM in 1995 - 1996, entitled "VirtualAERI". The first performance of this piece was given in 1997 at IRCAM's Espace de Projection, in Paris, France. The second version "VirtualAERI II". was written in 1998. The SuperPolm was designed as an interface for small-scale gestures, and one particular section of the composition focused specifically on the possibilities opened up by the controller.

The sound is generated in order to convey the senses of mechanical and dense texture in a succession of block form, however, is obvious and somehow organic at the same time, in order to correlate a performance with Virtual Violin in real time.
The Interactive Video part is intended not to express any particular meaning. It may exist in parallel with sound. This can bring another domain of interactive perception between the visual and the auditory experiences.

Suguru Goto
IRCAM
1, place Ifor Stravinsky
75004 Paris
France
Tel. +33 1 44 78 48 43
Fax +33 1 44 78 15 40
Email: Suguru.Goto@ircam.fr

For Further Information:

Technical Description:

http://www.ircam.fr/227.html?tx_ircam_pi2%5BshowUid%5D=27&ext=2&L=1

Article:

http://perso.wanadoo.fr/suguru.goto/PDFfiles/IRCAM-Article.pdf

Movie:
http://perso.wanadoo.fr/suguru.goto/VirtualAERI2(small).mov

Biography:
http://perso.wanadoo.fr/suguru.goto/PDFfiles/SuguruGoto-E.pdf

Web Site:
http://abrb.freefronthost.com/