«MOBILIS IN MOBILE»: INTERACTIVE MUSIC PERFORMER

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Abstract

"Mobilis in mobile" motto gives a very accurate characteristic of performing interactive music (IM) , the atmosphere of constant changeability affecting the structure of composition, performance vector, conditions of space and time, etc. Being a relatively new phenomenon in the art of music – it has only been around for about two decades – interactive music sets unprecedented artistic and performance goals and opens new creative horizons for the musician.

This article is an attempt to give a general characteristic of interactive music phenomenon, the role of the performer in it and to describe a number of specific phenomenae which emerge in the process of performance.

Each utensil – spoon, fork, knife, plate – had a letter engraved on it, with a motto above it, of which this is an exact facsimile:

MOBILIS IN MOBILI N

The letter N was no doubt the initial of the name of the enigmatical person who commanded at the bottom of the seas.

> **Jules Verne. Twenty Thousand Leagues under the Sea.**

Interactive Music: a Mystery Figure.

Though early research in the field of interactive music dates back about 20 years, there is still no unified concept of what should be attributed to this sphere and how this should be done. The problem is aggravated by the fact that in at least half of the occurrences interactivity demonstrates itself not only and not so much in music, but is visual and theatrical (scenic) arts. In interdisciplinary art interactive music component is often not realized; to the contrary, it is prepared (recorded, played) and thus initiates other interactive acts.

In those cases when musical process plays an independent role, interactive music is unmistakably characterized by real-time performance (so-called "real-time music"). Perhaps this should be considered its key feature. Another indispensable characteristic of interactive music is the ability of the performer to influence (to a certain extent) the development of the piece during the performance, the principle of

variability being applicable both to the musical material and to time and spatial structures.

Some researchers give a narrow technical definition of the interactive music as managing a computer in a more or less complicated way [Smirnov]. This is hardly a characteristic of the essence of this phenomenon, as it doesn't highlight the phenomenon itself. While the experience of the past decade undoubtedly sets out interactive music as an independent field of musical art [Winkler, 1999; Battier, 2000].

Much more precisely interactive music can be defined as a system of specific interaction between a performer (or a group of performers) and a computer with feedback as an indispensable component of real-time performance. In other words, computer acts as a *virtual* performer, its *actions* affecting *the real performer* and inciting his/her reactions. *Feedback* specifics defines computer's response to *influence* and together with technical, acoustic and spatial qualities forms musical quality allowing to characterize computer system as a specific musical instrument and performance – as its interaction with a musician.

It's typical that this "computer" instrument is characterized by the same qualities as a "historical" acoustic musical instrument, hence the consequences.

Computer in interactive music: a musical instrument.

Each music instrument has a distinctive set of properties and characteristics which differentiate it from other instruments. The difference is not only in timbre, sound and dynamic range, but also in sound production peculiarities, the set of techniques potentially available for the performer etc. In all cases this allows to speak of the uniqueness of different groups of acoustic instruments (such as, for example, the violin and brass family) and at the same time about singularity within the same kind (for example, comparing a trombone and a tuba). Hence some researchers propose to use the term "idiomatic" to describe the unique set of characteristics of the musical instrument.

In the interactive music space computer possesses the same idiomatic nature as acoustic instruments. Just as with its historic predecessors, it is made up of a number of technical and programming solutions, peculiarities of the system of communication with the performer (e.g. the computer interface), timbre and space capacities, etc. Thus almost in every case of using a computer as a musical instrument we find a new (or at least a supplemented) set of qualities, i.e. new idiomacy, a new musical instrument [Tanaka, 2006].

What does it mean for the performer? It means the same as with the historic «relatives»: in order to identify potential capacity of the new instrument, the performer must learn to play it. In other words, to go all the way in mastering it: from learning motor coordination skills to identifying its acoustic resources.

The performer: interpreter- improvisator - composer

Interactive music difficulty for the performer is connected not only with the necessity to master new and unfamiliar tools. The traditional division into composers, performers and improvisors in interactive music becomes highly conventional. They might not be obliterated as separate notions whatsoever, but definitely need some reconsideration: the performer in interactive music almost always acts as an interpreter in a broad sense, being in fact a co-author of the happening.

A lot depends on the concept of the musical system used to perform the piece. If communication between the performer and the computer is based on the principle of a 'blackbox', i.e. if the performer does not know (or cannot predict) how his musical or motor actions will be interpreted by the computer, the result will in any case be of an improvisational nature.

The performer certainly doesn't often have the ability of composition and needs to be guided — if not dictated. Making a precise record of the electronic piece and composer's intentions (if the original material offers such a possibility in the first place) and their adequate interpretation is a complicated task; there are various practical solutions to it. Obviously, the easiest way is to leave out the performer in its musical meaning, narrowing the process of interpretation to following a number of simple, non-musical instructions.

While being part of a rigid system is not interesting and even senseless for the performer, eliminating all restrictions and giving the system maximum flexibility (to the extent of removing all instructions) may be consequential for the composition. Generally, the result turns out so unpredictable, stochastic, probabilistic, that the notion of a musical composition as it is dimmed.

It is obvious that in most cases the composer should somehow pass instructions (both «material» and relating to the performance process) to the performer. As in any instance of electronic music, such musical material is practically impossible to be depicted in traditional notation. The same refers to performance instructions. Each composer's technique and almost any new piece demands invention of its own unique notation. This is why the scores of interactive music compositions often don't have familiar notes, but instead are made of various graphic elements, schemes, etc. which often themselves require author's comments.

Experience shows that the performer in interactive music needs to work hard not only to learn to interprete composer's instructions but also to understand them in the first place.

In interactive music performance instructions notation is even more approximate than in traditional music, and also not always constant: instructions may change in accordance with the flow of the musical performance process. Nevertheless, the presence of notation techniques (however specific they might be) and the general score allows to define boundaries and sections of the form, musical structures and organizes the system of interaction between performers, concurs their intentions and actions, which is very important when performance is carried out by several performers.

In mobile interactive music the agreement of *interactions* and *actions* is extremely important because all activity of the musician-performer in mastering interactive music instruments and compositions is based on the cyclic system *interaction-action-experience* [Tanaka, 2006].

Mastering interactive instruments followed by performance in interactive music is different form the traditional way where *action* — motor and/or musical - leads to an acoustic result , forming performer's *experience,* which then corrects the *action*. As *action* in interactive music is the performer's reaction to *interaction*, the whole system of forming performance skills and interpretation structure is based on cyclic passing of three stages:

1) initial *interaction* of the performer and the instrument, followed by a result (not necessarily acoustic in nature)
2) reaction to *interaction* by performing *action* (with a mandatory acoustic effect)
3) acquiring audial and motor *experience* [1].

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[1] Forming performance experience through *interaction* and *action* is especially obvious when the computer (just as

The Performer + the Performer: alliances and conflicts.

When musicians unite to form collectives (and music needs several performers), the computer remaining an individual instrument at the same time becomes a unifying means. Collective performance sets a number of new composition and performance problems connected to the specifics of the collective play in interactive music.

It is worth mentioning that an artistic act in the field of music which is experimental by nature is often an experiment. Thus, a group performance of interactive music as opposed to its traditional kind, does not require mandatory physical presence of all performers in one place (on one stage, in one room, etc) Virtual collectives more and more often appear in other non-interactive experiments, but when it comes to interactivity such artistic acts become more and more frequent. This is understandable: having to deal with a computer system, two and more musicians united as an ensemble or an orchestra are as a rule connected to one computer network. During the last few years the physical distance between the performers — just as between the performers and the audience — has become not so important. Being unimportant from the technical point of view, it still causes a considerable number of musical and psychological problems.

Anyway, the means of communication, the network acting as a link between musicians, begins to act as an independent instrument. One of its specific features that is worth mentioning is the so called «latency», i.e. information delay experienced in a network. This delay is always present, and as noted by a number of researchers, it must be accepted as an integral part of this peculiar musical instrument, as it constitutes a

part of its idiomacy. Therefore, a composer, producing music for a «net» collective, must not ignore latency, but treat it as a musical quality instead. By analogy, the performer has to consider this quality when performing.

Another important aspect of collective performance is organizing performer's interaction and equally significant - guiding the group. If performance includes gestures or other scenic actions, the interaction is easy. While a different approach is necessary for «static» performers. Some collectives set up message exchange (a kind of «chat»), other work out a system of common «commands», still other prefer to use available potential of the traditional score. Anyway, the means of musical communication used in most cases is non-characteristic of classical performance. Consequently, this requires adaptation and rehearsal process. Here comes an equally important question: does such a collective need a conductor and if yes, what conductor should this be? Options are as numerous as there are individual composition techniques, musical collectives and groups.

The art of collective interactive music has many hidden difficulties (technical and musical) but it also opens up new opportunities. New potential gives the performer prospects of exploring novel, nonclassical acoustic space. The performer with his instrument is known to be localized in space. However, if one goes beyond the familiar scheme of placing the performers and puts the performer *inside* a unified acoustic space — virtual and real — the system of communication between the performer and the sound surrounding will change. In this case it will play the role of the musical instrument.

This is the field of interactive music experiments (unique up to date) carried out by the artistic group «EXPLAIN» founded in 2010 at the department of sound engineering and information technologies of Rostov State Conservatoire. The

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the performer) needs instruction by its partner — the professional musician.

essence of the concept is that each performer can equally 'fill' all surrounding sound space. Moreover, the position of sound «elements», musical material is restricted only by acoustic system capacities, the performers' imagination being absolutely unlimited. As a result a complicated time interaction of interpenetrative sound spaces is born where each performer is a part of conjoint «world creation» act and still produces his/her own sound world.

Conclusion

Despite its original experimental character even with a touch of avangardism (which is characteristic of all electronic and computer music), interactive music experiments are aimed not only at creating new timbres, developing artificial intelligence systems pertaining to music and performance process, at implementing new technologies into musical practice. Interactive music is brought about by searching for new ways of functioning for music and art in general in the digital world when computer becomes an integral part of everyday life and the Internet — a natural habitat. One can't also deny the fact that a number of interactive music achievements are subsequently realized in many commercial projects and products. Thus, leaving the narrowly professional circle of musicians, engineers and researchers, they find their audience and enjoy appreciation by millions of music lovers.

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