SONIC BEAMS / ACOUSTIC SHADOWS

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INTRODUCTION

"Sonic beams / Acoustic shadows" is an improvised composition played on a non-contact haptic interface (figure 1). The audio generation is based on a "no-input mixing board" concept. The primary feedback loops generated with the mixing board are projected through the PA system and at the same time they are used to modulate (AM) an ultrasonic sinus carrier. The amplitude-modulated signal is driving an array of 97 ultrasonic transducers arranged on a spherically shaped surface, so that the acoustic radiation is focused at the sphere centre. The result is a relatively strong and spatio-temporally precise tactile reproduction of the projected audio signal. A simple ultrasonic receiver is used to pick-up the sonic beam and is placed in front of the transducer array – 20cm behind the focal point. By moving his hand in the focal point region, the musician is acoustically shadowing the receiver. The signal which is picked up by the ultrasonic receiver is fed directly into the input of the same mixing board. When the musician is playing the instrument, i.e. moving his hand around the focal point of the ultrasonic beam, he is indirectly manipulating the intensity of the receivers output. This ultrasonic signal is generating turbulences in the primary oscillation circuit (audible frequencies) of the mixing board. As a result a wide variety of acoustic material can be generated, merely by positioning ones hand between the transducers and the receiver. All further details regarding technical realisation are described in (Ciglar 2010).

DISCUSSION

The piece “Sonic beams / Acoustic shadows” is built up on an experimental approach. I submitted it for performance at ICMC2010, but it was rejected by the reviewers. The submitted material was a short video recording1 demonstrating the ultra-sound interface in operation. What can be heard in the recording is some noisy feedbacks, occurring as a result of hand gesture manipulation. The aesthetics of the produced sound is rather primitive, while the short excerpt does not allow for any observations of musical form and larger compositional structures. In the paper (Ciglar 2010) – that the ICMC2010 reviewers fortunately did accept – however a conceptual framework is being put to the fore, pertaining to the particular compositional approach, that is conditioned by the use of this interface. It is therefore important to mention that this work is not merely an (acoustic) artefact, but should be viewed as a conceptual entity.

Figure 1. The interface. – 97 ultrasonic transducers – musicians hand just above the acoustic focal point.

After the rejection by the ICMC performance board, I submitted the piece again for the “UnConference” venue, where it was accepted. According to ICMC2010 website, the “UnConference” is a more informal gathering of artists, thinkers, dreamers, and other trouble makers all focused on digital technologies, etc. It is interesting to observe how the organizers are trying to split the mainstream academic contributions from the more alternative ones, e.g. “trouble makers”. In any case, it is a very positive gesture to make a platform like the ICMC accessible to a broader range of practitioners, however an even more progressive gesture would not be a segregation, but a confrontation of “mainstream” and “alternative” within the same venues. After all, throughout history a common model, of how alternatives or avant-gardes are eventually becoming mainstream, can be observed.

REFERENCES


1http://www.ciglar.mur.at/sonicbeams.html