

TRANSCULTURAL MUSIC:
A RESEARCH ABOUT INTERCULTURAL AND TRANSCULTURAL
PROCESSES IN ELECTROACOUSTIC MUSIC

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Abstract

This practice-based research thesis will present the concept of "Transcultural Music" and how the combination of different musical cultures, in this case, traditional music of Middle East (especially Iran), North India and Electroacoustic music as western musical culture, which, can derive to innovation of Transcultural Electroacoustic Music as a new genre of music with a creative overview.

By investigating local and global aspects of music traditions, the author has developed the idea of "local and global electronic music" through explaining and reviewing the background of the terminologies such as "multicultural", "intercultural" and "transcultural", alongside how the concept of cultures has changed in recent years, and how this change and contact of different musical cultures can create innovative transcultural music. The author also explains how these terms can be applied to electroacoustic music and how some processes in the music can be explained by these terminologies.

These questions are answered through concrete musical examples; the research follows some of the processes of interculturality and transculturality in opuses of five composers and discusses how the composer's have worked with elements of other musical cultures alongside where the elements have come from? In which aspects of those elements has the composer focused on more? How important are those elements in the opuses? What is the result and how has the (musical) background of the composer related to their point of view and the result?

The author looks to some composers opus as well as his own compositions, which has some aspects of multiculturalism, interculturality, and transculturality in the music, and has analyzed these processes especially regarding to the explained

terminologies, so we can understand how these processes are made and see what is the musical result. The author also discusses how the composer's musical background is related to the result.

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Table of Contents

| | |
|--|----|
| Abstract..... | iv |
| Introduction and overview..... | xi |
| Chapter 1..... | 1 |
| Terminology and background | 1 |
| I. Multicultural..... | 2 |
| II. Intercultural..... | 3 |
| III. Transcultural..... | 3 |
| History of Transculturality | 4 |
| Neologism and an example of Transculturation in the history..... | 5 |
| Multicultural, Intercultural and Transcultural Music | 9 |
| Chapter 2..... | 11 |
| Persian traditional music | 11 |
| Geographical overview of Iran..... | 11 |
| An introduction to Persian music | 13 |
| Forms in Persian music..... | 13 |
| Rhythm | 14 |
| Persian Intervals | 14 |
| The Dastgah system (organization)..... | 15 |
| Radif (row, series)..... | 18 |
| A brief history of Santur..... | 20 |
| Tuning of Santur..... | 21 |
| Local and Global Electronic Music..... | 23 |
| Chapter 3..... | 24 |
| The analyses of the different opus of other composers | 24 |
| Questions and some strategies..... | 24 |

| | |
|--|----|
| Analysis | 27 |
| Iranian pioneers of Electronic Music: | 27 |
| Alireza Mashayekhi | 27 |
| Dariush Dolat-Shahi | 32 |
| Ivan Alexandrovich Tcherepnin, Santur Live! (1977) | 34 |
| Leo Kupper, Electro-Acoustic Santur – for Santur, 2 microprocessors and electronic sounds (1989)..... | 38 |
| Klaus Huber, Erde bewegt sich auf den Hörnern eines Ochsen (1993)..... | 43 |
| Software..... | 52 |
| OpenMusic..... | 53 |
| Max/MSP | 55 |
| Chapter 4..... | 59 |
| Two Compositions of the Author with the idea of “Transcultural Music” behind | 59 |
| “Le Corde Sul Corpo” | 59 |
| Goals and realization in “Le Corde Sul Corpo” | 59 |
| Santur and new music..... | 60 |
| The relationship between instrumentalist and composer..... | 62 |
| The sound of the Santur..... | 63 |
| Rhythm | 65 |
| Dynamic and Density | 65 |
| “Reflections” (2016/17) | 67 |
| Notes on “Reflections” | 68 |
| About the project: a continued (practical) research in composition | 68 |
| The process and the collaboration with instrumentalists..... | 71 |

| | |
|---|-----|
| Bansuri and Djoze | 71 |
| Tombak | 73 |
| Santur | 75 |
| Sound Material | 78 |
| Form and structure | 78 |
| Score | 85 |
| The music performance | 87 |
| The Light | 88 |
| Electronics and its role | 88 |
| The spazialization | 92 |
| Check and compare some aspects of the author and other composers opuses related to the topic | 94 |
| Conclusion | 98 |
| List of Figures | 103 |
| List of d tables | 106 |
| Appendix 1 | 107 |
| Score of “Le Corde Sul Corpo” | 107 |

Introduction and overview

The phenomenon of Transculturality between Middle East and north Indian musical cultures on one side, and the electronic music culture, which is mainly a west European musical approach on another side, is a new perspective to the contemporary music genre.

Personally, I have worked on this topic for almost 10 years ago and I have composed different pieces with more of a focus on “electronic music inspired by Persian music”¹ as well as the combination of Persian and western classical instruments through electro-acoustic music.

I also have worked and experimented with some elements and instruments of different (musical) cultures such as Arabic, Indian, Chinese and each time I have researched and discovered new perspectives and possibilities to open the windows within the Multicultural and Transcultural musical world.

My major motivation to start this research was my passion for finding my musical language and identity through music, which has happened naturally and on the path of changes in my life.

But during these years I have had to deal with some theories and practical problems in my music composition and realization of different works, of which I would like to share and discuss in this thesis. In fact, one of the major matters I had to deal with was the vast amount of music repertory and direct research resources on this topic. The second problem is the breath and multidimensional side of this topic, which can make it very complicated. The complexity and scientific part of electroacoustic music and western

¹ As Alireza Mashayekhi defines this term on his website:
<http://www.alirezamashayekhi.com/en/biography>

contemporary culture is extensive, meanwhile the different approaches to music in Middle East and India are totally different to western music, and to be successful one needs to have a knowledge about both matters. In my opinion, such research has a better result when is done as a group of scientists, musicologists and ethnomusicologists together within a multidisciplinary approach. My hope is that we will have this kind of research and analysis soon, but until that time I would try my best to achieve my without this. However, I'm not the first and only one did this research and to have had this kind of approach in music composition.

Before I start to explain my compositions, which are the practical results of my researches/studies, I would like to use the 1st chapter to talk about some the cultural background and terminologies, such as multicultural, intercultural and transcultural, that I am going to use considerably during my discourses and which are directly relative to the topic. I also explain how these terminologies can be used in the music.

After that, in 2nd chapter, there is a brief introduction to traditional Persian music, and the Persian instrument, Santur, including its characteristics, such as the instrument's physical structure, possible performance techniques, and its limitations. These themes are discussed in regard to the composition of contemporary music and computer music in particular. I believe it is necessary to know some of its basics to understand better other discussions. In the 3rd chapter, I will analyze and discuss some other composer's opuses that have worked with elements/instruments from other musical cultures in Electroacoustic music.

Technical topics include an equation similar to McAdams equation, modal synthesis based on filters realized in Max/MSP and the detection of partials and harmonies in Open Music will be mentioned as some of the tools used to realize some of the electronic parts of music and also processes of transculturality. In the 4th chapter

Finally, hereof will be discussed "Le Corde Sul Corpo" and "REFLECTIONS" to demonstrate some of the practical results of the research.

Chapter 1

Terminology and background

For working with altered elements from different (musical) cultures, I brought some terminologies in my concept (e.g. transcultural music), which needs to be discussed. I think it is important to mention the origin and background of these terminologies to avoid any misunderstanding in my discussion and also to be precise with the use of these terms within our field. For expanding this issue I had cited many parts from specialists, sociologists and pioneers of these terms (e.g. Fernando Ortiz, Welsch, and etc.)

These terms mostly come from sociological studies, but are also used in politics, philosophy and recently these terms had arisen and appeared in other disciplines, such as in the art and music.

“The phenomenon of multiculturalism and Transculturalism are not new terminologies but often people have difficulties to work with these terms.” (Ömer Ongun)

Multicultural, Intercultural and Transcultural

In his essay “Transculturality – the Puzzling Form of Cultures Today” Wolfgang Welsch illustrates the concept of transculturality which is, according to him, for descriptive, as well as for normative reasons, the most appropriate conception of culture today. In order to depict it, he opposes the concept of transculturality to the traditional concept of single cultures and to the more recent concepts of interculturality and multiculturality. [1]

The classical and traditional concept of cultures, which was typically developed by Johann Gottfried Herder² in the late 18th century [1] looks to the cultures as autonomous “islands” or “separated spheres”.

However, We do believe that this concept of culture is not anymore appropriate in our modern societies, because nowadays, our societies structures are combination of different cultures.

I. Multicultural

There are multiplied cultures together or living next to each other without having interactions and dialogues between them.

Its etymology comes from (Multi + Cultural) and is defined by dictionaries (Webster’s New World College Dictionary & Collins English Dictionary) as:

Having to do with many cultures [2], consisting of, relating to, or designed for the cultures of several different races [3], Relating or pertaining to several different cultures.

It refers to a society that contains several cultural or ethnic groups, but each cultural group does not necessarily have interactions with each other. [4]

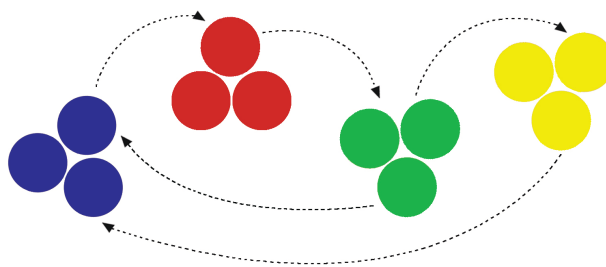


Figure 1: explanation of multicultural.

² Most notably in “ideas on the philosophy of the history of Mankind” [1]

II. Intercultural

There is an interaction or dialogue between two or more different cultures.

In the intercultural communities, it's supposed to be an understanding of each other (cultures), respect and some exchanges. [4]

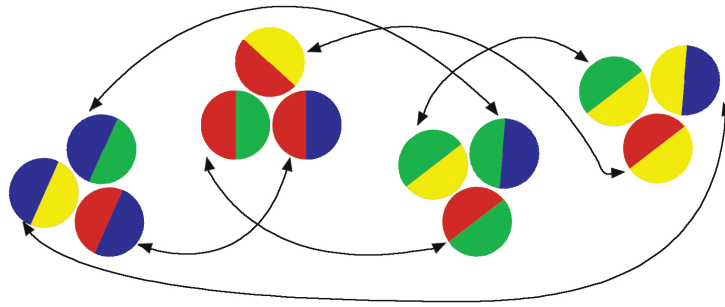


Figure 2: explanation of intercultural.

III. Transcultural

It's a new culture derived through some processes and transformation of different cultures.

Its etymology comes from (Trans + Cultural).

According to the dictionaries, Transcultural is in turn described as "*extending through all human cultures*" [5]

Another definition is "*involving, encompassing, or combining elements of more than one culture*". [6]

Bronisław Malinowski, an anthropologist and a colleague of Dr. Ortiz, described some characteristics of the term transculturation in his introduction to the book *Cuban Counterpoint*, which can help us to bring this terminology in other fields:

"Every change of culture, or, as I shall say from now on, every transculturation, is a process in which something is always given in return for what one receives, a system of give and take. It is a process in which both parts of the equation are modified, a process

from which a new reality emerges, transformed and complex, a reality that is not a mechanical agglomeration of traits, nor even a mosaic, but a new phenomenon, original and independent. To describe this process the word trans-culturation, stemming from Latin roots, provides us with a term that does not contain the implication of one certain culture toward which the other must tend, but an exchange between two cultures, both of them active, both contributing their share, and both cooperating to bring about a new reality of civilization.” [7]

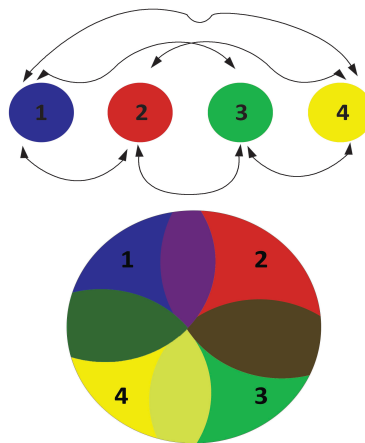


Figure 3: explanation of Transcultural.

History of Transculturality

*As is made clear by Welsch and his recipients, the term transculturality is not a new one. It was used for the first time – as “transculturation” (in the English translation: the Spanish original uses the term of “transculturación”) – in 1940 by the Cuban sociologist Fernando Ortiz, in his sociological study *Contrapunteo Cubano del Tabaco y el Azúcar* (translated into English in 1947 as *Cuban Counterpoint: Tobacco and Sugar*), and subsequently reappeared in various academic disciplines in the 1990s. [...] According to his own statements, Welsch started to have recourse to the transcultural theorem in 1992 (cf. Welsch 2003, 13) with the intent of methodologically*

establishing and consolidating his philosophical approach. He takes over the dynamic connotation of Ortiz's previously labeled "transculturation" (Ortiz 1970, 97) through the detachment of its sociological context and generalizing it more in terms of the philosophical category of transculturality, thus having it serve his own interests in epistemological knowledge and cultural theory. [8]

Neologism and an example of Transculturation in the history

Fernando Ortiz Fernández (1881-1969) has felt the necessity of a new term to explain the true history of Cuba and the different phases of transition process of one culture to another. He also explained that acculturation was not the most appreciated word and explanation for that.

"We have chosen the term transculturation to express the most varied phenomena that originate in Cuba because of the very complex transmutations of cultures that are here verify, without knowing which it is impossible to understand the evolution of the Cuban people, as well in the economic as in the institutional, legal, ethical, religious, artistic, linguistic, psychological, sexual and in the other aspects of his life." [9]

In his opinion the process of transculturation in Cuba happened in parallel or after each other alongside it happening too fast; he explained different groups of people, with different cultures traveled in Cuba in a short time and this passage affected the original Cuban culture and also all other immigrant people's cultures.

"Everybody they were torn from their original social nuclei and their cultures destroyed, oppressed under the weight of the prevailing cultures here, like the sugarcane ground among the masses of the trapiches. And still more immigrant cultures, in waves sporadic or in continuous springs, always flowing and influential and

of the most various oriundeces: continental Indians, Jews, Lusitanians, Anglo-Saxons, French, Americans and even Mongoloid yellows from Macao, Canton and other regions of which Celeste was Empire And each immigrant as an uprooted from his native land in double trance of mismatch and readjustment, deculturation³ or exculturation⁴ and acculturation⁵ or inculturation⁶, and finally, of transculturation synthesis.” [9]

3 DECULTURATION: The process where aspects of one culture are lost after contact with another one. "Deculturation often occurs after a western culture is started in an area of another culture." [10]

4 Exculturate: the opposite of “inculturate”, it means to make culturally alien or irrelevant. (John J. Reilly, 2005)

5 Acculturation: The learning of the ideas, values, conventions, and behavior that characterize a social group. Acculturation is also used to describe the results of contact between two or more different cultures; a new, composite culture emerges, in which some existing cultural features are combined, some are lost, and new features are generated. Usually one culture is dominant (as in the case of colonization). [11]

Historically speaking, acculturation is a direct change of one's culture through dominance over another's culture through either military or political conquest. Also "the adoption and assimilation of an alien culture," 1880, from ad- "to" + culture (n.) + -ation. [12]

6 The gradual acquisition of the characteristics and norms of a culture or group by a person, another culture, etc. [12] In Christianity, inculturation is the adaptation of the way Church teachings are presented to non-Christian cultures and, in turn, the influence

It is clear that, not always the process of transculturation is in the positive way. Most of the times, connection of two or more cultures and their interaction is dependant on the balance of their equality, if one is more dominant; it's going to be more present in the result of transition and transformation. This can be happen in different contexts and situations.

If these Indies of America were a New World for the European peoples, Europe was the New World for the American peoples. They were two worlds that reciprocally were discovered and clashed. The contact of the two cultures was terrible. One of them perished, almost completely, as if struck down. Failed transculturation for the indigenous, while radical and cruel for the upstarts. Indian human sedimentation of the society was destroyed in Cuba and we had to bring and transmigrate all their new population, thus the class of the new dominators as well as the new dominated. [...]
With force, all of their people and cultures, all exogenous and all torn, with the trauma of the original uprooting and its rude transplantation, to a new culture in creation.
(Ortiz) [9]

We can see so many examples of what he called “failed transculturation” in the history and colonization time, where Indigenous Peoples in different ways were forced to abandon their own tribal political and cultural identities, opposed to post-colonization time where they are invited to do that and hopefully they are not forced anymore by the military.

of those cultures on the evolution of these teachings. This is a term that is *generally used by Roman Catholics, the World Council of Churches and some Protestants.* [14]

We can also see some (failed or successful) transculturation examples in our daily life around us. The acquisition of other cultures elements within our cultures and the society we live in can be found in music, languages, the way we dress and other cultural elements. On one side this can happen from contact between people and interaction between them, which is much easier and possible today, because of the easiness of travelling (for those who have passports and visas) in one hand, and in another hand the immigration of so many people because of economical, social and or political problems, makes different societies living next to each other (multiculturality), interact between them (interculturality) and by passing time some cultural transitions and transformations happen. Through this process transculturation can make acquisition or loss of cultural elements and finally this process can lead to the creation of new cultures (transculturation, neoculturation⁷).

In the other side we are living in the "digital age" through Internet and (social) networks and many other digital platforms. Therefore, it is much easier to have contact, to share general information and to share cultural elements much faster (e.g. music, text and etc.).

In the meantime, the history of globalization (in this case cultural globalization) and the roll of governments should be considered.

After Fernando Oritz's neology and explanation, in general, the concept of transculturality has been studied in several researches and articles during 90s until today,

⁷ Neoculturation means the creation of new cultural phenomena as a result of the intermingling of separate cultures, especially as a result of transculturation. (Ortiz had used also this term in his book).

especially in the field of anthropology, sociology and philosophy, which give's us a strong structure and knowledge in these fields.

Meanwhile, the complexity and transculturality of Cuba is visible in Cuban music, which includes elements of different musical cultures from Latin America to Spain and Africa. However, it is not subject of this discussion.

As a matter of fact, transculturality itself is the result of a systematic further development of the concepts of multiculturalism and in particular of interculturality as a symptom of "a changing perception of culture" (Eckerth/Wendt 2003b, 9) [15]

Multicultural, Intercultural and Transcultural Music

The definitions of terminologies are clear enough; therefore, I would like to enlighten meaning of Multicultural Music, Intercultural Music and Transcultural Music. Following this, I will talk about how this can be found in the music and how these processes are applicable in electroacoustic music.

By the term "Multicultural Music" I talk about music that contains multiplied musical cultures, and therefore contains material or elements of two or more different musical cultures together or related to each other.

For example, this could be an ensemble with combination of Arabian, Indian, Persian and western instruments together.

"Intercultural Music" (interculturality process in music) is the interaction and dialogue of two or more different musical cultures, elements and or instruments. Such as a duet of Indian Bansuri and Iraqi Djoze playing together and having some questions and answers (dialogues) with elements of their own musical cultures, this can be an example of interculturality between Arabian and Indian music.

"Transcultural Music" is the music created by some transcultural processes in its composition and also it is the combination of two or more musical cultures. These combinations create a new musical result with original elements of their own

music/instruments. These elements involve, equal or not, all musical cultures participating actively and likely includes some transition and transformation between them.

It is essential to use these terminologies in opuses, however, on the another hand, many misunderstandings and misuse accrues in political, cultural and educational aspects and as a superficial logo.

There is an increasing usage of these terms these days, as well in music, and sometimes these terms are used in the wrong places, as there are so many misunderstandings around it. From another side the interested of some institutions and their politics to use of these terms especially in the cultural and educational aspects can cause the terms and terminologies to appear more, but more superficially be used.

In the next parts, I would like to describe some of my music compositions and the methods I have used to combine different musical cultures together. I would also give some music examples from other composers who had worked with elements and instruments of different music (culture) in their electroacoustic compositions. In this thesis, I will focus on traditional music from the Middle East and more precisely Persian traditional music rather than all other cases (e.g. Electroacoustic music in China, Korea, India and etc.)

For better understanding, of the subject, I think it is necessary to add some basic information about Iran and also a short introduction about traditional Persian music.

Chapter 2

Persian traditional music

Geographical overview of Iran

Iran is the second-largest country in the Middle East and the 17th-largest in the world. Iran is bordered to the northwest by Armenia and the Republic of Azerbaijan, to the north by the Caspian Sea, to the northeast by Turkmenistan, to the east by Afghanistan and Pakistan, to the south by the Persian Gulf and the Gulf of Oman, and to the west by Turkey and Iraq.

Tehran is the country's capital and largest city, as well as its leading economic and cultural center.



Figure 4: Map of the Middle East.

Iran has 31 provinces (see the map below) with a mix of different ethnic people.

Because of its geographical location and also its long history has varied cultures inside. These differences are reflected in the music, languages, food, clothes, religion, beliefs and lifestyle of people.

Personally I have lived in different parts of Iran, meaning I have seen and experimented with the diversity of cultures in Iran. In fact, in my point of view, Iran is a multicultural country, which needs a special attention to its diversity of cultures and minority ethnic groups.



Figure 5: Map regions of Iran.

It is essential to know that the different regions and ethnic groups in Iran have their own folkloric & cultural music, which is entirely different urban music (Persian classical music).

In Iran there are 7 main ethnoses: Arab, Lor, Azeri, Kurd, Turkmen, Baluch, and Fars (or Pars, Persia in Greek sources).

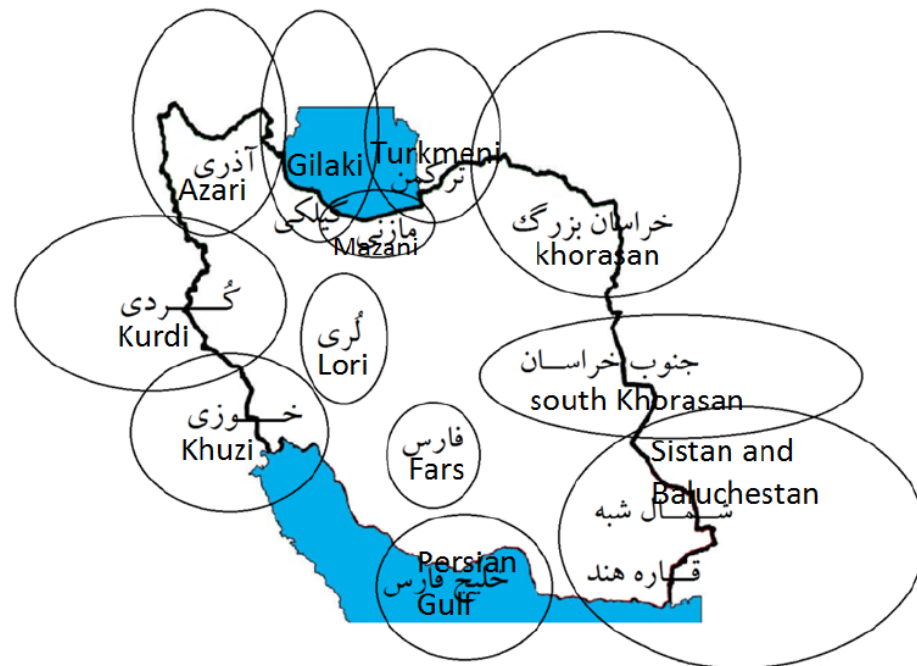


Figure 6: Map of main regional music in Iran (from Dr. M.R Azadehfar paper). [16]

An introduction to Persian music

In following paragraphs will enlighten some basic background knowledge of Persian music that is relevant to the topic.

Forms in Persian music

Persian music is often divided into urban music (music of the big cities) and ethnic music (the music of the different ethnic groups that live in smaller towns, villages and mountain areas). [17] Ethnic music has been passed down orally and is closer to the ancient traditions: both use the same intervals and ways are based largely on improvisation. In urban music there are three instrumental forms, Pishdaramad (overture), Chaharmezrab (four plectra) and Reng (dance), and a vocal form called a

Tasnif (ballad). The Pishdaramad was invented by a master of the Tar, Darvish Khan, and used as a prelude to a Daramad (opening, intro). The Pishdaramad, which is the opening section of a Dastgah, can be in 2, 3 or 4 parts and its melody comes from Gusheh, which are important traditional melodies.

The Chaharmezrab is a solo piece with a fast tempo and usually is based on the melody that has preceded it. The third form is the instrumental Reng, a simple dance generally played in concluding the Dastgah. The vocal form, the Tasnif, has a similar structure to Pishdaramad and usually precedes the Reng. Persian music is mainly in unison, in which the instruments of the ensemble are playing the melodic pattern and is heavily based on improvisation.

Rhythm

For considering and studying the rhythmic aspect of Persian music one must take into account the pattern and the rhythmic structures of poetry and music written and improvised in Persia. From the standpoint of rhythmic music, it includes songs from the Persian urban free rhythm, the Avaz, or rhythmic songs typically in 2/4 or 4/4, 6/8. By contrast, 5/8, 7/8 and 16/8 are more frequently found in ethnic music. [18]

Persian Intervals

Throughout the twentieth century, there has been three separate theories on intervals of Persian music have been proposed. [17]

The system most widely used by musicians had been proposed by the master Ali Naqi Vaziri (1886-1981) [17] whereby, in analogy with the tempered Western system, the octave is divided into 24 quarters of tone, instead of 12 semitones. As Farhat said, "Vaziri's quarter-tone theory, which is arrived at by way of a further division of the

western equidistant 12-tone chromatic scale, is entirely irrelevant to Persian music. It's an artificial creation devised to make possible the adoption of a kind of harmonic practice based on western tonal harmony". [21] This way of scaling can give some advance in possibility of polyphony and simplifying the tuning. For quartertone notations Vaziri had invented two symbols that have become standard in the notation of Persian music. Those are defined as: Sori (♯), which means 1 quartertone up and Koron (p), which means 1 quartertone down.

Mehdi Barkeshli, an important contemporary figure in Persian music, had found a 22-tones scale within his research and analysis of traditional Persian songs in different modes. His research was based on the theories of medieval writers, particularly those of Abu-Nasr Farabi and Safiaddin Ormavi. He has proposed the division of octave to 22-tones. [17]

Hermoz Farhat had proposed an alternative notation using different intervals [17], including

Semitone or minor 2nd (m) ca. 90 cents.

Small neutral tone (n) ca. 135 cents.

Large neutral tone (N) ca. 160 cents.

Whole-tone or major 2nd (M) ca. 204 cents.

Plus-tone (P) ca. 270 cents.

The Dastgah system (organization)

The Dastgah is a modal system of traditional Persian music. A Dastgah is a melodic figure base with which the performer composes their pieces extemporaneously. The term Dastgah is often compared to the musical modes of Western tradition, although this is not the correct meaning of the term. We can describe it in this way: the

Dastgah is the name of the initial mode of a piece of music and the song which comes back again and again, but mostly it is the name of a group of modes grouped according to tradition. Thus, the Dastgah defines both the name of a group of modes and the name of the initial mode of a piece of music. The etymology of the word comes from Dastgah: "The position (gah) Hand (dast) on the neck of the instrument." The term Dastgah represents a system, and is therefore a set of discrete elements, heterogeneously arranged from a hierarchy - coherent but still flexible. Although there are more than 50 modal systems, most theory is concerned with the 12 Dastgah:

- Dastgah-e Shur
- Avaz-e Abuu Ata
- Avaz-e Bayat-e Tork
- Avaz-e Afshari
- Avaz-e Dashti
- Dastgah-e Homayun
- Avaz-e Bayat-e Esfahan
- Dastgah-e Segah
- Dastgah-e Chahargah
- Dastgah-e Mahur
- Dastgah-e Rast Panjgah
- Dastgah-e Nava [17,19,20]

In conventional classifications, Abu-ata, Dashti, Afshari and Bayat-e-tork are considered subclasses of Dastgah Shur. Even the Bayat-and-Esfahan is defined as a subclass of Homayun, thus reducing the number of main dastgah to a total of 7.

According to Aliyeghi Vaziri, the behavior of the Dastgah Rast Panjgah is similar to Mahur (Mahoor), and the Nava Dastgah's behavior and structure are similar

to Shur, which means that Dastgah can be classified into five main families. [17, 21] Bruno Nettle approved this theory with the same view. [22] And Jean-During, though he believes in six or seven Dastgah, quotes Rouholh Khaliqi as saying that he also made five major (main) scale (modes) for the Dastgahs. [21] On the other hand, Dariush Talai in his research concludes that by breaking each Dastgah into two tetrachords, all the structures of the Iranian modal (Dastgah) music can be categorized by using only four tetrachords (Shur, Chahargah, Mahoor, and Nava/Dashti). [23] Mohammad Reza Lotfi also knows the identity of each Dastgah in its first tetrachords, and he has written that the first part (tetrachord, (in Persian: dang) of each Dastgah is unalterable because by changing It, it changes the nature of the Dastgah. [24]

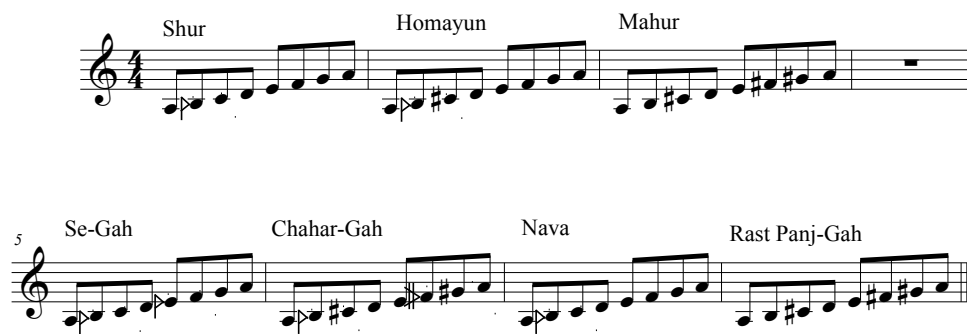


Figure 7: seven Dastgah, scale comparison from note A.

The subclasses are conventionally called "Avaz". Each Dastgah possesses a tonal center called a Shahed. Each Dastgah has a number of derivatives called Gousheh.

The performance in each Dastgah begins with a section called Daramad (Opening) followed by modulations to other modes, the Gusheh, during which the Shahed gradually moves upward. The performance ends with a sentence that leads cadence called Forud the initial mode of Dastgah. [17,21]

These are the sequences of intervals comprising the Dastgah⁸:

| Dastgah | Second | Third | Fourth | Fifth | Sixth | Seventh | Octave |
|--------------------|---------|-------|--------|-------|-------|---------|--------|
| Shur/Nava | 3/4tone | 1.5 | 2.5 | 3.5 | 4 | 5 | 6 |
| Homayun | 3/4 | 2 | 2.5 | 3.5 | 4 | 5 | 6 |
| Mahur/Rastpanjgah | 1 | 2 | 2.5 | 3.5 | 4.5 | 5.5 | 6 |
| Segah ⁹ | 3/4 | 1.5 | 2.5 | 3 1/4 | 4 | 5 | 6 |
| Chahrgah | 3/4 | 2 | 2.5 | 3.5 | 4 1/4 | 5.5 | 6 |

Table 1: Dastgah intervals comparison.

Radif (row, series)

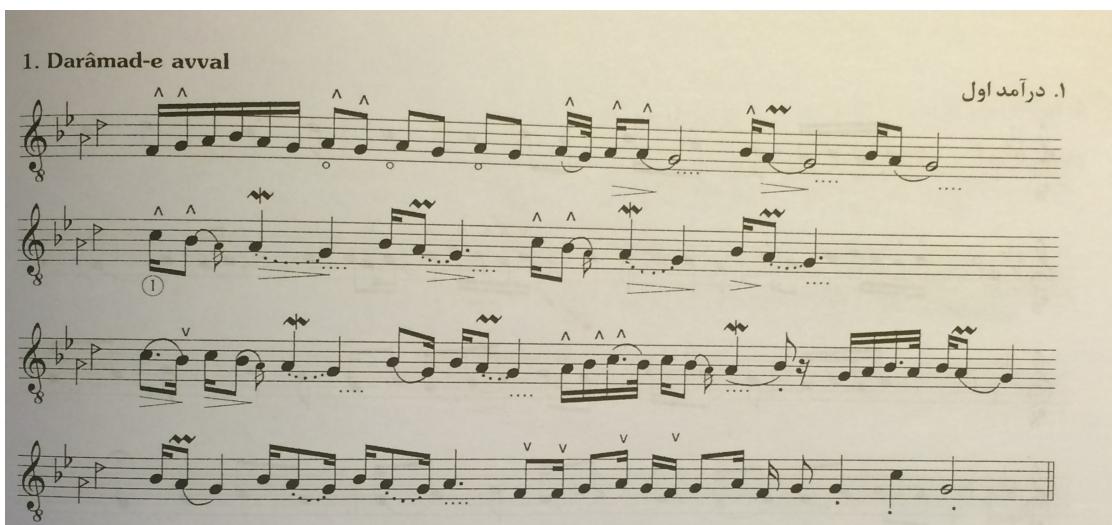
“The Radif is the principal emblem and the heart of Persian music. A form of art as quintessentially Persian as that nation's fine carpet and exquisite miniature” (Nettl, 1987). [26]

The Radif (meaning “order” in Persian) is a collection of melodic figures, broken down by the Dastgah, and passed down orally. Over the course of generations, the personal interpretation of each teacher has created new melodies that were added to this collection. The conservation of these melodies depends mostly on memory and mastery of each successive generation. For accurate learning and absorbing of the essence of Radif requires several years of practice and repetition; a master should internalize the Radif to the point of being able to perform any part at any time. A

⁸ Please consider that in Persian modes (which is different from the tonal system), each mode can have changeable tones that appear in two different forms (interval), e.g. D and D#. When there is such a regularly fluctuating tone, it is called Moteghayer (changeable). [25]

⁹ Segah is similar to Dastgah-e Shur (Avaz-e Afshari) with some differences such as in the 4th degree and in some of the changeable tone. Please be aware this mode normally starts from second degree.

Dastgah portrays a specific sonic space and can hold ten to thirty Gousheh (pieces, corner, section). The Gousheh of Dastgah may have different scales (modes) contained in Dastgah. The Radif for Tar (an Iranian Instrument) is one of the most famous collections of Radif, a collection of ancient melodies that includes 20 to 40 Gousheh per Dastgah. The Radif Mirza Hossien Gholi and Mirza Abdollah are the oldest Radif still in use. The Radif consists essentially of parts not measured (free time/tempo) that provide a generative model or pattern for the creation of new compositions from the measured time, although for free improvisation. The Radif is a musical treasure of great wealth, of which the study of each can be approached from different angles: the theory, practice, education and cultural sociology.



Example 1: Dastgah-e Shur, Goshe-e Daramade-e aval, from Radif Of Mirza Abodllah. (Jean During, The Radif Of Miraza Abdollah For Tar)

Persian musical instruments can be broadly classified into three categories: classical, Western and folk. Most of Persian musical instruments spread in the former Persian Empires states all over the Middle East, Caucasus, Central Asia and through adaptation, relations, and trade, in Europe and far regions of Asia. In ancient era, the Silk Road had an effective role in this distribution.

In the next part this article going to introduce Santur, one of classical Persian instruments that I have used in the several pieces.

A brief history of Santur

Santur (or Santoor, Sadouri, Santour) is a hammered dulcimer or struck zither expanded throughout Middle East, East Asia and instruments from the same family are even found in Eastern Europe.

It is used in a variety of music from Iran, Iraq, India, Kashmir, Turkey, Greece, Armenia, China and Tibet.

It is believed that this instrument has originated in Persia. Santur's origin goes a long way back until the ancient Babylonian (1600 – 911 BCE) and neo-Assyrian (911 – 612 BCE) eras, and is understood from the iconographical documents of those eras that it was a kind of harp carried horizontally and struck with two sticks like it is today. In the Hebrew Bible (old Testament), the Santur is cited among the instruments in the orchestra of Nebuchadnezzar, King of Chaldea. Historical references continue and it is interesting that Egyptians note its distinction from Qanun in the 16th century. [26]

The Santur appears clearly for the first time in *Moruj Al-Zahab*, a history book written by Abol Hassan Ali Ibn Hussein Masudi (X century), which mentions the Persian Santur in and about the music and its various instrument during the Sassanid Empire. Then, we see other references to this instrument in the poems, books etc. Since the 19th century the Santur has appeared in the shape that we know it today.

This instrument was traded and traveled to different parts of the Middle East and where each country customized and designed their own versions and adapted the instrument to their musical scales and tunings. The original Santur was made with tree bark, stones and stringed with goat intestines. The Mesopotamian Santur is also the

father of the harp, the Chinese Yangqin (Yang Quin), the harpsichord, the Qanun, the cimbalom and the American and European hammered dulcimers. [27]

This instrument with small differences in shape and name appears in various geographic areas. In India it is called Santoor, in China Yang Quin, in Greece Santuri, in Italy Saltario, in Germany Hackbrett and etc.

The term Santur originally meant “100 strings”. [28]



Photo 1: Persian Santur, classic model with 9 bridges (kharak)



Photo 2: Persian Santur with double line bridge.

Tuning of Santur

A Santur with 9 bridges (the most common Santur in Iran) has 72 strings, each with its own pin and key tuning. The Santur has an extension of one note more the three octaves (E3 F6).



Figure 8: The rang of Santur with 9 bridge

Each musical note is given by a bundle of strings tuned to the same pitch; each bundle of strings rests on its own bridge (Kharak). The Santur with two rows of nine Kharak (18 bridges in total) is referred to as "Santur nine Kharak". The Santur is tuned using a special key, and its tuning, presents difficulties similar to tuning a piano. Compared to other Persian instruments Santur has some limitations and it is not possible to play all of the Persian modes without retuning it. In some cases the musician changes the position of Kharak to tune the strings. [29]



Photo 3: The right side of Persian Santur, with the keys tuning.



Photo 4: The life side of Persian Santur, with the pins.

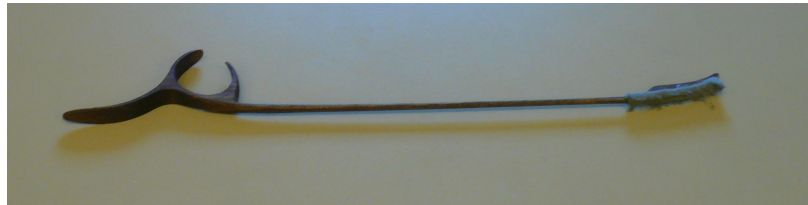


Photo 5: Mezrab (Santur's stick).

Local and Global Electronic Music

Later while I was working on the third part of “Unknown” project, which became "Return" (for Santur, Saxophone, and Electronics), I asked myself the question: Could this be considered "Persian Electronic Music"? I.e. is it Persian music realized through electroacoustic techniques or is it electronic music with various sound objects, in particular a Persian instrument? This question inspired me to think about the idea of “global and local electroacoustic music. [30]

Sometimes I have traditional instruments play melodic material that definitely evokes the Persian tradition and its atmosphere. I call this Local Electronic Music: The material draws from a precise tradition. At other times I approach the instruments from

a purely timbric point of view, without any intention to make geographical or cultural references (Global Electronic Music).

In my opinion the role of the electronics is very important to connect and unify the instruments and/or musical cultures. [30]

Global electronic music on the other hand could still make use of traditional instruments and timbres, but it would not be utilized to evoke cultural connotations and would not contain any geographical or cultural references. [30]

By adding the local and global electronic music term, we give an importance/attention to the sound source and its geographical and cultural roots, and in this way can listen and analyse electroacoustic music which contains elements of other musical culture to find which elements come from which place and how those are used in the music compositions.

In the field of electronic music, we are already able to find lines of domestic production (membership of a particular school and or environment): e.g. electroacoustic music of India, China or Latin America; and after some electronic music festivals, I was able to identify styles of composition related to specific countries, just as it was possible to distinguish the French school from the German and Italian in the past.

Chapter 3

The analyses of the different opus of other composers

Questions and some strategies

In this chapter I have looked deeper some of the pieces of different composers, who have worked with traditional music of other cultures (mostly Middle-Eastern) in their electroacoustic music compositions.

There are many important points that need to consider within this chapter with more attention and also many questions, of which appeared in my research for the preparation of this chapter. (Some of questions are similar to John Roeder questions in introduction of the book “Analytical And Cross-Cultural Studies In World Music”) [31]

Which characteristics of musical cultures (parameters) arise from particular parts of the composition, or appear in various shapes or method in a particular sound in the composition?

Which role has the traditional music/instrument in their composition? For which propose and idea has this been used?

What is the relation of possibility and limitation of the interaction between these two (or more) different musical cultures to each other?

Are they having an expansion and development or do they contracted and conflict (friction)?

How has the composer dealt with different aspects of these musical cultures that he/she is working with? How are their similarities and diversities are treated, used or not used in the music compositions? (For this we can also look to “Bannett scale”¹⁰)

How does the organization of rhythm, melody (intervals) and harmony (or spectrum) and all parameters, relate to one of these musical styles?

How does the performance (or music) bring (shows, uses) specific properties of its local material and how it is related or not related to the social activity and society its coming from?

¹⁰ “Bennett scale” was developed by Dr. Milton Bennett. The framework describes the different ways in which people can react to cultural differences. Developmental Model of Intercultural Sensitivity:

1. Denial of Difference.
2. Defense against Difference.
3. Minimization of Difference.
4. Acceptance of Difference.
5. Adaptation to Difference.
6. Integration of Difference.

How are the musicians (if there is any) participating and how the composition and its process are related to the practical and cultural aspects of their music? How the musicians can find themselves and their social and personal identities in the performance?

Finally, by highlighting the answer of some of these questions and by listening and analyzing these works we could realize that:

What are the intercultural and transcultural processes in their music and what is the result, regarding to our terminologies (e.g. multicultural, intercultural, transcultural, global and local electronic music).

And at the end, by comparing some pieces we can see:

How we can reach a more complication of transcultural process in the contemporary and electroacoustic music alongside what the role of our cultural background and personal identity is within this processes.

Certainly, the availability and access to more information and documentation about the opuses (such as program note, articles, and interviews) can help to have a better understanding of the composer's views.

I tried to have find works of different composers with different nationality and cultures background to have a extensive viewpoint, although there is not considerable repertory of transcultural electroacoustic music yet. However there are some other composers and opuses that I couldn't mention all in this research.

So many modern and contemporary composers had interests to study and work with elements of traditional world music (e.g. African music, Indian music and etc.)

I believe that for deeper understanding of these subjects it is important to listen to the opuses mentioned below, all of which are available in some online streaming services (e.g. Spotify) and/or in some (online) shops.

Analysis

Iranian pioneers of Electronic Music:

Alireza Mashayekhi

It is compulsory to introduce two influential Iranian pioneers of electroacoustic music. The first, Alireza Mashayekhi (born 1940), He composed many pieces that are concerned with multicultural music. For instance, his piece Shur Op. 15 composed in 1966 at the Sonology Institute at the University of Utrecht was published on the vinyl “Electronic Panorama” in 1970, along with some of the most renowned, international pioneers of electronic music. The way the composer applied the elements of Persian traditional music through electroacoustic techniques and the dialog (contrast) of these elements and the noise material is very remarkable.

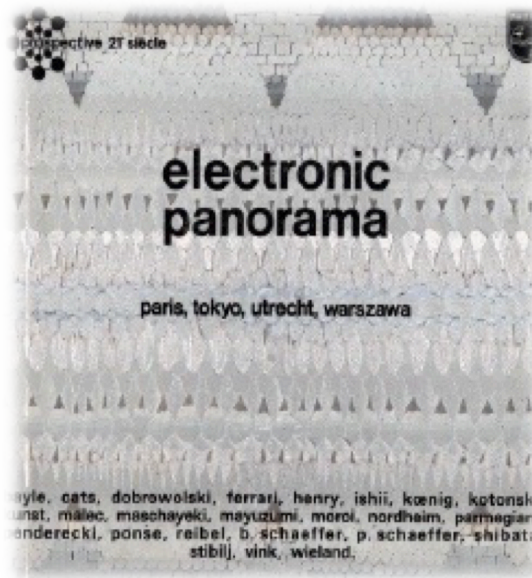


Photo 6: Album, Various – Electronic Panorama: Paris, Tokyo, Utrecht, Warszawa, Published by Philips.

The root of Persian music is entirely visible in this piece and prevalent compared to the material, western instruments and techniques.

The goal of this piece is to evoke the atmosphere of Persian music in his composition. In fact, it is “Electronic music” with some elements of Persian music or as he explained himself “Electronic music influenced by Persian music”.

In the meantime, in this piece, some melodies derived from a Persian mode (Daramad in Dastgah-e Shur) are played by a Violin and modulated and transformed through electronic techniques designed to greatly modify the timbre (from melody to sound).

In the piece there is a dialogue between the acoustic sound (part) and the electronic part; the piece begins by presenting a melodic material that turns into sound and noises.

The form is comparable to the form of Western music, especially the theme and variations. Apart from beginning and the end of piece (intro & outro), in which we hear and recognize the Persian melody (intervals and mood), the middle part that has several parts, that frequently variation of noises and there is no recognizable material from Persian music, I would consider this opus as a Global Electronic Music, as the main focus in this opus is not the Persian music element or instrument, and the composer and the opus is more inspired by an element of Persian music (a melody) which is not so obvious.

*“Multiculturalism is not often taken into consideration because of nationalistic attitudes
"You can look at the world from a national perspective, but you can lose yourself in a
multicultural world remaining tied to nationalistic identity. Although the national
identity influences personal identity, both are not necessarily the same. " (Alireza
Mashayekhi)[32]*

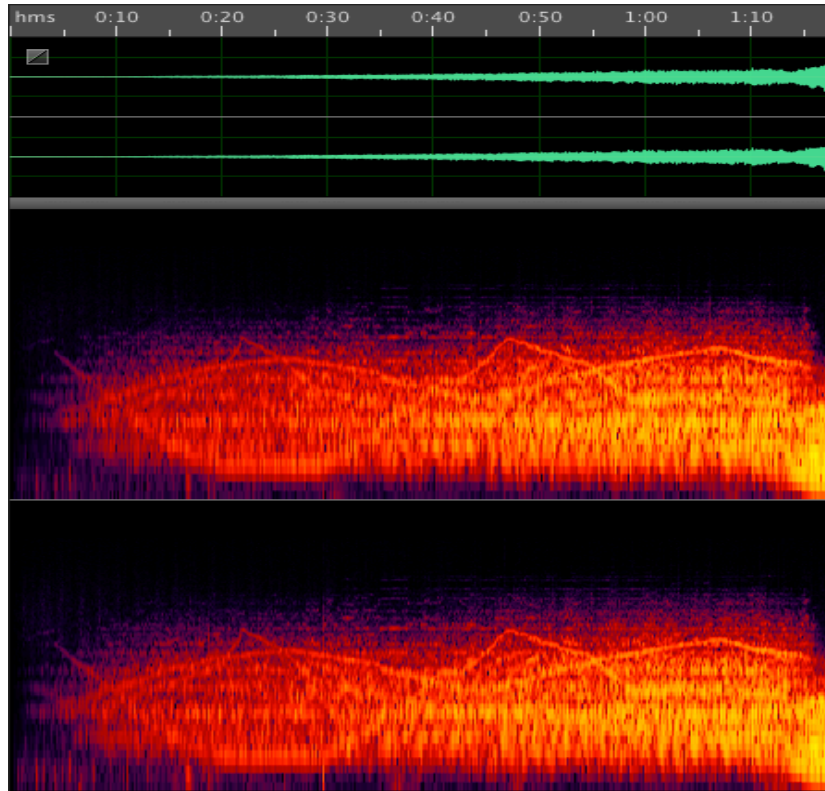


Figure 9: Spectrum Analysis (FFT), beginning of “Shur” first part.

Instead of his other pieces, “Chahrgah” (Saba Op.75) composed on 1979 (published in the disk “Persian Electronic Music Yesterday and Today 1966-2006” by Sub Rosa)¹¹, the violinist reacts by improvising on a predetermined form accompanied by the computer that plays random notes chosen between intervals of the Dastgah Chahargah. Here it is evident that the atmosphere of the music was used as sound material in particular in Dastgah-e "Chahrgah", Gushe "Mansuri" and also the rhythmic figure "Kereshme" and "Baste Negar" are very present. [33] In the piece we hear the synthesized sound playing Persian interval, in the very beginning, with short notes (staccato) and with more pauses, after this part add another layer with different duration (longer notes), and step by step the simple synthesizer's sound changes to the more

¹¹ It's available on <https://open.spotify.com/album/4kGAYnkzw1ufLbxzgGZEmk>

complex spectrum (derived from some modulations) with some slow variations of timbre.

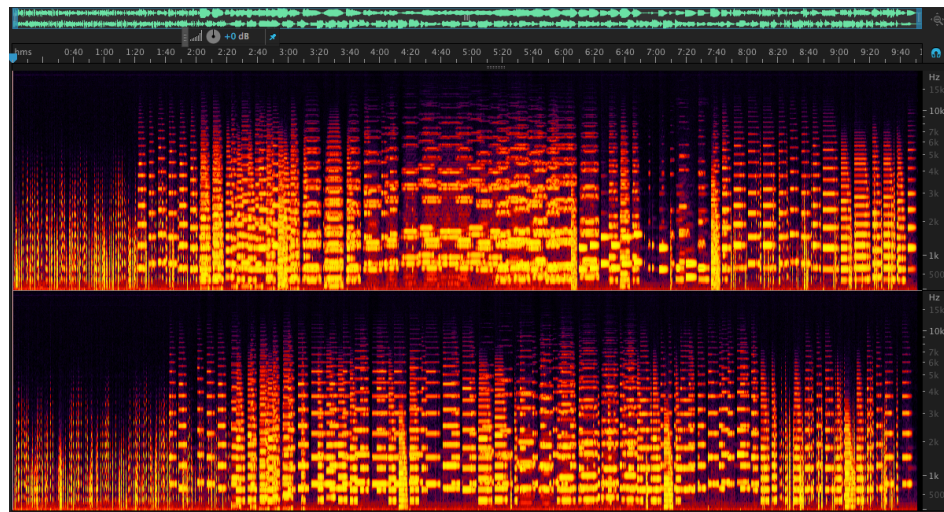


Figure 7: Spectrum Analysis (FFT) of the piece “Chahargah (Saba) Op.75” composed by Alireza Mashayekhi

Here, the interaction between the violinist and computer is evident, so we could consider the computer and Violin as a western (musical) instruments, and the Persian Dastgah (mode) and Persian interval as coming from another musical culture. In my opinion we can mark this opus as “intercultural music”, because there is also an interaction between these two different cultures.

I think even if the composer is utilizing the computer music techniques and has some Globality aspects of electronic music, as the notes played by computer and instrument are evoking completely the Persian music (Dastgah), its interval and atmosphere, this clearly shows some aspects of “Local Electronic Music”. Meanwhile, Mithra op. 90 is another instance piece by Alireza mashayekhi (in the same album) where the Persian intervals and melodies are totally present there, and having a principal role in the composition.

These might be some examples of Radif in computer music, which is an interesting subject, related to this thesis.

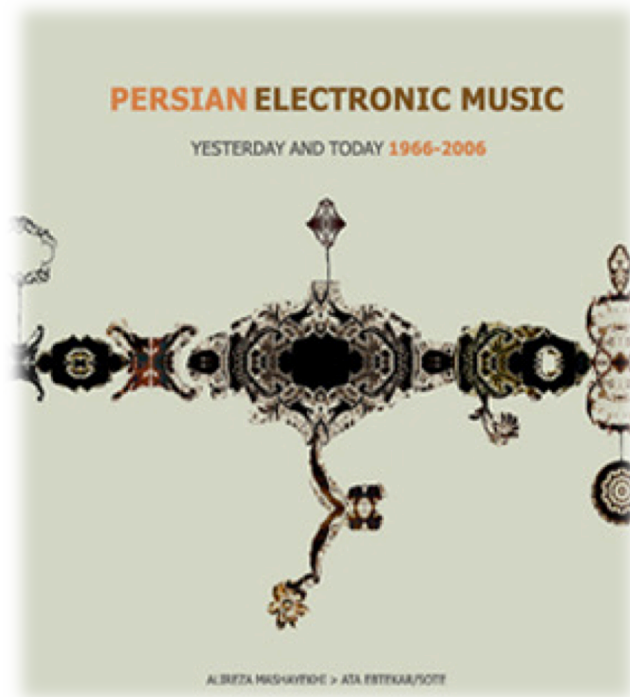


Photo 7: “Persian Electronic Music: Yesterday and Today 1966 – 2006” Album by Alireza Mashayekhi and Ata Ebtekar, Published by Sub Rosa.

In the published disk “Persian Electronic Music Yesterday and Today 1966-2006” there are also some interesting opus from Ata Ebtekar, a German/Iranian composer who had worked with elements of Persian music in Electronic music, as he said he is said to have had an interest to “generate music without a specific culture”, (i.e. acculturation) which is a different point of view from Mashayekhi’s opus. Nevertheless, we can see some elements of Persian music (e.g. tuning) in his works on this published CD “Persian Electronic Music”.

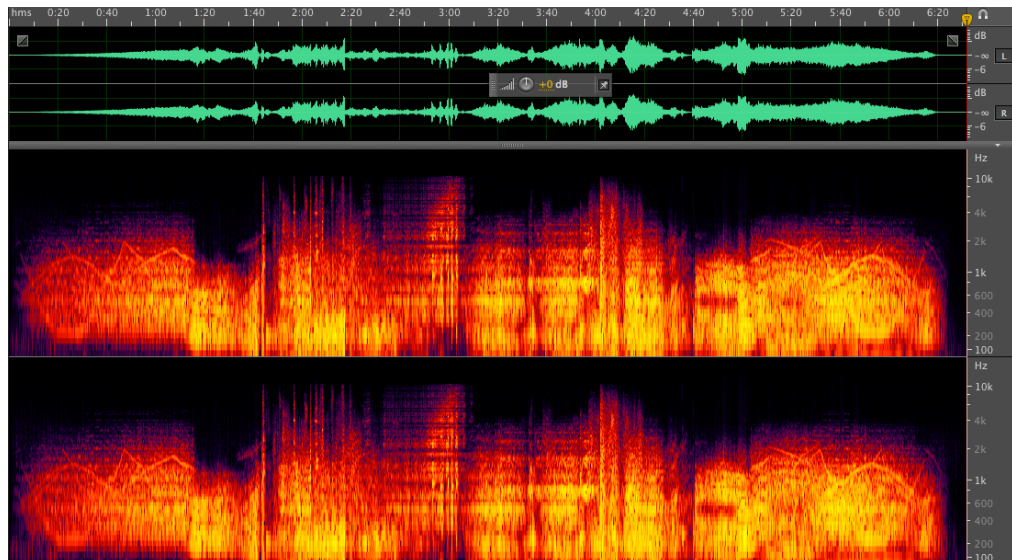


Figure 11: Spectrum Analysis of the opus “Shur” by Alireza Mashayekhi, the whole piece.

Dariush Dolat-Shahi

The other pioneer of Persian Electronic Music, Dariush Dolat-Shahi (born 1947), composed very interesting Electronic music pieces in the mid-1980’s. The combination of Persian traditional instrument (Tar and Setar/Sehtar), synthesizers and recorded sounds (mostly landscapes) in his works evoke clearly geographical and cultural references, alongside adding some aspects of Local Electronic Music.

The combination and balances between instruments sounds (Tar & Setar), Synthesized sound and landscapes sounds, with focus on melody and rhythmic pattern creates a unique landscape, within which we can listen to so much crossing between material, different elements and sounds in his pieces, alongside overlapping the synthesized pattern with a solo Tar improvisation in Persian Dastgah. For example in the piece “Sama” (from the album “ELECTRONIC MUSIC FOR TAR AND SETAR” released on 1985), We can see some overlapping and togetherness between these different musical elements. By processing instrument sounds such as filtering and transpositions alongside combinations between different materials he creates a kind of

musical language, so that perhaps it has some discursive aspects or storied with some mythical elements. As we can see this also in the titles of opuses on this album where the words come from pure Persian language and used in some Persian classical poems , Sama (sky, a kind of dance in sufism), Shabistan (bedchamber, seraglio), Hur (sun), Zahab (drainage), and Razm (battle).

The rhythmic, figurative or melodic patterns of Persian music comes from his practice and knowledge of this music, whereas some repetition, loops, sequenced sounds, transpositions and signal processing on the instruments comes from his practice of electronic music, and the dialogue and crossing between these two different musical cultures clearly has some aspects of interculturality in the music.

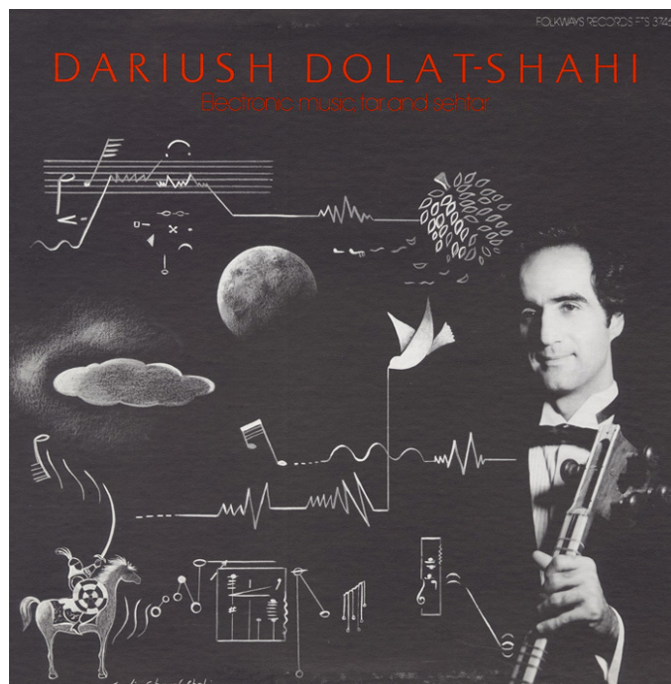


Photo 8: ELECTRONIC MUSIC FOR TAR AND SETAR by Dariush Dolatshahi (2004 Smithsonian Folkways Recordings / 1985 Folkways Records)¹²

¹² It's available on <https://open.spotify.com/album/4QzftfEWakELtyTU51ShrO>

Ivan Alexandrovich Tcherepnin, Santur Live! (1977)

Ivan Tcherepnin (1943-1998) was born in Paris in France. He was born into a musical family, his father and grandfather, Alexander and Nikolai, being distinguished Russian composers, and his mother Lee Ming a well-known pianist. His elder brother, Serge is also a composer. [34]



Photo 9: Ivan Tcherepnin's set up. [34]

Santur Live!¹³ Is a collection of eight scenes from Ivan Tcherepnin's Santur Opera composed in 1977 and released with some of other his compositions in 1995. [35]

It is an opera for solo Santur and electronics. The Santur's sounds come modified by electronic circuits (e.g. Serge synthesizer) most of the time. The scale on the Santur was created by the composer and "each scene has its own unique permutation of acoustic and electronic sound, each scene uses different modes and each, within its own structural and motivic boundaries, is improvised a new at every performance." (As said by Deborah Eve Kodiac, in the album notes)

¹³ Published by Composers Recordings Inc. (CRI) label on 1995. It's available on Spotify, discogs and on other platforms and shops. <https://open.spotify.com/search/results/Santur%20Live!%20>

Santur Live! (1977-1995) Scenes From Santur Opera (27:24):

1-Overture: The Situation In The Land (3:58)

2-Tentatives II (2:09)

3-The Call Of The Lunar Feline (2:26)

4-Night Idyll (6:47)

5-Dream Filterings I (1:32)

6-Dream Filterings II (1:22)

7-The Army And The Chase (3:29)

8-Heralder Of Good Tidings (3:21)

In first track “Overture: The Situation in the Land”, and the third track “The Call of the Lunar Feline”, use mostly Electronic music (sounds), and the synthesizer is controlled by Santur. In fact, it is not possible to hear any material from Persian music and Santur and in this piece (in Overture: The Situation in the Land) the strength of the hammer strikes control the pitch and timbre of the sub-harmonic pitches and melodies. (Recorded: California Institute of the Arts, Valencia, 1980). And in “The Call of the Lunar Feline” we listen more to the oscillators, which is manually controlled on the synthesizer to create slides around the sub-harmonic degrees introduced in the Situation in the Land. (Festival d'Automne, Paris, 1980). [36]

However in “Night Idyll” and “Dream filtering” 1 and 2, it is possible to hear the Santurs original sounds modified and processed by filters, in this case, the shape and nature of Santur’s sound is changed (i.e. long release and sound resonances).

In “Night Idyll”, “The Santur's sound is altered by sweeping filters and varying pulsations, suggesting the languorous activities of the night.” (Massachusetts College of Art, Boston, 1978). [36]

In Dream Filtering 1: “As in a dream, the imagined voice of the Santur is filtered further and further from its origin, increasing to a maximum sensitivity and rapidity the pulsing circuitry used in Tentative Attempts to Set Things Right.” (10 Langton Street, San Francisco, 1980). And in Dream Filterings 2: “The dream, re-dreamed through digital technology. Here, the Santur's voice spirals even further away from its origin, as its hammer strikes - control digital samples of itself, triggered with a MIDI interface connected to the Santur and the Serge.” (New Music Circle, Saint Louis, 1994).

The seventh piece “The Army and the Chase” uses a completely transformed Santur sound where some noises from the instruments and electronics are significant (sampler, digital delay and Serge synthesizer). Here again it is very difficult to follow the original source sound, its tradition or geographical location as it has some aspects of Global Electronic Music, which can be arrived through strong and convincing uses of Electronics and more attention to technical aspects of (electronic) music than Santur as a Persian traditional instrument. The result is totally new with a dominance of Electronic music (as a western musical culture), which could demonstrate some transculturation processes.

It's pretty similar to the second piece “Tentative”, which is very short. Nevertheless, the Santur sound is more present and is interacting with the synthesizer, where the synthesizer pulses “according to where and how hard the hammers strike the strings.” (The Kitchen, New York, 1979).

In the last piece, “The Herald of good Tidings” is based in part on an Indian piece, while the analog delay creates a flanging effect and the voice of the Santur is continually going in and out of phase (Longy School, Cambridge, MA, 1977). There is an interaction between Santur's sounds (input) and the delay (output), but again the nature of the instrument and how it sounds is not the main focus. The melody line

creates some interesting electronic sounds, which accompaniments the instrument, and in a part of the piece the electronics react and play/sound more which creates a short accumulation and crescendo effect (ca. 2:40” – 03:00”) which in my opinion doesn’t develop much further. The flange effect in one hand is different, and we can hear it’s the transformed sound from Santur, but in another hand, it never goes to more transformation or reaction, it always stays as an effect on the instrument’s sound, , but it should consider that probably it was interesting electronic effect on that time.

Santur Opera awoke in 1994 to a strange world of people with PC's and MIDI devices. “Here was the challenge,” says Tcherepnin. “Could this technology breathe new life into the piece without destroying its identity?” What were the digital consequences of the analog originals? The Santur's sounds were sampled and frequency and amplitude sensing MIDI interface were added to the existing electronics, represented in this recording by 6. Dream Filtering 2 and 7. The Army and the Chase. Like the Hero and the Lunar Feline, *Santur Opera* has died and come back to life reinforced by new means, giving us structure, story, and sound with which to reorder our aural universe. (Deborah Eve Kodiak, from Cd’s booklet) [36]

One of interesting aspect of his works can be the live performance: Santur and live-electronics both performed by the composer, which is missed by listening to the recording, as he had performed this work several times, each time changing some Santur parts by improvising. Furthermore, the Electronic instruments (I.e. Serge Synthesizer) were developing and providing more possibilities.

The genesis of Santur Opera was the Santur itself, a Persian hammered dulcimer presented to Tcherepnin in 1972 by a visiting Iranian student. Tcherepnin, a pianist, confesses, “I have always loved to play things with hammers.” He sees the Santur as an instrument analogous to the piano. The timbres of both are produced by

hammers striking strings, and both are innately orchestral. “Each scale degree of the Santur sounds on four free-vibrating strings,” he explains, “and the resultant tone has a glowing, evolving quality—which lends itself well to electronic processing such as filtering, phasing, digital delay, gating, and various types of modulation (Deborah Eve Kodiak, from Cd’s booklet). [37]

Although the composer was very interested in the Santur instrument, It seems likely that his approaches of the composition are much more from western culture and then oriental culture or a transcultural approach, meaning the way he had used the instrument reminds me the “deculturation” in the music.

One of the important aspects of work with two or more musical cultures is the way that each part has contact to the (other) culture(s), how deep we go into it and how we live with it, for a better understanding of how this can affect the result. We could see the work of another European composer, Leo Kupper who has worked with the same instrument. However, this composer had very special approach with Persian music and culture.

Leo Kupper, *Electro-Acoustic Santur – for Santur, 2 microprocessors and electronic sounds (1989)*¹⁴

This Belgian composer and theoretician, Leo Küpper (1935) has composed several pieces for Santur (and Electronic sounds), alongside other composition he has done for electronic music, vocal and instrumental music, midi and computer music. In some of his works we can listen to his interest in working with different musical

¹⁴ Published by Pogus Record, it’s available on

<https://open.spotify.com/album/1rOY5f2Y9hlgfWEdJcS3oN>

cultures. He is also a fine performer on the Persian Santur - he studied with the famous Santur player Hossein Malek in Tehran. [37]

“Electro-Acoustic Santur” for Santur 2 microprocessors and electronic sounds, is in 3 parts (tracks). “Electro-Acoustic Santur” was composed in 1989 and was released with some of the other his compositions on a disk called Electro-Acoustic on 1996 by Pogus Records. Kyomars Peergalou played the Santur parts and Electronic parts made by the composer. [38] The parts are mostly improvised like in traditional music in Iran with some indications of the composer, and are recorded on the tape. [39]



Photo 10: Leo Kupper playing Santur, photo courtesy of Leo Kupper

Electroacoustic Santur 1 (duration 4:01“)

The electronic sound counterpoint appears in the very beginning after the first phrase of Santur and after the pause with a bass sound, which crossfades to a drone sound (electronic pad) under the Santur melody line, which continues until the end. He overlaps some different layers of Santur sounds which are a very interesting way to create a larger spectrum and polyphony. For example, at the end he keeps the trills

sound (Riz) played by Santur and the Santur player, then plays new notes and melodies on it, from which he creates another pad (similar to the electronic sounds) from it.

I would call this Persian Electronic Music, which has the Local Electronic Music aspects, because of the strong and direct use of Santur and Persian intervals (Dastgah-e Chahrgah). In some moments we listen to some other intervals, unfamiliar to Persian music (Dastgah), more chromatic and dissonant, which creates a new atmosphere (space) and doesn't stay always in the same mode. These changes are not so surprising and unrelated.

Electroacoustic Santur 2 (3:01“)

In the second track, he has similar point of view but he uses some new techniques and sounds.

The vibration and glissando sound from Santur are very remarkable and gives a new life to the instrument, He also use the vibrato in the electronic base sound.

The cloud of sound (drone sound) is similar to the first piece, but he adds some new layers of noisy/airy electronic sounds on it.

The Santur part has natural sounding and is very close to its own repertory and tradition, with a few new elements (i.e. the vibrato), which I find interesting and not disturbing at all.

Electroacoustic Santur 3 (6:14”)

The third part is composed with similarities to the other 2 parts, with similar Electronic sounds, which has very minimalistic changes. In this part, instead of the Bass sound that was present in the first two parts, there is a bird-like sound, which interacts and counterpoints the Santur part. Santur plays some Traditional melodies (Gusheh, in

Dastgah-e Chahargah) and the electronic sounds accompaniments it. In this part Santur is used in the more traditional way than other two parts (tracks).

For creating the electronic sounds, he had used MC202 Roland (programmable micro-processors) and his hand made machine The GAME (generator automatic electronic music: in French) [39]

Form of the composition

The composition is divided into three parts, each part exploring a different possibility of Santur. The first explores the recording technique at growth and slow decays (treated potentiometer) of the "Riz" (trill). The second part explores detuning struck strings. The last part presents the Santur in a traditional way.

All three parts are accompanied by electronic sounds and sometimes vocal.
(From notes on the CD's booklet). [40]

From his works we can see his interests to other musical cultures, as we can see a year after composing Electro-Acoustic Santur, he had composed "Guitarra Cubana", as he said this happened when he met the Cuban guitarist Miguel Bonachea and they worked together in the studio. [40]

Quoted:

"He had visit H. Malek to learn and practice the Santur in his school in Tehran (1973,1975 and later visits)" [39]

Unquoted

I had a discussion with him about his experience of working with traditional Persian instrument (and culture) he explained

Quoted:

"I have always loved oriental music. In Tehran I could go with Malek to all concerts that he makes in the families. I discovered the music I loved the most. Because of my

electronic music experience, it was easy to understand the Persian music and to love them. I composed with the Santur in a traditional method and also in the electronic method.” [39]

Unquoted

Another important parameter in “Electro-Acoustic Santur” (and also other compositions) by Leo Kupper is the spatialization and how he has utilized the stereophonic possibilities and panning in his recording.



Photo 11: Leo Kupper working with his hand made GAME machine. Photo, courtesy of Leo Kupper

Klaus Huber, *Erde bewegt sich auf den Hörnern eines Ochsen* (1993)¹⁵

The well-known Swiss composer Klaus Huber (1924 – 2017) among so many vocal and instrumental opuses, he had composed the piece “*Erde bewegt sich auf den Hörnern eines Ochsen*” (1993) For 4 Arabian, 2 European musicians and 6 channels tape.

He had wrote the piece specially in occasion of working with the “Al Kindi ensemble”¹⁶



Photo 12: by Harald Rehling, May 2012, Klaus Huber.

Al Kindi ensemble:

Sheik Hamza Chakour, Sufi singing and recitation.

Abdelsalam Safar: Nay, singing and recitation.

¹⁵ The opus is available on the CD published by Kulturforum Witten.

¹⁶ The Al-Kindi Ensemble is an Arabic musical formation founded in 1983 by Julien Bernard Jalal Eddin Weiss and custodian of the traditions of classical Arab songs, sacred or profane. The ensemble’s intention is to recreate the spirit of dialog and music collaborations that took place in the Ottoman courts of the 17th century. To achieve this, Jalaleddin Weiss brought together musicians from various cultures: Turkey, Egypt, Azerbaijan, Syria, and the United States of America. [42]

Adel Shams Eddin: riqq and mazhar (percussions).

Julien Jalaeddin Weiss: qanoun, recitation.

Marie-Thérèse Ghirardi: Guitar.

Jean Sulem: Alto.

Text: Mahmoud Doulatabadi (Arabian, French, German & Persian)

With Looking to the program note of this piece some of composer's tendency and ideas are distinguished. (The program note is available in the booklet of published CD: The recording of the concert in Whitener Tage 1994 and on some website) [41]

As written in the program note:

The composer Klaus Huber approaches a new compositional territory. In recent years, having worked mainly with third-tonal tones, he has now moved substantially away from the temperate-chromatic system by focusing his new composition on Arab modes (Maqam) and their own musical practices. [...] As a preparation, Huber immersed himself in the in-depth study of authors of the theory of classical Arabic music, such as Al-Farabi (born in 872), Avicenna (980-1037) and Safiyu-D-Din Al Urmawi (died in 1293).

In historical memory, common traits to the European and Arab musical traditions, which few still remember, he wishes to build bridges between the two cultures: a reunion, which, in full awareness of the current dissensions between Islam and Europe, takes birth in the very heart of the musical material and must developed on a foundation of equality, far from any folklorism. Thus, if one considers the form (of composition), the piece, is an amalgam between planned construction and improvisation practices.

With considering its content, it responds to the growing interest aroused by Islam, which seems all the more threatening to us as we know it badly, While the genre, it is

the sketch of a new a type of political music whose humanist commitment does not stop at the borders of its own cultural identity. (Max Nyffeler, program note) [41]

By listening to the opus and knowing the program notes, it can be found that Klaus Huber's interest and intention is *"to build a bridge between two cultures, the Arabian and the European one."*

In his ideas and the concept, we can already see the intention of interculturality, and that's why it is interesting to look at this opus.

The piece contains so many various materials from Arabian culture and the instruments played by four musicians: Nay (Arabian/oriental Flute), Qanun, Arabian percussions: Riqq (or rik, a type of Tambourine), and Mazhar (a large and heavy Tambourine, a kind of Arabian frame drum) and voices (singing and recitation).

There are also two western instruments: Guitar and alto (viola).

There is a poem/text recorded in four languages (Arabian, French, German & Persian), from an Iranian poet and writer Mahmoud Doulatatabadi. There is also a part of Quran recited by Arabian musicians.

In my point of view, in the use of material, in the composition method and the usage and role of instruments, there is much more attention to Arabian and Oriental culture compared to the Western music.

In some other cases, when the European (western) composers have tried to work with a combination of western music and non-western cultures, the Western cultures have become Dominant, but in this case its opposite. His cultural attention and his interests are towards Arabian music and culture, alongside the political situation of the world, especially because this piece is written after Golf war in 1990 and 1991 where there was a big tension in the Middle East. Therefore, he decided to give more attention to Arabian culture without considering all negative news and negative advertisement in

the west against Arabs and Arabian cultures. As Klaus Huber said in his interview with Claus-Steffen Mahnkopf (in the book “Von Zeit zu Zeit”, Klaus Huber), he wanted to create the feeling and atmosphere of the desert and sound of sands in the Deseret, along with the granular sounds in the tape to express the sadness of what happened during the “Gulf War” and “Operation Desert Strom” by using Saba and Hijazi Maqamat. [43]

He has pointed out in his interview that he had composed this piece for the Arab world!

Klaus Huber was affected by the Doulatabadi’s text¹⁷, which was published in the German newspaper during those years and has used a part of text in his tapes (recorded material) in four languages: Arabian, French, German & Persian. I don’t know why not in English, which is an international language, maybe because he composed this work for Arab world? I’m not sure but this is the composer’s choice!

In the recorded CD, what I could listen from recording of voices/texts (part of Tape), it was not always clear. For example the Persian recitation (from original text) appears in the beginning of the piece but it also fades and goes quiet fast under other material, and after a few words, it becomes difficult to follow the text line, which comes back several times in different languages and in general it’s not always so clear. Eventually it never becomes that unclear to take the shape of a texture made by these speech materials.

The piece has very precise structure, with many short parts coming after each other. In one hand, Arabian instruments are improvising based on the indication of rhythm and modes (Maghamat) written in their parts, but in other hand, the western musicians have the written and worked score, I believe it is more so the Arabian

¹⁷ <http://brahms.ircam.fr/documents/document/4240/>

musicians that could interact in live performance with the tape and 2 European musicians.

In this opus, when for the first time we hear Quran, ca. second minuets, the music (instruments sounds) goes down and slowly, so, we hear just some rustle (froufrou) sounds coming from percussions and or tape. His attention and caution to importance and position of Quran in Islam world is clear and he is very respectful, as we can see in his sketches (available in the “Von Zeit zu Zeit” book and also in the CD’s booklet) he had canceled the instrument part and written Taboo! Because in Islam when someone is reading Quran loudly, others are asked to respect by being silent and listen to it, and it is not allowed to play music with Quran.

As Klaus Huber said in the interview (with Claus-Steffen Mahnkopf) this was the choice of the musicians, Klaus Huber had the Maqamat (Maqams, Arabian modes) and its transpositions, the text was chosen spontaneously, which they then recorded in the studio from which then a tape was made by this material. As he marked the Nay player proposed to sing Sufi style and recited Quran. [43]

The Quran part is ca. two and half minutes and then by the ending of this section around 5:40”, Arabic instruments fade-in and improvise in Maqam Sikah, until ca. 7:30” where we hear Arabian voice recitations with Arabian instruments bring us in a total Arabian music world which never changes until the end, from Sikah Ep to Saba Dp (C#, F#, D). in between we hear different parts of the text in different languages and the atmosphere and modes stay most of the time similar, with different improvisation part and solos and we never go really to a Western music world, with the western instruments that are most of the time accompanimenting, except a few parts (e.g the beginning and the end) that they are more present by creating some sounds (timbres, colors) coming from western contemporary music approaches.

In the microstructure it couldn't find the flow development of melodies and Maqamat during the piece (specially comparing to Arabian classical music, which is somehow similar to Persian music), but there are so many different windows opening and giving a view/feeling with the musical material and then closing or crossfading to another window (view, situation or composed structure box), and in the macrostructure. Also the main action is based on Golden ratio at ca. 23 minutes (duration of piece 37:30" or 2250 second divided by 1.61803398 is 1390 seconds (23:17")), There is a crescendo around 22nd minutes and the it is possible listen the loudest and highest density of the piece at ca. 23 minutes, in this moment (part) the tape has more layer (granular sounds, and various layers of voices) and the instruments are also present by playing Arabian Maqamat.

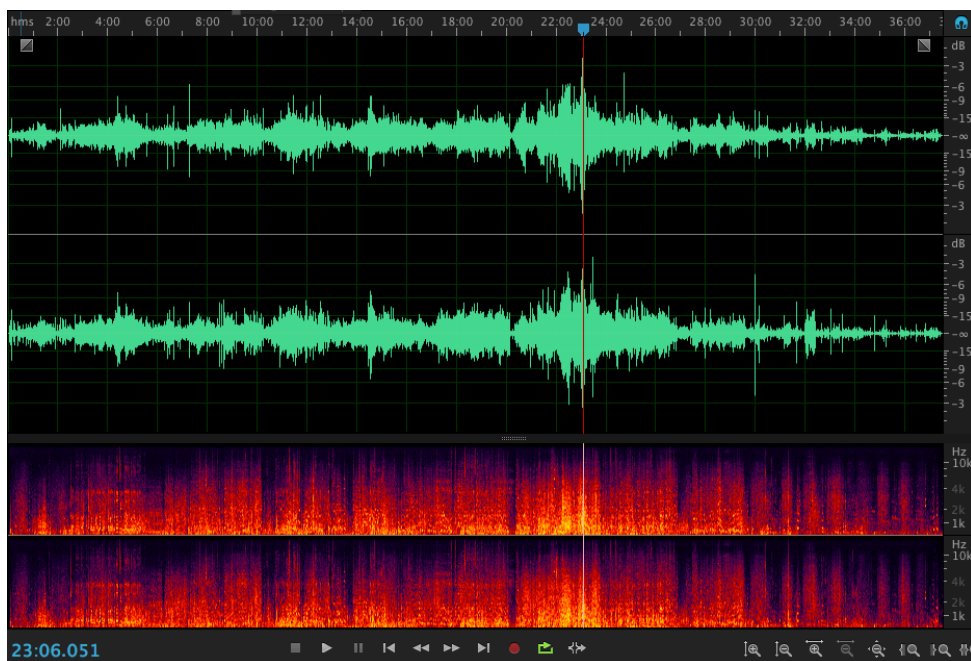


Figure 12: Waveform and spectrum analysis, see the loudness & density of material in the piece “Erde bewegt sich auf den Hörnern eines Ochsens” (1993) by Klaus Huber.

In this opus the geographical and cultural elements are obvious- the Arabian music (instruments & Maqamat) and the oriental and Islamic culture is strongly indicated and, in general, it shows all aspects of Local Electroacoustic Music.

Moreover the Arabian instrumentalist/singers and western instruments are sometimes reacting each other and to the Tape, although it doesn't seem like the interaction and dialoging is not the main focus of the composer. However, some aspects of Interculturality are present, and it clearly evokes the aspects of multiculturalism as there are several cultures and languages involved.

Regarding to our discussions in the first chapter (terminology part) of this thesis, I would say, even though the composer tried to make a bridge between two different cultures, the cultures in this piece can be considered more of a traditional concept of cultures: spherical and separated cultures. The fact that each culture (specially the Arabian music here) is staying in their own self and playing in its own musical and cultural way makes this dialogue more difficult, most of time it's the European musician trying to go closer to Arabian music and play with them. This extra attention might be a decision of the composer because of the cultural and political situation of that time and/or it also can come from the nature of musical cultures. The improvisation based on Maqamat is more natural in Arabian music than playing western contemporary score. In opposite the improvisation (based on Maqam) can be less practical for some of the western musicians.

Meanwhile, the presence of the instrument in electroacoustic music has already needs a specific attention to the nature of the instrument, it should be considered as practical to play a kind of music/sound or not. Also it should consider that which proposes the instrument is made and for which proposes and reasons the composer is utilizing it and so on. In this case, Arabian instruments and their sound are very

characteristic and special, their designs, capacity, the repertory and history and in general their nature and cultural aspects are particular and different to the European instruments. In the same time the Maqam and Arabian modal system has his own structure and grammar which makes the combination and interaction to another musical system harder. Imagine two players improvising together and one is playing in tonal system (i.e. C major) and another is playing in the chromatic scale. How would their phrases and dialogues work, if they don't touch and indicate each other's scale or interact somehow. Another point is the Arabian Maqamat like Persian Radif and intervals recall easily the mood and atmosphere of those modes, which are strongly distinguished to other modes and scales (of course this is relative and depends to your ears), the presence of these intervals in contemporary and electroacoustic music needs a kind of strategy and systematic work. I have realized both methods of using microtonal intervals in contemporary music to be critical, the totally Maqam based one (e.g. improvisation in a Maqamat) as well as the numeric and mathematic organization as some composers experimented with microtonal intervals similar to serialism approaches which also can bring some problems and challenges.

As we had seen above in some of examples, different composers had different perspectives and methods of working with other musical cultures (in this case oriental instruments) and the combinations of two cultures in their music have had different results.

As we know to study music (especially traditional and classical music) it's important to play an instrument or sing, to learn the music, the melody, the rhythm and the soul of that music. For the musician this is also an experience of being in contact with the instrument, music and culture, and thoughts and philosophy of that music and culture. I believe as much as going deeper in to a culture and get in contact with it,

being a part of it (e.g. by playing a musical instrument or participating in different activities), living in that area and becoming a part of that culture, It will have different approach when just working with some elements of a culture (e.g. music elements) the one has some knowledge about it. Which is also relative.

In general, as much as the composer is more familiar to the cultures and the music he is working with, the togetherness, interaction and combination of these cultures can be deeper and more meaningful.

Of course, there are other composers who had worked on similar ideas related to Interculturality, but it is not possible to study all of them in this thesis. I had tried to find the ones more related to the topic. But as we know the interests of composer to other musical cultures is not something new, in the 20s century so many western composers were interested to Asian or African musics and they were inspired by non-western music. They had worked with some elements/instruments of other musical cultures in their compositions. This can be a long list of composers and we can follow this line even to classical and baroque music.

“As earlier generation of composers like Henry Cowell, John Cage, and Lou Harrison actively studied non-western music as something completely new and exotic. Then Terry Riley, La Monte Young, Philip Glass, and my self studied primarily African, Balinese, and Indian music directly with teachers from those countries with very different results. Beginning with John Adams and continuing on into the younger generation of Michael Gordon, David Lang, and Michael Torke in America this music had become simply another part of the musical universe. In Europe György Ligeti has shown real interest in Central African music via his interest in the excellent work of ethnomucologist Simha Aarom. I get the feeling that for younger European composers non-Western music is also a fact of musical life.” (Steve Reich) [44]

Software

The use and influence of technology in the contemporary art is increasing every day and its connection and relation to electroacoustic music is evident. For example “computer music”

As we know the technology has an important role to the birth of electronic music in the end of the 40s (and beginning of the 50s), where the science and development of technology had a considerable effect in developing the tools (analog and digital) and equipment's in order to realize the music. This development has reflected the whole music world and also gave birth to some new (sub) genres of music derived from electronic music.

After the first computer program for generating digital audio waveforms through direct synthesis (MUSIC-N¹⁸ and etc.), there have been many programs written and developed.

During the last 70 years, we have had numerous experiments in the development of technology that has made almost everything possible for the artists, making so many limitations disappear, also as so many composers and artists were working to create the history of art and music during these years. Today we have a huge repertory of electroacoustic and contemporary music, of which we cannot avoid easily.

In my composition cases, I was working with technologies and some software, as although the science has an important role in my music, but that was not my main purpose. My key purpose is the composition and music itself, which is liberated from the tool and technologies, involved in its process, and it is not presenting the software or any particular tools, algorithm or methods. However, it is a part of my research and the

¹⁸ MUSIC-N refers to a family of computer music programs and programming languages descended from or influenced by MUSIC, a program written by Max Mathews in 1957 at Bell Labs. [45]

method I compose music. For a better explanation of some ideas in my compositions that I am going to talk about in the next chapter, I mention briefly some software and patches I have worked on, without going too deep in the details.

OpenMusic

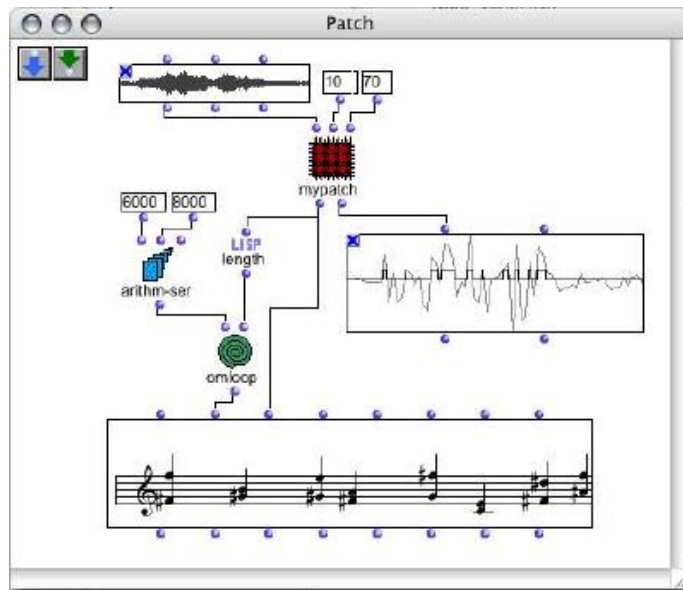


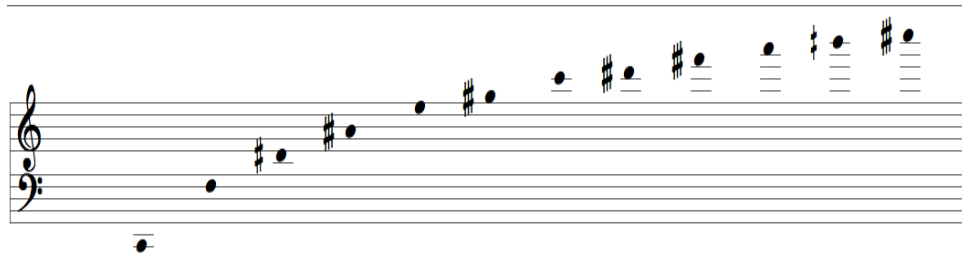
Photo 13: Image of OM patch from openmusic website.

OpenMusic (OM) is a visual programming language based on Lisp. OM may be used as a general-purpose functional/object/visual programming language. At a more specialized level, a set of provided classes and libraries make it a very convenient environment for music composition. [46]

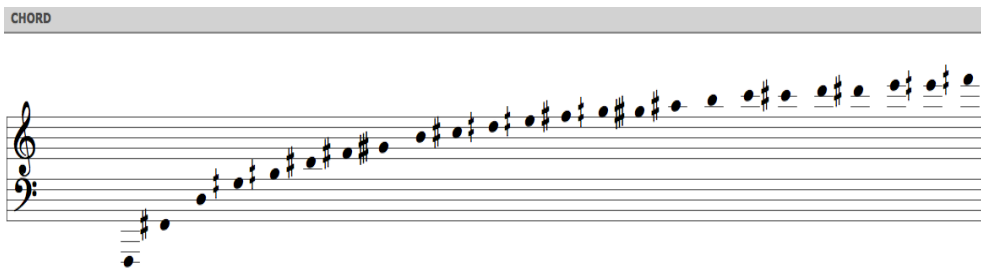
Using the General function, INHARM-SER object inside the software Open Music, it is possible to generate a list of partials based on initial frequency (f_0), the coefficient of distortion and the number of partials. I have utilized this to create some series of notes/partial to use in bank of resonance filters (Modalyreza), with this method I had better control of Modalyreza and the kind of relation between notes played by instrument and the response of real-time processing (live electronics) in the piece “Le

Corde Sul Corpo” for prepared Santur and live-electronics. (I will talk more about this piece later)

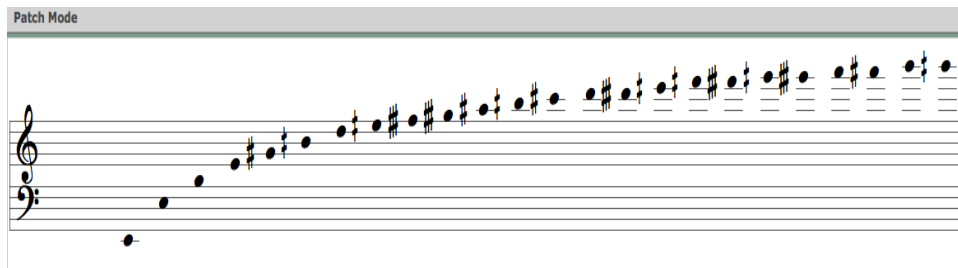
Below there are some examples of using OM to find desired partials of each fundamental ton to use in Electronic part of “Le Corde Sul Corpo”.



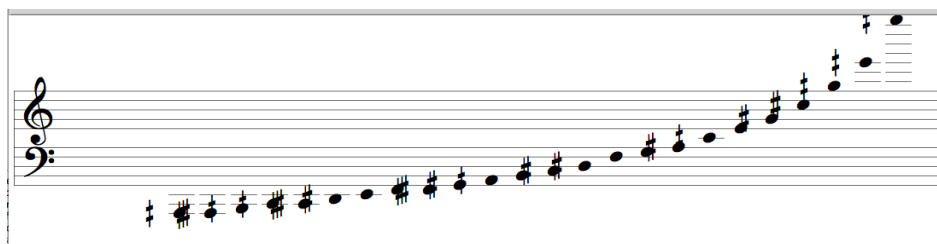
Example 2: First 12 partial of the note C2 (65Hz) with distortion coefficient of 1.43.



Example 3: First scene, F_698Hz, 1.106 distortion, 24 partials, here must be four octave higher.



Example 4: First scene, E_1315Hz, 1.01 distortion, 24 partials, here must be four octaves higher.



Example 5: First scene, 3295Hz, -1.27 distortion, 24 partials.

Max/MSP

Max is a visual programming language for music and multimedia developed and maintained by San Francisco-based software company Cycling '74. Miller Puckette wrote it originally in the mid-1980s at Paris's IRCAM, and since then it has developed and become popular in the field of computer music.

To realize the Live Electronics part of two compositions of mine "Le Corde Sul Corpo" and "REFLECTIONS", which I'm going to have expanded explanation about them in this thesis, I had used the software Max/MSP.

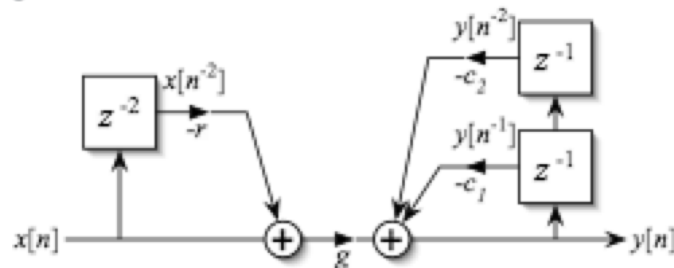
IN "Le Corde Sul Corpo" which is for solo Santur and live-electronics, sound of a Santur was taken using two microphones at a distance of 18-21 centimeters above the bridge (Kharak). Converted into a digital signal from an audio interface, and routed into Max/MSP. Using a Matrix could get different routing of microphones and various tools used (sub patches): I had 6 frequency shifters, 8 delay lines, 4 Modalyreza (filter bank) and Spat (spatializer by IRCAM).

The outputs of the processes from the matrix in 8 sound sources are sent to a spatializer with 8 output channels. After trying different methods for real-time spatialization, I decided to use Spat for this piece, due to its flexibility. For instance, Spat makes it easy to vary the number of output channels, which comes in handy when playing in different concert halls with a different number of speakers.

When you think about it, everything is a filter.

(Julius O. Smith III)

Resonant band pass filter:



“The object reson~ (in Max/MSP) implements the following filter equation:

$$y[n] = a_0 * (x[n] - r * x[n-2]) + b_1 * y[n-1] + b_2 * y[n-2]$$

where r , b_1 , and b_2 are parameters calculated from the input center frequency f_c and $Q = f_c/\text{bandwidth}$.” [47]

Modalyreza

Modalyreza is a patch made in Max/MSP. It implements a virtual resonant body simulating the resonance modes. It uses a bank of band pass filters whose center frequencies are resonant frequencies of the resonance modes of the virtual body.

Using as center frequencies the values of a mathematical series can generate different spectral families. The two mathematical series are particularly interesting musically: the harmonic series, by the timbre of many instruments, and the geometric series, with a ratio twelfth root of two, from the distribution of the frequencies of the tempered system. Using the generalization of the harmonic series and geometric series we can obtain several families of spectra.

Our spectrum is then described by the equation:

$F(n) = f(0) * (n^\alpha * \beta^n + \gamma)$ n is the order of the partial and coefficients α , β and γ are real numbers. [48]

Alpha is the exponent of "expansion / contraction" of the spectrum:

If $\alpha = 1, \beta = 1, \gamma = 0$ the series is harmonic if $\alpha > 1, \beta = 1, \gamma = 0$ the harmonic series is expanded, if $\alpha < 1, \beta = 1, \gamma = 0$ the harmonic series is compressed beta is the basis that determines the "relationship" between a component of the spectrum and the next.

If $\alpha = 0, \beta > 1, \gamma = 0$ the series is geometric.

So in this case if $\beta = 1$ the ratio is the unison.

If $\beta = 2$ the ratio is the octave.

If $\beta = 12$ root of 2, semitone.

If $\beta = 24$ root of 2, 1/4 tone etc.

For each value of α if $\beta \neq 1, \gamma = 0$ the harmonic series is deformed geometrically.

For each value of β if $\alpha \neq 1, \gamma = 0$ the geometric series is deformed harmoniously.

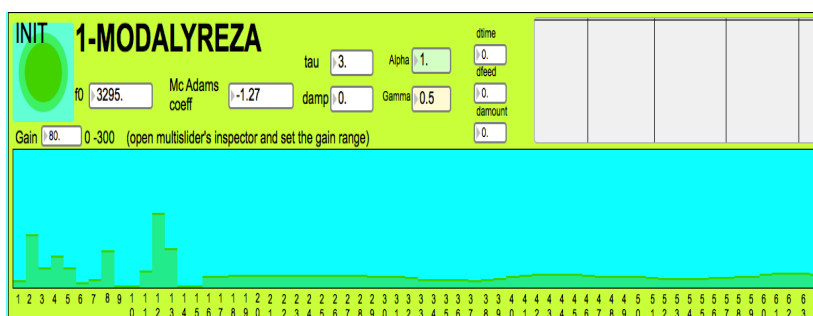
The coefficient γ determines a shift frequency, $f(0) * \gamma$ is a constant which is added to the whole series for each value of α and β if $\gamma \neq 0$ is applied to a translation in all the series.

So if $\alpha = 1, \beta = 1, \gamma = 1$ we have a harmonic series, but starting from the second harmonic.

If $\alpha = 1, \beta = 1, \gamma = 3$ we have a harmonic series, but starting from the fourth harmonic.

To control the Q of the resonant filters we use this other equation.

$\tau = Q / n \wedge \text{damping}$.



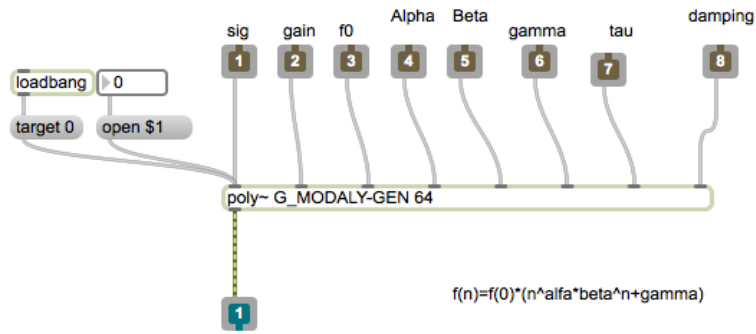


Figure 13: MODALYREZA, has used the poly~ in MAX/MSP.

This patch was created starting from the lessons of M^o Carmine Emanuele Cella on modal synthesis and on the expanded harmonic series and tablets, the independent control of the gain of each filter was added and the generalized series proposed later by him was integrated his writing "Generalized series for spectral design". [48]

The sub patch “Modalyreza” is used also in a few moments of the other piece REFLECTIONS, but it has fewer roles in the electronic part, instead I have used more granular synthesis, transformations and several delays for the live electronics and some pre-composed tapes.

Unfortunately, because of the scale of the topic, I can’t focus in all details of electronic part and Max patches in this thesis but next chapter I will explain more about the ideas and process of composition in opuses “Le Corde Sul Corpo” (2014) and “REFLECTIONS” (2016/17).

Chapter 4

Two Compositions of the Author with the idea of “Transcultural Music” behind

“Le Corde Sul Corpo”¹⁹

“In my music, you can clearly perceive the movements of the masses and layers of sounds. When these sound masses come into collision you will have the sensation that occur phenomena of penetration or repulsion, and that certain transmutations that occur on certain plans are projected onto the other, which move on different speeds and in different directions. There will be no more place for the old conception of melody or combination of melodies: the entire work becomes a “melodic totality”; the entire work will flow like a river.” (Edgard Varèse 1976) [49]

Goals and realization in “Le Corde Sul Corpo”

Program note:

Le Corde Sul Corpo (2014)

For Santur and Live Electronics (8channels)

Composition and live-electronics: Ali Ostovar

Santur performer: Kioomars Musayyebi

The piece, “Le Corde Sul Corpo” (means: the strings on the body) is the practical result of my bachelor thesis, which is about multicultural music, specially focused on “Persian Electronic Music”, as a global music and not more Persian music as an ethnic music (local music).

In this work the importance of the rapport between composer and instrumentalist is notable. We tried to find and improve some performing techniques on the instrument

¹⁹ The score has attached in the appendix of this thesis and the recording is available online. <https://soundcloud.com/ali-ostovar/le-corde-sul-corpo>

that in the traditional playing method of Santur don't exist. The Electronic part is the processing of the Santur's sound in real-time, with the same mind.

Santur and new music

As the 2nd chapter mentioned, the Santur is an ancient instrument; in Iran the instruments (and music in general) are closely related to the tradition, where the long-time evolution of the instruments and Persian music is almost stationary. Some instruments have been developed further, but without considerable success. A major problem of Santur is that it needs to be tuned each time for each Dastgah or scale, whichever you want to play. In general, the tuning of Santur is a very difficult operation. And this operation takes time.

For example, explained in the Western theory of music, if the player plays the Major scale and wants to change in the minor, then the player needs to change the pitch of the strings. In the meantime, another limitation is the changes of position of the hand on the instrument. For instance, playing in G is easy, as the relevant notes are disposed next to each other and there are no notes too far apart. But the same Dastgah in C becomes much more difficult, requiring many jumps between yellow strings and white strings (left and right side of the instrument, tuned with an octave of difference between them). A much faster solution to change the pitch is by making the bridges double. I think this method gives more opportunities to tune the instrument and experiment with nontraditional tunings and articulations such as the glissando performed by varying the position of the bridge.

For example, on the Santur with a single bridge (Kharak), it is not possible to have G and G# in the same position (in the same octave). For Persian music it doesn't matter, if we want to play in D Shur we will need the D and the D Koron ($\frac{1}{4}$ tone below)

but they cannot be in the same position on Santur. Also according to the traditional Persian music these notes are not played one after another (chromatically), so it is not a problem for traditional music, but it can be problem when playing other kinds of music that requires different sets of notes.

Therefore, musicians found it very useful to duplicate the bridges of the Santur, to allow an expert instrumentalist to change the pitch of each string quickly. I think the simplest method is tuning the strings a tone below and then the musician can move $\frac{1}{4}$, $\frac{1}{2}$ or $\frac{3}{4}$ tone above. This slightly varies the timbre of Santur because of physical changes in the instrument, such as string tension, the pressure of the bridges on the body and the location of contact points. This method comes at a slight cost regarding the brightness of the sound. However, the increased flexibility is often more important.

Another possibility and a potential is the “Santour 7 Dastagh”²⁰ created by Kouros Zolani and Mohsen Behrad.

As they explained:

“For the first time in Persian music history, the musicians do not need to retune ”Santour 7 Dastgah” in order to play different Dastgahs or scales.

In a Santour-7-Dastgah the two main constraints of the original Santur have been addressed.

First, in this new instrument, it is possible to change the key on a live stage in few seconds. In a Santour-7-Dastgah the strings lengths are adjustable by means of an added mechanical system to the right and left sides of the trapezoidal box. When the

²⁰ Santur and Santour are the same instruments, the different is just in the way of spelling it in English.

length of the strings is changed, it will vibrate with a different frequency therefore the pitch will be different.

Second, a Santour-7-Dastgah has no tuning pins. This instrument has totally new and innovative tuning system, also using specific designed metal bolts and nuts instead of the ancient tuning-pin-in-wood system. Therefore, the tuning in a santour-7-dastgah is very stable. To tune the instrument, the musician would use a special supplied wrench, which fits on the tuning nuts.” [50]

This new design of Santur not only gives more freedom to the musician but also it gives new possibilities to composers to compose new pieces for Santur. For performing the piece “Le Corde Sul Corpo” we had used a Santur with duplicated bridges (Kharak), as I haven’t worked with the “Santur 7 Dastgah” yet.

The relationship between instrumentalist and composer

I decided to write “Le Corde Sul Corpo” when I met Kioomars Mosayyebi, a very experienced Santur player. After speaking with him regarding the idea of a piece for Santur and electronics, we had several long discussions about contemporary music and electronic music. I expanded my ideas and reflected it on what can we do together, from which we started with the traditional Persian music and to then develop ideas.

He has proved his interest in collaborating and playing this piece. It was inspiring that he was completely open to accept different types of music and had played a lot of World Music, Jazz and Blues with different formations. Very often the players of traditional Persian music are interested in playing other kinds of music. In particular, contemporary music, which is unknown to many of them. I think it's very important that the performer understands the music that he or she is playing in a method that he/she can then perform to the best.

We discussed a lot about his previous experiences, he mentioned that, he also needs a new challenge and would like to have something new in Persian music. He found it very interesting to play electroacoustic music and listen to new sounds from his instrument. It was playing it in a new way that he had never tried before; it was also hard to see his instrument in this way. Also working with "live electronics", hearing the electronic sound in real time was a new experience of musical performance. During rehearsals we had the chance to learn a lot.

The sound of the Santur

In the piece "le Corde Sul Corpo", the melody is less important, unlike traditional Persian music. I tried to eliminate the melody, keeping the sound of the instrument and finding colors and sounds that could express some new musical ideas and gives a new image to the Santur and sounds unlike one is used to hearing on this instrument regularly.

I think one of the problems in writing contemporary music for Persian instruments is to hide the scales and intervals of this music, because they quickly resemble traditional music very quickly, or otherwise, we must think about how we want to use them. In this case I decided to avoid using the intervals from the traditional Persian music and the repertoire of Santur in the regular method.

Preparing the Santur allowed me to overcome the limitation to fixed pitches and to also dive deep into the exploration of new timbres on the instrument. Preparing the Santur and taking the sound from other parts of the instrument gave way to the possibility of transforming the sound of the instrument before it goes to live electronics. Many of the techniques found and developed by us during the research period and rehearsals, requiring practice and refinement of instrumental techniques, each

confronting the performer with new problems. For example, to get a sound by touching the keys of the Santur, it is important to understand how to change the position of the hand, because hands are holding the Mezrab (stick) and the performer should play the keys with his hand and then back on the strings and play with the Mezrab (Bars 32 and 34). As far as I know, this technique has never been used in traditional Persian music.



Photo 14 : Prepared Santur for the piece “Le Corde Sul Corpo”

Example 6: Bars 32-34, Score of the piece “Le Corde Sul Corpo”.

Rhythm

I find it very interesting to work with Persian rhythmic patterns. These are very rich, but in the piece “Le Corde Sul Corpo” there is not any particular rhythmical pattern taken from traditional music. I started from very short gestures and then gradually moved to longer and more complex gestures until the section (bars 58 to 88) which is formed by a long gesture made up of tremolos and trills (Riz: a traditional technique of Santur). Instead of my recent piece “REFLECTIONS” there are so many rhythmic patterns, specially there is “Tombak” (Persian percussion) playing so many Persian rhythmic patterns among other rhythms and sounds and gestures.

Dynamic and Density

Typically, traditional Persian music is notated without dynamics (see the examples of Radif In the chapter 2). This leaves a lot of freedom to the performer to improvise. By contrast, in Western contemporary music and especially in electronic music, the composer tries to control and choose very precisely each parameter and especially the dynamics.

In the piece "Le Corde Sul Corpo" I paid much attention to the density and dynamics. I used a rather large range of dynamics, from PP to FFF, which is typically larger than the range that used by Persian music. Finding different dynamics in the same bar is a new situation for a Santur player. Obtaining a large dynamic range requires more control of touch. The density parameter is structured around the score and is expanded by the live electronics. For instance, in the section of Riz (Tremolo and Trill, bars 58 to 88), the goal was to have a unitary dynamic (balanced) and form a mass of sound by adding short sounds, changing the timbre of the sound several times and generating a large "gesture-texture". When the performer plays very fast (trying to

maintain a constant dynamic in the whole part, even though playing different parts of the instrument that respond differently to the percussion of the Mezrab) meant that sometimes the result was not what I wished, but here live electronics really helped to overcome these limitations and expand the possibilities of the instrument.

Let's say in the section of the Riz, I utilized:

- The Delay for adding the density.
- The Frequency shifter to extend the frequency range of the instrument.
- Modalyreza to sculpt further altering the tone and color of the instrument's sound, to lengthen the duration of the sounds and to get the timbre of electronic sounds.

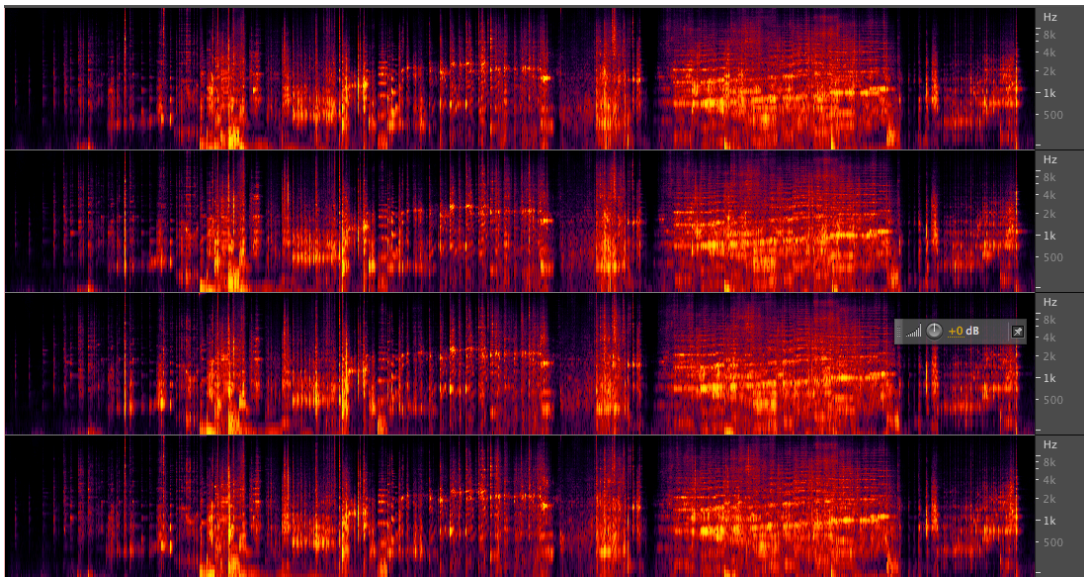


Figure 14: Spectrum Analysis (FFT), "Le Corde Sul Corpo" quadraphonic version.

“Reflections” (2016/17) ²¹

Program note²²:

The phenomenon of transculturality between Middle Eastern and northern Indian musical cultures, and the predominantly western European tradition of electronic music, opens a new perspective in contemporary music.

Based on my experiences, especially composing electroacoustic music inspired by traditional Persian music, I have planned to expand this idea with elements of other musical cultures.

“Reflections” is a work in 4 acts composed for a new quartet format (Djoze, Bansuri, Santur, Tombak) and live electronics. These instruments come from three different cultures: The Arabian, Indian and Persian cultures. The Djoze is a bowed/string instrument from southern Iraq. The Santur is a hammered dulcimer of Iranian origins. The Bansuri is an Indian bamboo transverse Flute.

The Tombak is a Persian percussion instrument. (In a few sections also Daf, a Persian frame drum, is used.) These instruments have totally different “colors of sound” and identities compared to their classical western counterparts.

These precise differences are what I needed for this composition: The combination of traditional instrumental sounds and their sound transformations into electronic sounds, and meanwhile, the contrast of the traditional oriental music (and melodies) with European Music. This results in heterogeneous and homogeneous musical textures as well as the dialog between them, which becomes possible through electroacoustic music, which are some of my main intentions.

²¹ The recording is available in Spotify, Itunes, Amazon and some other digital platforms.

²² See the link for the printed program note and all biographies: https://www.folkwang-uni.de/fileadmin/_migrated/tx_fwtermine/Reflections_16.02.2017.pdf

Incidentally, another interest of mine, beyond my fascination for the sounds of oriental instruments, is for finding an opportunity for dialog between these instruments in a peaceful space far from removed from all the current political problems, especially in the Middle East.

The introduction of border crossing not limited to national borders also destroys the easiest way of telling stories by following time lines. Both could happen—that crossing borders brings objects, concepts, persons into a new "chronoscape," or that parallel time frames open. (Madeleine Herren, Martin Rüesch, and Christiane Sibille) [52]

Notes on “Reflections”

About the project: a continued (practical) research in composition

As we can see in the program note of the piece, “Reflections” was written for a new formation of a quartet (Bansuri, Djoze, Santur and Persian percussions) and (live)-electronics.

For a better explanation of the connection of my compositions and my previous experiences that actuated me to this instrumentation and conception for my master-project composition, I list some of my music composition that are related to each other and to the topic :

Polvere della torre di Babele (Tape: voice, Sax, Tar and electronics) (2011).

Unknown Part 1&2 (Santur, Saxophone, Viola and Electronics) (2012/14).

Return (Part 3) (Santur, Saxophone and Electronics) (2012/13).

Unknown Part 3 (version: Saxophone, Viola and Electronics) (2012/2015).

Unknown Part 4 (Setar, Santur, Viola and Electronics) (2012/2014).

Le Corde Sul Corpo (Prepared Santur & live-electronics) (2014).

Tomb-back I (Tape: Tombak) (2015).

Tomb-back II (Tombak & live-electronics) (2015/16).

The Reflection of Memory of A Room (Bansuri & live-electronics) (2016).

Reflections on Each Other (Bansuri, Djoze & live-electronics) (2016).

Reflections (Bansuri, Djoze, Santur, Tombak & live-electronics) (2016/17).

In the above list, there are pieces that I have composed mostly with Persian instruments or with a combination of Persian and Western classical instruments through electro-acoustic music, and in the last two years (from 2016) I have focused my point of view towards other musical cultures. (Here I have avoided listing some other works with western instruments and with Far-East musical instruments).

There are two important and practical issues, these are apart from my personal interests, in artistic and aesthetic points of view; the first one is the availability of the instrumentalists who are interested in playing contemporary and electroacoustic music, who are interested in working differently and who are able to play in a different genre. This collaboration is not always easy to find, plan and realize. This is significant for electroacoustic music with live interpretation rather than for Acousmatic music (tape music) where it is a less important matter.

The second issue is playing a role of “discovering”; when I started to work with these ideas around ten years ago, I had not heard any piece in this genre. Also I had not familiarized myself with any composer who has worked on similar ideas. I only had an immature idea in my mind and thus started to develop it. In the first step, it was completely experimental practice for me. After a while however, I could find opus of the composers who used to work with similar ideas. Once I heard their works and I considered their perception. This experimental working was full of discovery for me.

Each time I was working with the instruments, it was an innovative experiment, and each time I different understandings.

Of course, when I was started to write my final bachelor composition and then master-project concert piece (Reflections), I had discovered a lot and I became more familiar with the different (traditional) instruments, and also I had experimented with new approaches. Nonetheless, I believe in for all composers regardless of their level of skill, and especially when the composers are not asked to do a kind of “composition job”, the discovery is an important and personal fact which we could have an extra attention on it. In fact “Reflections” was a kind of mirroring for me, space, music and sound’s reflections as much as self-reflections.

The first related opuses of other composers which I could listen came after some of my first personal experiments and after some of my compositions, although they were not directly related to what I was doing. Later I realized there are some, but not so many composers working on similar ideas; For me there was a lot to discover and each time I was working with the instruments it was a new experiment, each time was different. Of course when I arrived to the moment of writing my final bachelor composition and after that my master project concert piece (Reflections) I had discovered a lot and I had become familiar with the instruments. I had found some of my approaches that I believe in for all composers regardless to their level of skill, and especially when the composers are not asked to do a kind of “composition job”, the discovery is an important and personal fact which we could have an extra attention on it. In fact, the “Reflections” was a kind of mirroring for me, space, music and sound’s reflections as much as self-reflection.

The process and the collaboration with instrumentalists

Bansuri and Djoze

As it's explained above, the piece Reflections comes from a series of works and preparations:

A part of this opus is composed from the opportunity of two previous concerts (Bansuri & live-electronics) and a duet (Bansuri, Djoze) & live-electronics).

When I got the chance to work with Julia Ohrmann, Bansuri player and teacher, for the piece "The Reflection of Memory of A Room" for Bansuri & live-electronics, in the middle of 2016, I had already planned my master project, which became the first Act of "Reflections", which later I rewrote and arranged for the quartet. It is coming from this piece and collaboration where we had worked on existing techniques, as well we were looking for some new techniques. We had initiated some techniques, and some we borrowed from Flute and other Western wind instruments such as multiphonics, of which I had used a lot in that piece, the air sounds (several) and the slaps.

Fortunately, Julia Ohrmann had some experiences of playing Flute and it helped a lot with this special experimentation and interpretation of some contemporary music techniques with Indian Bamboo Flute.



Photo 15: performance the piece “The Reflection of Memory of A Room”, Bansuri performer Julia Ohrmann.

We had also worked on both Indian and Persian traditional music; we had found some common and similarity of intervals (and modes) in some Ragas and as some of Persian Dastgah (and Gusheh). There are some connections and similarities in between, which was very interesting research for both of us, and soon after it assisted us when I started writing the duet “Reflections on Each Other” for Bansuri, Djoze and live-electronics, which became the second act of “Reflections”. In that piece, finally, I had the experience of working with Bassem Hawar and Julia Ohrmann, which gave me this opportunity to use Indian and Arabian instruments together in one piece. I had met Bassem Hawar several times, we had interactions of ideas, and we also played improvisations (Djoze & live-electronics) together. We had tried to find new sounds on the instruments. I was really interested to create different playing methods of the bow, with different pressures and angles, in the way to go from sound to noise (variation of noisy sounds) and new colors of sounds, which we had used a lot in the Reflections

pieces. Fortunately Bassem Hawar had great talent to play new techniques required for contemporary music as well as Arabian traditional music techniques.

Providentially, I was also familiar to Arabian music and some of Arabian Maqamat, furthermore, Djoze is very similar to Persian Kamancheh, anyhow, this knowledge and our rapports improved during the composition process of the duet.



Photo 16: Dress rehearsal the piece “Reflections on Each Other” on 2016, Bansuri player Julia Ohrmann (left), and Djoze player Bassem Hawar (right).

Tombak²³

Before writing the first acts of “Reflections” piece, I had written an acousmatic piece for Tombak, called “Tomb-back” (2015). While I had enough time to experiment so many possibilities and methods of working with Tombak’s sounds. Formerly, I brought these experiences further to a new piece (with the similar ideas) for live

²³ Tombak (also called: Tonbak, Donbak, Dombak or Zarb), It is considered the principal percussion instrument of Persian music.

performance (Tomb-back II), and later, I have written other etudes until I started to work with Erfan Pejhanfar and proposed him to play in my final master project (i.e. Reflections). He did not have so many experiences of working in electroacoustic music and contemporary music performances; anyhow, he was amazing instrumentalist with the excellent hand quality on the Tombak and the Daf (large Middle Eastern frame drum), with so many years' experience of playing classical Persian music and rhythms. In a few solo rehearsals, we had experimented playing and working together and on that time I could experiment with the method which I wanted to write his solo part for Tombak and live-electronics (in act 3). He also experimented playing with interactions between his instrument's sounds and live-electronics (computer), which is an important point of the piece. When I started to play Tombak that I always wished to play. It was a moment I needed to write the rhythms or record them and check them with Erfan, this practice was helpful especially when I was trying to find irregular or new sound or rhythms. It was much easier to Erfan to listen to the recorded sounds or to see me playing it then to read the score and try to understand what I meant and what kind of sounds and articulations asked for that part of the piece.



Photo 17: performance the piece “Reflections“ on 2017, Persian Percussions performer Erfan Pejhanfar.

Santur

As I explained in previous part (“Le Corde Sul Corpo”) about some of my experiences with Santur, The relationship between instrumentalist and composer has an important role.

Once I started writing Reflections piece, I had already had some experiences from the piece “Le Corde Sul Corpo” For prepared Santur and live-electronics. Before writing that I had written other etudes for Santur and some other pieces with the combination of Persian and western classical instruments through electroacoustic music. (For example, see the opus “Unknown”), I had worked with Kiomars Musayyebi, the professional Santur player for a long time (since 2014). During these years and between this two pieces, we both keep working on what we had found and created during our collaboration; the techniques we found for playing “Le Corde Sul Corpo” became a part of the Santur performance for Kiomars (absolutely not in classical Persian music

performances), and he got much more familiar with contemporary music and electroacoustic music. We also had performed “Le Corde Sul Corpo” several times in different places. I also kept experimenting and bringing forward my discourses and compositions. I started to learn Santur to know it better. I would like to deeply understand how to play it; this practice helps me in writing for this instrument by considering the abilities of this instrument.



Photo 18: Santur set up for the performance of “Reflections” on 2017.



Photo 19: performance the piece “Reflections” on 2017, Santur performer Kioomars Musayyebi.

As I described, similar processes happened for all these instruments and instrumentalists, because these instruments that don't have a repertory of contemporary music, and the musicians might be not so familiar to modern and contemporary music notation. All of my music, my concepts, the special sounds and methods of playing music were sounds that I acquired from them, which was novel and unique.

The instrumentalists played for so many years the repertory of their own instrument and the traditional music. They might have some experiences of playing in other genre of music or different style depending on their experiments and their practices. However, I had to do a similar process, each time in different timing and situation. As I explained before ("Relationship between the composer and instrumentalist") this is, in this case fundamental. It is totally different to write for contemporary music ensemble, who are used to playing contemporary and electroacoustic music. Because there is a repertory for that instrument and they are familiar with the regular method, alongside having seen and played so many different compositions (scores) and different methods of notation and music.

This relation and connection are important to realize my music, also it is essential to find the special sounds which I am looking for, so many times I prefer to play the instruments myself and discover the possibilities of the instrument. Only listening, reading and looking in books and asking the instrumentalist to play and to show me do not satisfy me.

During this journey I had experimented different strategies with very wide kind of collaborations with professional to unprofessional musicians and different artists from different fields and activities, which sometimes makes challenges that needed to improve and discover new possibilities, different perspectives and it open the window to the new worlds!

Sound Material

The main sounds materials are coming from the instrument, played live by musicians, processed in real-time by Max (live-electronics) and pre-composed tapes mostly contained of the recorded sound material of the same 4 instruments.

The attention to the sound material starts by choosing the instruments, which have different sound characters and colors (timbres).

The research on sound material and discovering different sound's timbres and musical possibilities were on the different aspects, starting from sketches on paper to working individually on instruments and experimenting different techniques with the instrumentalists. At that time, working on the live processing of the sounds, transformations, granulations, filtering, time shifting, delaying and multiplying, and in parallel working offline on the same sound sources with different tools and techniques.

In my opinion, the link between instruments sound, tapes and live electronics helped to create more unity in the piece.

There is only one sound material (in the last tape of the 4th act) that comes out (Except) of these instruments sounds, which I will explain later.

Form and structure

In the same time, I was writing two previous pieces related to Reflections (The Reflection of Memory of a Room (for Bansuri & live-electronics) and Reflection on Each Other (for Bansuri, Djoze & live-electronics). I was thinking and planning in parallel for the quartet, sometimes I was imagining other instruments lines (i.e. Santur and Tombak), their colors of sounds, their sounds and instrument possibilities and combination of them also with electronics.

I had planned to have four acts, and in each act having a solo instrument part, and the process has already given me which instrument is going to have his solo, which later I modified and reworked on.

I would highlight some important solo or duet moments below:

In Act 1, solo Bansuri (with accompaniments of other instruments and live electronics), the duet of Bansuri and Tombak as a bridge to Act 2.

Act 2, solo Djoze (accompaniment), a duet of Bansuri and Djoze (it's a dialogue between two different musical cultures), and solo Santur.

Act 3, solo Tombak (and live-electronics), the rhythm become very important in this act, Solo Electronics (Tapes), duet of Tombak and Djoze.

Act 4, solo Santur, and solo Djoze.

An important issue of the piece regarding to the structure, it is the method that the whole structure is made from, it's whole one piece with his macro form and structure without any interruption, but in the same time it is divided four acts with each act having small parts with smaller forms inside. In general the 4 acts have some similarity in their forms (specially the first two acts which almost start in the same way and same timing, but then they develop differently, with also some similarity with 4th act, and less similarity with 3rd act), they have similar important points and picks of timing mostly based on Fibonacci numbers; this is more clear in the beginning of each act, with the timing that instruments and sounds material have played, and later I overlap different layers of times and it becomes more complicated.

Each act has its own role and characteristics, in the same time. I was looking for some different moments, images and feeling in each act but in the same time it is whole pieces connected and unite.

As I explained each act is contained of several major parts, the more precise parts and timing of each act is described in below chart:

The structure of piece “Reflections” 1st act.

| Act 1: | Short name | Instruments & describing | Timing (11:08”) | Light’s color ²⁴ |
|--------|----------------------------|---|------------------|--|
| Part 1 | Intro: Sound Space world 1 | Bansuri starting with slaps and air sound going to whistle tone, with other layers of sounds from Djoze and tomb. | 0:00” 01:30” | Orang, solo circle light on the soloist musicians. |
| Part 2 | Tape | Replay (reconstructed) material from the first part. | 01:30” 03:00” | Dark |
| Part 3 | Contrast (Trills) | Tutti: trill, tremolo, rhythmic and in contrast to other parts before. | 03:00” 04:20” | Orange |
| Part 4 | | Slap, pizzicato, impulses (all instruments) interaction with live electronics and accumulation | 04:40” 05:40” | Blue purple |
| Part 5 | | Bansuri multiphonics and Djoze sound to noise, ending by a figurative phrase of Santur. | 05:40” 06:20” | Orange & Blue line behind |
| Part 6 | Solo Raga | Solo Bansuri in Raga Chandrakauns. (accompanimened by Santur Riz, Djoze and live-electronics) | 06:20” 07:50” | Blue, Purple |
| Part 7 | | Bansuri air, Tombak effect and colors of sound | 07:50” 08:20” | Dark blue |
| Part 8 | Tape | Tape (Electronics, simulation of Tabla sound), dialogue and interactions between Electronics, Bansuri & Tombak. | 08:20” 10:00” | Dark blue & Orang, solo circles |
| Part 9 | Passage to act 2 | Duet Tombak and Bansuri. | 10:00” 11:10” | Orang, solo circle, Blue fading |

²⁴ To understand better the colors, it is possible see some of photos and videos of the performance on the website. (i.e www.aliostovar.com)

The structure of piece “Reflections” 2nd act.

| Act 2: | Short name | Instruments & describing. | Timing (12:17”) | Light’s color |
|---------------|---|--|--------------------|---|
| Part 1 | Intro: Sound Space world 2 | Bansuri Slap at 1” Santur at 5” Riz (trill) on the bridge, Djoze at 8” (touching the strings with the left hand). Tombak at 8” Riz on the wood, This continue by adding and developing to create “sound space” of 2 nd act till 50” and again 55” we have an important sound event. From 38” to 55” live- electronics is reacting more (with granular synthesis and delay lines based on timings). | 00:00” 00:50” | Dark & Skye/Carolin a Blue. Dark & orange with gray/light Blue line in back. |
| Part 2 | | Tutti: different tasks, mostly percussive and impulsive sounds changing the shape (form), colors and spectrum (also range and the pitch). | 00:50” 02:25 | Dark with a Gray/White line at backside. |
| Part 3 | Lento, together ness and separati on | Tutti: slow glissandi (divergent, moving a way from one tone), Tombak has rhythmic pattern. | 02:25” - 03:50” | Orang (back) Yellow (center) Green (front). |
| Part 4 (a) | Tape 1 | Tape & accompaniment of instruments on the structure of the tape. | 03:50 - 05:00” | Dark. |
| Part 4 (b) | Solo | Bansuri solo melody (close to Raga Chandrakauns). | 05:00” - 05:45” | Dark, Orang, solo circle |
| Part 5 | | Djoze Arpeggio with accompaniment of tutti. | 05:45” - 06:30” | Purple 2 solo circles. |
| Part 6 | | Chords and multiphonics (duet Djoze & Bansuri). | 06:30” - 06:45” | |
| Part 7 | Crying part | Tutti, Bansuri Pulsar-beats (battimenti), doze long notes (mostly in high frequency) with slow glissandi and at 5:40” tremolos, Santur in Gusheh Shushtari. | 06:45” - 07:50” | Purple. |

| | | | | |
|------------|---------|---|-----------------|---|
| Part 8 (a) | Tape 2 | Tape 2 with accompaniments of Bansuri (which has also a melody) and Djoze on the structure of the tape. | 07:50" - 09:20" | Dark, some dark blue effects at backside. |
| Part 8 (b) | | Djoze, Bansuri and Santur, a transition, with textures, gestures and some dialogues. | 9:20" - 10:00" | Blue, purple, Orange solo circles |
| Part 9 | Duet | Dialogues of Bansuri and Doze (Maqam Bayat) with accompaniments of Santur and Tombak. | 10:00" - 11:15" | Blue, purple, Orange solo circles |
| Part 10 | Esfahan | Bansuri in Dastgah-e Esfahan and after Santur solo in Dastgah-e Esfahan. | 11:15" - 11:35" | The same. |
| Part 11 | Tape 3 | Tape with accompaniment of other instruments- Ending with Tombak Riz. | 11:35" - 12:15" | Dark, Blue. |

The structure of piece "Reflections" 3rd act.

| Act 3: | Short name | Instruments & describing. | Timing (07:19") | Light's color |
|----------------------|-------------------|---|-----------------|---|
| Part 1 (A, B, C & D) | Solo | Solo Tombak and live-electronics | 00:00" - 02:40" | Sky & Navi blue, Purple & solo circle |
| Part 2 | Sound space Act 3 | Doze starts at 02:40", Bansuri starts at 02:45", Santur starts at 02:48". | 02:40" - 03:19" | The same Blue & purple. |
| Part 3 | Scherzo | Tuning part. | 03:19" - 04:00" | Blue, orange light movement to the public. |
| Part 4 | Tape | Solo Tape. | 04:30" - 05:50" | Audience light coming back changing to Cyan, then Darkness with a orange/red light in the backside. |

| | | | | |
|---------|-----------------------|--|-------------------|---|
| Part 4b | Passage | Tape, Djoze and Tombak. | 05:00'' - 06:10'' | Changing orange light to blue (passing yellow and white) |
| Part 5 | Duet | Rhythmic dialogue between Djoze and Tombak. | 06:10'' - 07:10'' | Solo circles, True/Royal blue back, and orange in front. |
| Part 5b | Closing the duet part | This part is more based on rhythmic structure and interaction between musicians to each other. | 07:10'' - 07:20'' | The same with 4 solo circles. |
| Part 6 | Rhythmic | Tutti: Rhythmic dialogue between Tombak and other three instrument (scored mostly in 4/4) | 07:20'' - 08:10'' | The Same. |
| Part 7 | | Moving through the sound's colors. | 08:10'' - 08:30'' | The same with changing the backside blue to a darker blue line. |
| Part 8 | | Tutti, Percussionist with Daf. Glissandi, sound to noise, long Suspended. | 08:30'' - 09:08'' | The same. |
| Part 9 | Closing Act3 | A few bars, closing the act. | 09:08'' - 09:23'' | Blue line and 3 of circles disappear slowly. |

The structure of piece "Reflections" 4th act.

| | | | | |
|--------|-------------|---|---------------------|--|
| Act 4: | Short name | Instruments & describing | Timing (09:23'') | Light's color |
| Part 1 | Solo Santur | Daramad (Intro, Lento), Solo Santur (in Dastgah-e Chahrgah) and tape. (Introduction to sound world of act 4) 00:55'' Tombak skin sound 01:10'' Tape Electronic rhythms + tutti | 00:00'' | A general orange light and a solo circle, slowly blue line in back |

| | | | | |
|---------|---------------|--|-----------------|--|
| | | with | | side (at 00:55") |
| Part 1b | Melody Tutti | Scored melody in Dastgah-e Chahrgah Tutti (following the timing of Santur, and slowly phasing to create other timings). | 01:25" - 02:15" | More of blue light, orange changes to purple and 4 solo circle light on the musicians. |
| Part 1c | Tape 1 | Tape (grains accumulations) tutti? Instruments similar accumulation process with Santur keys sound ("Stars"), glissando and etc. | 02:15- 3:00 | The same, a bit darker. |
| Part 1d | Tape 1 | Tape (with instruments accompaniment) | 03:00" - 03:30" | The same |
| Part 1e | Passage | Finishing tape, instruments (sounds) | 03:30 - 03:40 | Lighter, less blue & more orange light. |
| Part 2 | Dialogues | Dialogues all instruments. Santur Dastgah-e Chahrgah, Djoze in Maqam Hijazkar, Bansuri Raga Kirwani in F. A short solo of Djoze in "Saba" | 3:40" - 4:25" | The same with solo circles on soloist musician(s). |
| Part 3a | Tape (2) | Final tape with a synthesizer palying Chahargah with accompaniments of instruments. (the Djoze solo from 2 nd part comes back and Santur answers with some figurative melodies which brings the Tombak in when the tape starts the rhythmic part) | 4:55" - 7:12" | Darkness, slowly some dark blue appears, blue transforms to purple at the end. |
| Part 3b | Closing Act 4 | Tutti, instruments without electronics, closing the final part. | 07:12" - 07:19" | Purple, and fading out to black. |

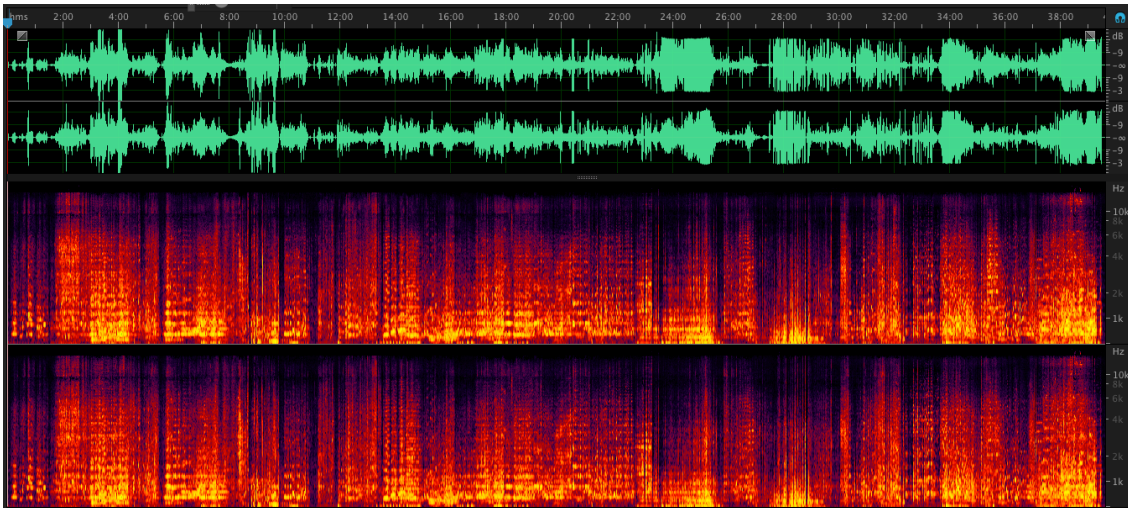


Figure 15: Waveform and spectrum analysis of “Reflections”, whole piece (4 acts) duration ca. 41 minute

Example 7: Score and indications of the piece “Reflections” Act 2 Parts 1 & 2. by Alireza Ostovar

Score

If in “Le Corde Sul Corpo” I have scored the piece totally and precisely to have all parameters under control as a composer, in the opus “Reflections” my strategy and my approach was completely different.

Although the structure is fixed and in some parts the score is totally written, in some other parts the freedom of instrumentalists has an important role, which is related

to the traditional music styles I am working with. The musicians are free to improvise on what is written (the indications); the timing is clear, when to start, when to finish and with some other time marks in the middle. Most of the time there are all indication about the tonality (i.e. Dastgah, Maqam, Raga and other pitch indications.), dynamic, range of frequency (low, mid, high) and etc. are written with details. When there is tape, it has its own timing and structure, which musicians know, and they follow it by watching to a timer in front of them. For example, in the solo Santur in 4th act, the timing is precise, the tape has its own timing and structure and the Santur player follows that, and he is supposed to play freely a Daramad (intro) in Dastgah-e Chahrgah. I find this freedom more natural then scoring that part based on Persian Radif, which the musician knows by his heart and by so many years practicing, playing it from a totally scored part might become more difficult, challenging and maybe mechanical especially when there is the tape and interaction with live-electronics (Considering we couldn't have so many rehearsals for that).

The image shows a handwritten musical score on a grid background, titled "Part 3" (intro (slow)) by Ali Ostovar. The score is divided into four staves, each labeled with an instrument: Djaze, Bansuri, Santur, and Tombak. The Djaze staff includes handwritten notes like "Noise → klog → Fa" and "MP SFZ > p <". The Bansuri staff has "air → sound" written above it. The Santur staff features "F" and "P < MF" markings. The Tombak staff shows rhythmic notation with "p" and "pp" dynamics. Time markers "2:18" and "2:25" are present at the top and bottom of the page.

Example 8: *Reflections*' score example, Act 2 – Part 3 by Alireza Ostovar.

The music performance

Another aspect of music we have to consider is the performance of live music.

The music performance has some cultural aspect related to its tradition and music repertory, in each culture and in each society the (music) performance has different meaning for the people, for the audience and for the performers. Specially in traditional and ethnic music in Middle East (i.e in Iran) the diversity of music can be categorized to: the birth, the life, growing up, epics, treatments, happiness, mourning, tutorial, humorous, worship, specific ethnic and tribal rituals, religions rituals, romantic, describing the nature and the inner state, games, belief-oriented shows, wisdom, mystical, sports, seasonal, Quotations and narrations, and sometimes melodies. [52]

Apart from Classical traditional music, which has different method of performing in each culture (and country), all these divisions have its place in the society and culture.

For the composers of whom are working with the combination of different musical cultures (multiculturality), it is important to know the roots of the music he/she is working with and to think about the aspects of the music, even if it is going to be a modern, contemporary or electronic opus, I think having to thought about this aspect makes a difference in the result.

In the Acousmatic/tape music this aspect is less important; there the performance is the sound its self in the whole hall, and the stage or performance space is different to the concert with musician on the stage, in that case we could consider other musical/cultural aspects.

The Light

Light is an important phenomenon, which can make changes in the perception of sound and listening. In Reflections the light has a role to highlight the presence of musician on the stage at the moment they have solo parts. It also follows the structure of the piece (which is detailed in the structure chart above), with each color connected to each part's meaning and feeling/mood/emotions (from composer's view), its accompaniment and completing the performance. As it is a live performance; I think it's totally fine to listen to the recording of the piece, but when its performed live it is different, when you see the instruments and instrumentalists on the stage, and the sound in the hall is surrounding us, this is a live situation of listening and experimenting which is different to listening at home, studio or on the way! The light and dark are also highlighting some parts of the structure with the colors and changes, as sometimes they have a similar role to the structural and memorial aspects of the piece.

For example, it could be noticed in the very beginning of the piece, some of these ideas base on memory, very clearly by repeating some sounds token from Bansuri Flute (whistle tone from 1st part of 1st act) in the another construction appears in the 1st tape of the 1st act. there we are in the total darkness and after this part the music and light change together in the same direction, Bansuri's trills (laud & exciting) with an orange/red color. and these interactions and relation between sound and light continues until the end of the piece (as you can find in the structure chart).

Electronics and its role

The electronics has an important role to combine different musical cultures together in my compositions. There is a balance between the "pre-composed" tape and live-electronics.

Live-electronics is playing like a live instrument, processing, and manipulating instrument sounds. Similar to the other instruments it has some fixed/score parts, which all parameters are saved before and in some part there is space to improvise, in this sense the live-electronics performer (in this case the composer) can improvise and interact live with the instrumentalists, and create a bridge between two fixed scenes (score) by improvising on the structure and knowing what comes next.

The tape also has an important role in this opus, the tapes are mostly made of sound sources and recorded material from instruments, with many processes in offline, which some are not (easily) possible to realize in real time (live-electronics).

Tapes are precise and are fixed (in this case not on the tape but on the digital media/file). This also helps the structure - the tapes are like reference point, the arrival and departure points, and this also helps the live-electronics be lighter and more secure. Each tape has its own musical functions and some different technical and conceptual approaches were considered.

Some of important processes that I have used in the tapes are the cross synthesis, morphing and convolutions with a lot of attention to the nature of sound's source, with some analysis of spectrum and with the intention of creating different sounds morphologies (e.g. texture) and bridge between parts, sounds (instruments) and in a way between musical cultures I'm working with.

Below I would explain some ideas realized in some of Tapes (the timing is written in the chart of structure above):

In the final tape of act 1, the main sound material is Bansuri's slaps, which transformed to the Tabla sound and remind the traditional and cultural aspect of Indian music, although there is no Tabla instrument in this opus (i.e. on the stage), with this idea I tried to evoke the traditional music that Bansuri is coming from and remind

instrumentation and performance aspect of Indian music (which Tabla has an important role in it) and the place and position Bansuri is in it now. Without making this recalling the main issue of the this part or this act; there is this interaction between the Tape, Bansuri and Tombak, which finishes with a breathing sound and after that closing the first act with the duet of Tombak (rhythmic) and Bansuri (melodic) with accompaniment sounds of Djoze in background, which sounds almost electronic!

In the tapes in act 2, I have a particular attention to the Djoze sound's color and its differences to the Bansuri, in general there are some crossing between material, spaces, and spectrums, and some sound transformations.

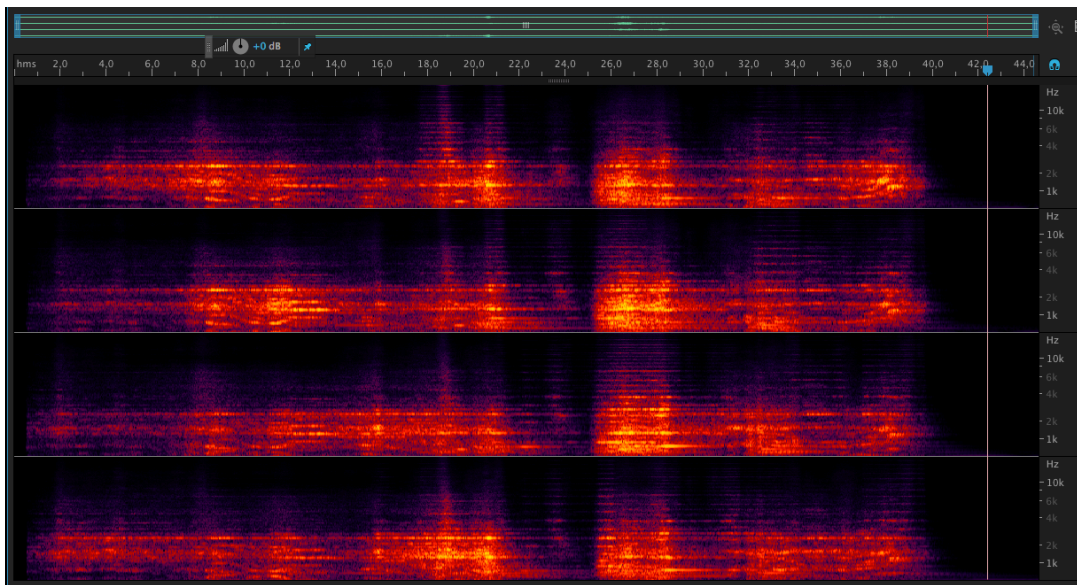


Figure 16: Spectrum analysis (FFT), Tape 3 (4 channels) of Act2, Reflections by Alireza Ostovar

The tape in Act 3 comes from Tombak's sound; as we could listen in the piece this act is very rhythmical (and for that it is scored some parts in bars/beats). After the special attention to the Tombak and its long solo with live electronics (ca. 02:30'') I found this necessary that the tape also reacts to the formation (structure) of this act somehow, and that it comes after tuning part which has also some symbolic reflect. the multi-channel tape sound is loud and a bit aggressive, with a mechanical rhythm and

many repetitions in the micro sound structure made by transposition, transformation, sound stretching and other techniques on the recorded sound from Tombak, which might be not so clear, instance the Tombak player didn't recognize that. and after the tape part similar to the act 1 there is a duet, the duet of Djoze and Tombak, which creates a connection and continuity between the parts.

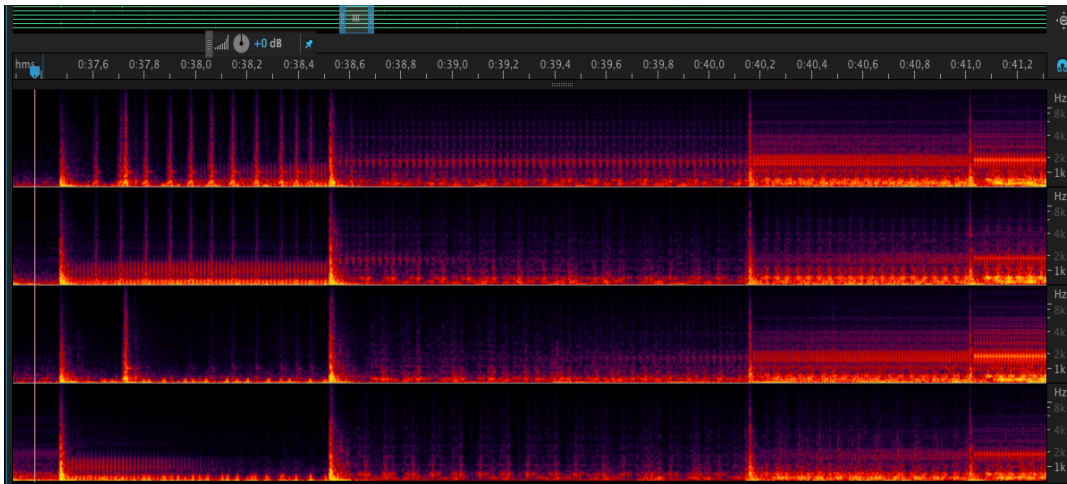


Figure 17: Spectrum analysis (FFT), a few seconds of the tape in Act3, Reflections.

The Act 4 starts with the Santur ('s solo) and the tape, which is made from the Santur's sound materials. The grains of the recorded Santur sounds make a second layer with Santur solo in Chahrgah and after the melodic part (Tutti), there is an accumulation of this material which transits to instrumental sound accumulation.

In the final tape of 4th act, which is the only tape made by an external material (not just from the instruments sounds), is a synthesizer playing a melody (almost) in Dastgah-e Chahargah, this is also a symbolic gesture behind the sound (which is not supposed to be so obvious), there are also some other material from the instrument's sounds.

There is contrast between the synthesizer sound and the instruments, as they are from different worlds, And we can listen to the moan sounds from Djoze, which in on

hand is kind of lamentation, but in another hand is interacting or comparing/completing with the micro tones of the similar Maqam to Chahrgah (Hijazi) on the synthesizer sound, which is using the equal tempered scale.

In the meantime, they have some similarity and slowly the differences in this part become more equal (i.e when Santur plays more) and slowly all sounds are combined together, interacting and creating a general sound, which is specially new, I would call this combination as an example of transcultural process in electroacoustic music or transcultural synthesis.

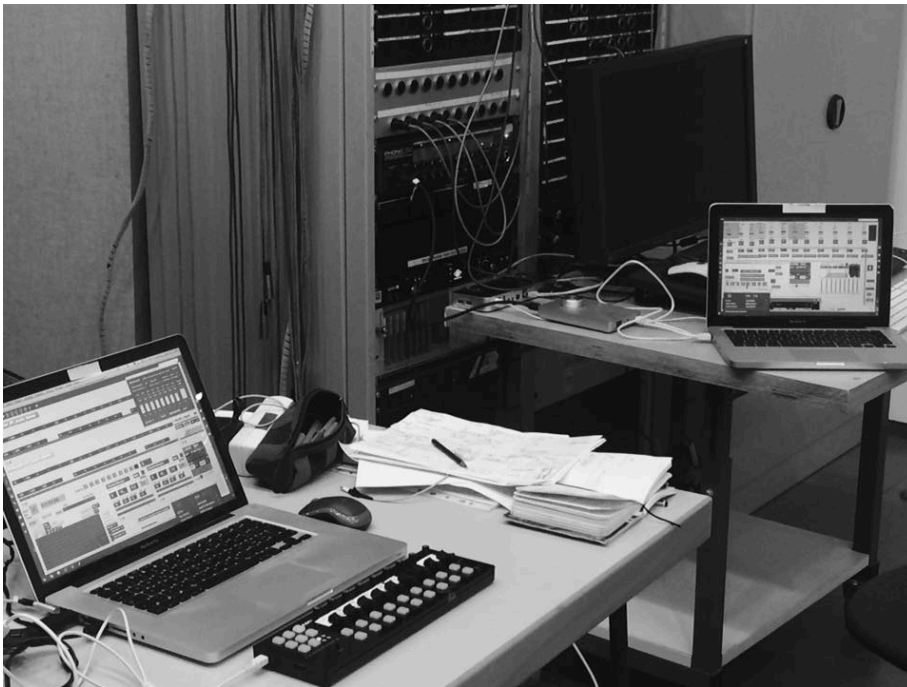


Photo 20: Realization of Electronic parts of the piece “Reflections” By Alireza Ostovar in the ICEM studios.

The spazialization

The spazialization in Reflections is different to Le Corde Sul Corpo. The live-electronics sounds are noted moving between the speakers with automation, instead the process of panning has made manually and the Matrix in Max and by faders of the midi controller and also the mixer console. There are four separate output

channels of live-electronics, which go and multiplicity on the mixer, and we listen to several quadraphonic in the hall (In this case we had 12 loudspeakers).

The tapes are also quadraphonic but those have different kind of spazialization, with some composed/recorded movements between the speakers in space.

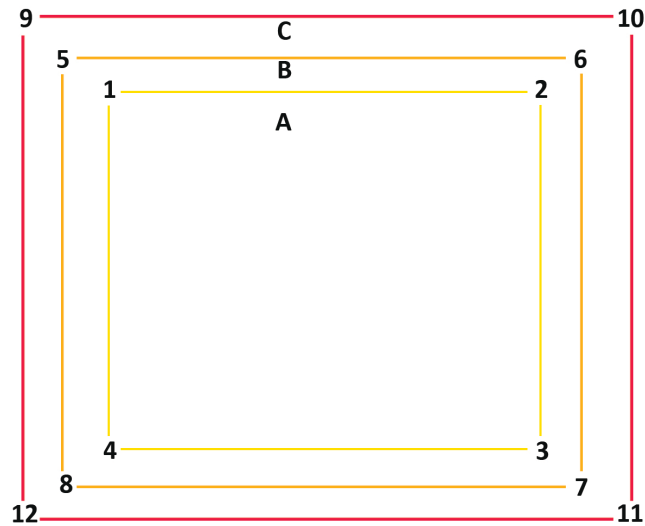


Figure 18: Speaker position in Neua Aula, Folkwang university of Arts, 3 quadraphonic in 3 different levels.

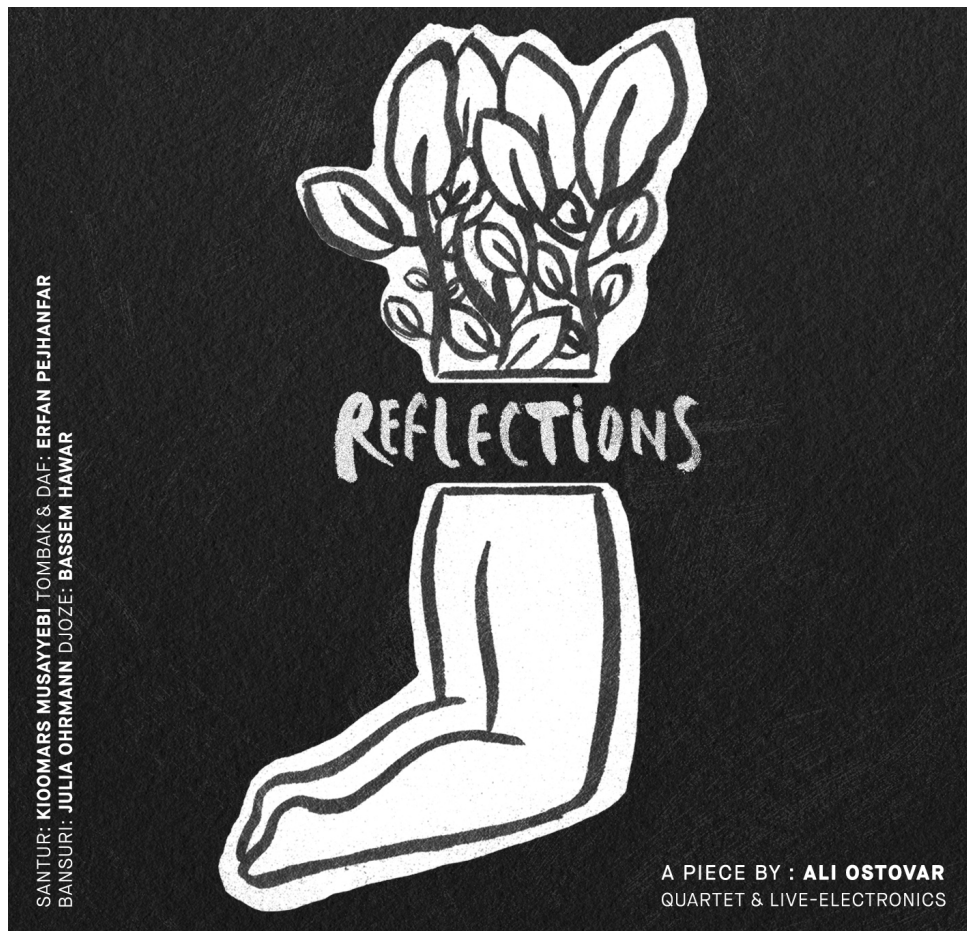


Photo 21: The album “Reflection”²⁵ by Alireza Ostovar, Artwork by Pooya Abbasian

Check and compare some aspects of the author and other composers opuses related to
the topic

As it’s explained in the 3rd chapter, there are not so many composers that have worked on Transcultural Electroacoustic Music, in this thesis is tried to collect the opuses of composers from different nationality and musical/cultural background, which can show different approaches to composition and different results. Here we can look to some similarity and differences of all composers who we had already discussed their

²⁵ The recording is available in Spotify, Itunes, Amazon and some other digital platforms. <https://open.spotify.com/album/798xO08UaY04g9V5Y4WGrb>

work in the last two chapters of this thesis, considering the author has not tried to be influenced by any of them and even didn't know some of them while he was working on his compositions. We have seen that Santur is one of the traditional musical instruments, which some of the indicated composers had worked with it. In the "Santur live!" by Ivan Tcherepnin and "Electro-Acoustic Santur" by Leo Kupper are written for Santur and Electronics, as well as the piece "Le Corde Sul Corpo". As it's explained with more details in previews discussions, each composer had worked differently with Santur.

"Santur Live!" by Ivan Tcherepnin and "Le Corde Sul Corpo" by the author are both composed for a live performance instead of the "Electro-acoustic Santur" which is recorded on the tape.

In both opuses, "Le Corde Sul Corpo" and "Electro-acoustic Santur" there are some similarities in the attention from composers on the instrument Santur; it's possibilities and exploring new techniques of playing (e.g. glissando, discovering new sounds and etc.). Also, the attention of composers to the instrument limitation, for example, the range of Santur's sound and trying to expand this with electronics for example with the bass sound from the synthesizer in "Electro-Acoustic Santur" and with frequency shifter and filters in "Le Corde Sul Corpo".

Some focus on the Santur's sound manipulations by live-electronics in both opuses "Santur Live!" and "Le Corde Sul Corpo" is interesting, for example, the filtering.

Between these pieces "Le Corde Sul Corpo" is the only one precisely scored and the score is available to play by any interested Santur player.

As it has discussed before in opus "Reflections" the tapes are mostly made by the sound source of the instruments, this has some similarities to some process on the

instrument's sound on the album "Electronic Music For Tar and Sehtar" by Dariush Dolatshahi, where we can listen to some electronic parts made by elaboration of recorded instrument's sounds.

The idea of using "Radif in computer music" which Alireza mashayekhi had worked on it in several opuses, for example in "Chahrgah" Op.75 where the synthesizer plays in Dastgah-e Chahrgah in some aspects, has some similarity to the last tape in 4th act of "Reflections", in both the synthesizer plays in Dastgah-e Chahrgah but the results are totally different. It's also different to approaches of Leo Kupper in the "Electro-Acoustic Santur" which is in the same Dastagh (Chahrgah). It's also very different to the point of view of Ivan Tcherepnin because in his opus "Santur Live!" the instrument's sound and Persian Dastgah are practically faded by the live-electronics.

There are some similarities regarding aspects of utilizing improvisations in all opuses discussed, except "Le Corde Sul Corpo".

Alireza mashayekhi had worked on the melody played by a violinist improvised in Dastgah-e Shur, in his opus "Shur".

Dariush Dolatshahi has so many solo parts in his album "Electronic Music For Tar and Sehtar", which the Persian traditional music and instruments such as Tar and Sehtar are remarkable, and the composer had played tar and Sehtar, Similar to Ivan Tcherepnin that had improvised the Santur by himself in his opus "Santur Live!"

Leo Kupper and Klaus Huber both gave indications to the musicians for an improvisation.

Klaus Huber's score method in the opus "Erde bewegt sich auf den Hörnern eines Ochsen", where he gives the timing and structure, and indicates the Maqam to the Arabian musicians with a lot of freedom, has some similarity to some part of Reflections where the score gives some freedom to the musicians. And in both pieces,

the musicians are playing live on the stage, and the composer had some dialogues and ideas exchanges with the musicians.

Conclusion

As we discussed in the 1st chapter, the phenomenon of transculturality is the form of today's culture, which is growing every day, and becoming a part of our daily life and our identities. With considering this changes in our society and also the diversity of cultures, so have many artists and composers become interested to work with elements of Non-Western traditional music in the context of modern, contemporary music/art, and Electroacoustic music.

Based on the history and background of terminologies such as intercultural and transcultural, we have seen how this could be applied in the music field and how we can discuss and analyse the music with some aspect of multiculturalism, interculturality, and transculturality. The author has also proposed and explained some terminologies such as Local and Global Electronic Music, Multicultural, Intercultural and Transcultural (Electroacoustic) Music.

In the 2nd chapter, we had an introduction to Persian traditional music and some of terminologies and concept of its music. We have also seen a Persian instrument, Santur, its physical and musical characteristics, its limitations and also the progresses it has had in the last years, which are important for both Persian traditional music as well as contemporary music.

By considering the terminologies in the first two chapter and some of the questions proposed in the 3rd chapter, we have analysed some opuses of different composers who are working with Arabic and Persian traditional music and instruments (e.g. Santur).

We have seen how the musical background and different approaches of different composers have had a different musical result.

This research also shows the importance of our knowledge and giving correct attention to the element of (traditional) music and its cultural background that we are working with, its relations to our proposal and concept, and the role of technology (and electronics) to create a new musical language to express new sonorities, musicality and identities in both artistic and scientifically approaches.

We have seen by crossing different musical cultures and considering the electroacoustic music and traditional music from a multicultural, intercultural and transcultural perspectives we could find a new perception in the music, which can derive to a new genre of music.

Meanwhile, the author has discussed the position of creating a larger repertory of music in this new genre (transcultural electroacoustic music), “away from all superficiality that can arrive from a different policy and interest of some institutions.”

The author by sharing his experiences especially in his compositions for the specific instruments and also analyzing some composers opuses related to the topic gave some accurate examples of the intercultural, and transcultural process in electroacoustic music.

The Author believes that there are many aspects of this research should develop more and needs to go profounder into this topic and discover new possibilities with different traditional instruments from different cultures, which could be a possible PhD research. He hopes in the future this topic (research) could be improved in different perspectives. He hopes we can see more musical examples and research on this subject.

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List of Figures

| | |
|---|----|
| FIGURE 1: EXPLANATION OF MULTICULTURAL. | 2 |
| FIGURE 2: EXPLANATION OF INTERCULTURAL. | 3 |
| FIGURE 3: EXPLANATION OF TRANSCULTURAL. | 4 |
| FIGURE 4: MAP OF THE MIDDLE EAST. | 11 |
| FIGURE 5: MAP REGIONS OF IRAN. | 12 |
| FIGURE 6: MAP OF MAIN REGIONAL MUSIC IN IRAN (FROM DR. M.R AZADEHFAR PAPER). [16] | 13 |
| FIGURE 7: SEVEN DASTGAH, SCALE COMPARISON FROM NOTE A. | 17 |
| TABLE 1: DASTGAH INTERVALS COMPARISON. | 18 |
| EXAMPLE 1: DASTGAH-E SHUR, GOSHE-E DARAMADE-E AVAL, FROM RADIF OF MIRZA ABODLLAH. (JEAN DURING, THE RADIF OF MIRAZA ABDOLLAH FOR TAR) | 19 |
| PHOTO 1: PERSIAN SANTUR, CLASSIC MODEL WITH 9 BRIDGES (KHARAK) | 21 |
| PHOTO 2: PERSIAN SANTUR WITH DOUBLE LINE BRIDGE. | 21 |
| FIGURE 8: THE RANG OF SANTUR WITH 9 BRIDGE | 22 |
| PHOTO 3: THE RIGHT SIDE OF PERSIAN SANTUR, WITH THE KEYS TUNING. | 22 |
| PHOTO 4: THE LIFE SIDE OF PERSIAN SANTUR, WITH THE PINS. | 23 |
| PHOTO 5: MEZRAB (SANTUR'S STICK). | 23 |
| PHOTO 6: ALBUM, VARIOUS – ELECTRONIC PANORAMA: PARIS, TOKYO, UTRECHT, WARSZAWA, PUBLISHED BY PHILIPS. | 27 |
| FIGURE 9: SPECTRUM ANALYSIS (FFT), BEGINNING OF “SHUR” FIRST PART. | 29 |
| FIGURE 7: SPECTRUM ANALYSIS (FFT) OF THE PIECE “CHAHARGAH (SABA) OP.75” COMPOSED BY ALIREZA MASHAYEKHI | 30 |
| PHOTO 7: “PERSIAN ELECTRONIC MUSIC: YESTERDAY AND TODAY 1966 – 2006” ALBUM BY ALIREZA MASHAYEKHI AND ATA EBTEKAR PUBLISHED BY SUB ROSA. | 31 |
| FIGURE 11: SPECTRUM ANALYSIS OF THE OPUS “SHUR” BY ALIREZA MASHAYEKHI, THE WHOLE PIECE. | 32 |
| PHOTO 8: ELECTRONIC MUSIC FOR TAR AND SETAR BY DARIUSH DOLATSHAHI (2004 SMITHSONIAN FOLKWAYS RECORDINGS / 1985 FOLKWAYS RECORDS) | 33 |
| PHOTO 9: IVAN TCHEREPNIN'S SET UP. [34] | 34 |

| | |
|--|----|
| PHOTO 10: LEO KUPPER PLAYING SANTUR, PHOTO COURTESY OF LEO KUPPER | 39 |
| PHOTO 11: LEO KUPPER WORKING WITH HIS HAND MADE GAME MACHINE. PHOTO, COURTESY OF LEO KUPPER | 42 |
| PHOTO 12: BY HARALD REHLING, MAY 2012, KLAUS HUBER. | 43 |
| FIGURE 12: WAVEFORM AND SPECTRUM ANALYSIS, SEE THE LOUDNESS & DENSITY OF MATERIAL IN THE PIECE “ERDE BEWEGT SICH AUF DEN HÖRNERN EINES OCHSEN” (1993) BY KLAUS HUBER. | 48 |
| PHOTO 13: IMAGE OF OM PATCH FROM OPENMUSIC WEBSITE. | 53 |
| EXAMPLE 2: FIRST 12 PARTIAL OF THE NOTE C2 (65Hz) WITH DISTORTION COEFFICIENT OF 1.43. | 54 |
| EXAMPLE 3: FIRST SCENE, F_698Hz, 1.106 DISTORTION, 24 PARTIALS, HERE MUST BE FOUR OCTAVE HIGHER. | 54 |
| EXAMPLE 4: FIRST SCENE, E_1315Hz, 1.01 DISTORTION, 24 PARTIALS, HERE MUST BE FOUR OCTAVES HIGHER. | 54 |
| EXAMPLE 5: FIRST SCENE, 3295Hz, -1.27 DISTORTION, 24 PARTIALS. | 55 |
| FIGURE 13: MODALYREZA, HAS USED THE POLY~ IN MAX/MSP. | 58 |
| PHOTO 14 : PREPARED SANTUR FOR THE PIECE “LE CORDE SUL CORPO” | 64 |
| EXAMPLE 6: BARS 32-34, SCORE OF THE PIECE “LE CORDE SUL CORPO”. | 64 |
| FIGURE 14: SPECTRUM ANALYSIS (FFT), “LE CORDE SUL CORPO” QUADRAPHONIC VERSION. | 66 |
| PHOTO 15: PERFORMANCE THE PIECE “THE REFLECTION OF MEMORY OF A ROOM”, BANSURI PERFORMER JULIA OHRMANN. | 72 |
| PHOTO 16: DRESS REHEARSAL THE PIECE “REFLECTIONS ON EACH OTHER” ON 2016, BANSURI PLAYER JULIA OHRMANN (LEFT), AND DJOZE PLAYER BASSEM HAWAR (RIGHT). | 73 |
| PHOTO 17: PERFORMANCE THE PIECE “REFLECTIONS” ON 2017, PERSIAN PERCUSSIONS PERFORMER ERFAN PEJHANFAR. | 75 |
| PHOTO 18: SANTUR SET UP FOR THE PERFORMANCE OF “REFLECTIONS” ON 2017. | 76 |
| PHOTO 19: PERFORMANCE THE PIECE “REFLECTIONS” ON 2017, SANTUR PERFORMER KIOOMARS MUSAYYEBI. | 76 |
| FIGURE 15: WAVEFORM AND SPECTRUM ANALYSIS OF “REFLECTIONS”, WHOLE PIECE (4 ACTS) DURATION CA. 41 MINUTE | 85 |
| EXAMPLE 7: SCORE AND INDICATIONS OF THE PIECE “REFLECTIONS” ACT 2 PARTS 1 & 2. BY ALIREZA OSTOVAR | 85 |
| EXAMPLE 8: REFLECTIONS’ SCORE EXAMPLE, ACT 2 – PART 3 BY ALIREZA OSTOVAR. | 86 |
| FIGURE 16: SPECTRUM ANALYSIS (FFT), TAPE 3 (4 CHANNELS) OF ACT2, REFLECTIONS BY ALIREZA OSTOVAR | 90 |
| FIGURE 17: SPECTRUM ANALYSIS (FFT), A FEW SECONDS OF THE TAPE IN ACT3, REFLECTIONS. | 91 |
| PHOTO 20: REALIZATION OF ELECTRONIC PARTS OF THE PIECE “REFLECTIONS” BY ALIREZA OSTOVAR IN THE ICEM STUDIOS. | 92 |

FIGURE 18: SPEAKER POSITION IN NEUA AULA, FOLKWANG UNIVERSITY OF ARTS, 3 QUADRAPHONIC IN 3 DIFFERENT LEVELS.

93

PHOTO 21: THE ALBUM "REFLECTION" BY ALIREZA OSTOVAR, ARTWORK BY POOYA ABBASIAN

94

List of d tables

| | |
|---|----|
| THE STRUCTURE OF PIECE "REFLECTIONS" 1 ST ACT. | 80 |
| THE STRUCTURE OF PIECE "REFLECTIONS" 2 ND ACT. | 81 |
| THE STRUCTURE OF PIECE "REFLECTIONS" 3 RD ACT. | 82 |
| THE STRUCTURE OF PIECE "REFLECTIONS" 4 TH ACT. | 83 |

Appendix 1

Score of “Le Corde Sul Corpo”