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THE GALATA ELECTROACOUSTIC ORCHESTRA (GEO) PROJECT

Abstract

The GEO (Galata Electroacoustic Orchestra) project is inspired by the historical relations between Genova and Istanbul. The general objectives of GEO IP were: to found the Galata Electroacoustic Orchestra, based on the idea of live collective composition by students; to merge Western Classical tradition of score-based music and improvisational techniques, in particular of Turkish Makam Music. The learning outcomes achieved are mainly related to the acquisition of skills and abilities in the following disciplinary areas: theoretic, ethnomusicological, technological, performing and compositional. GEO is a Lifelong Learning Programme IP n° 2012-1-IT2-ERA10-38878.

Keywords: Collective Composition, Cross-curricula, Electroacoustic Music, Improvisation, Music Education.

INTRODUCTION

The GEO project was inspired by the historical relations between Genova and Istanbul. In the 13th century the Treaty of Nymphaeum, agreed with the Byzantine emperor Michael VIII Palaelogus, granted great privileges in exchange for the Genoese naval intervention in the Constantinople Sea to restore the power of the lawful Emperor. So GEO stands for Galata Electroacoustic Orchestra, from the Genoese quarter Galata in Istanbul dating back to the 12th century where the Tower of Christ (Christea Turris) is still preserved.

Almost all the aspects of the European Culture have been affected by the Arabian culture from the 12th to 18th century. European composers of the classical era – notably Haydn, Mozart, and Beethoven – started to use instruments considered unusual for that

time in Europe (e.g. bass drum, triangle, cymbals) coming from the Turkish military bands, playing the so-called Janissaries music. More in general, since the beginning of the 20th century extra-European music and traditional folk music became a true source of inspiration for Western composers (particularly Bartók). Although many studies have been made on the reciprocal influences, the theory, practice and teaching on the true contact points between such different musical cultures are nowadays separately carried out in different Countries. GEO tried to overcome this deficiency with a multidisciplinary didactical approach to the specific subject and to his current potential, thanks to the contribution of electroacoustic technology.

Our main aim was to create a bridge between digital and traditional instruments through performance practices. According to our opinion the conceptual and technological tools of the Electroacoustic Music – a truly new musical language based on the idea to compose THE sounds, not only WITH the sounds – fit such creation and lead to new musical experiences.

The GEO project was realized in 2013 as a Lifelong Learning Programme IP n° 2012-1-IT2-ERA10-38878. Its general objectives were: to found an orchestra devoted to live collective composition by music students; to merge Western Classical tradition of score-based music and improvisational techniques, in particular of Ottoman/Turkish makam music and Anatolian folk music. We wanted to escape from the Western Romanticism solipsistic figure of the composer, in favour of the idea of collective live composition arising from regular performance practice.

IMPROVISATION AS FRAMEWORK

As a paradigm to work with in GEO we choose improvisation. Why improvisation? To paraphrase Derek Bailey introducing his documentary (Bailey, 1991): it is the most widely practice of all musical activities; it is probably the least recognized or understood, as it is often associated to stereotypes like “making it happens as you go along” or “play it over top of your head”; it isn’t any one style of music; it is present in all the different music: Western Classic, Eastern Classic, folk, jazz, electroacoustic; it doesn't belong to East or to West.

One of the first scholars to write on improvisation in a multicultural context is the ethnomusicologist Bruno Nettl. I am quoting here two significant passages from his seminal article I have used during my introduction lecture to GEO participants: “A musical repertory, composed or improvised, may be viewed as the embodiment of a system, and one way of describing such a system is to divide it theoretically into its component units. These units are, as it were, the building blocks which tradition accumulates, and which musicians within the tradition make use of, choosing from among them, combining, recombining, and rearranging them. These building blocks are,

even within a single repertory, of many different orders. They are the tones selected from a tone system; they are melodic motifs; they are harmonic intervals and interval sequences in improvised polyphony; they are types of sections (e. g. the exposition of sonata forms). These few examples show how greatly varied they are in extent and size." (Nettl, 1974, p. 13)

"But the conclusion which recurs again and again in our thoughts is that perhaps we must abandon the idea of improvisation as a process separate from composition and adopt the view that all performers improvise to some extent. What the pianist playing Bach and Beethoven does with his models — the scores and the accumulated tradition of performance practice — is only in degree, not in nature, different from what the Indian playing an *alap* in *Rag Yaman* and the Persian singing the *Dastgah* of *Shur* do with theirs." (Nettl, 1974, p. 19)

But there are less academic explanations for choosing improvisation to underpin the creation of GEO. As I am deeply convinced that any educational project will succeed if the teacher is highly motivated, my first draft of the GEO project was dictated by my personal musical background. As many composers of my generation I started playing rock-blues at the end of the 60s, but soon I discovered the Electric Miles Davis. Listening back to his production, I was struck by the John Coltrane performance of *Bye bye blackbird* in Paris (1960) with the Miles Davis Quintet. In this tune Coltrane works on timbre, rather than on modes, searching for harmonics through multiphonics, a scandal for the Paris audience and probably even to Miles' ears. He therefore breaks the boundaries of jazz tonal and rhythmic principles, but also the temporal dimension as he clearly play out of time, concentrated only on the acoustic spectrum of his instrument. Since then I was listening to all the free jazz I could get. But my playing (I was first an electric bass player, then a double-bass player) changed completely when I bought a new printed LP's box by Karlheinz Stockhausen called *Aus den Sieben Tagen*. His verbal scores and the improvisations by his group opened to me the doors to electronic music, to which I devoted my entire professional career.

Along the path that brought me to use improvisation as a framework in GEO I finally would like to mention three important figures:

- John Cage: "Methods of writing percussion music have as their goal the rhythmic structure of a composition. As soon as these methods are crystallized into one or several widely accepted methods, the means will exist for groups' improvisations of unwritten but culturally important music. This has already taken place in Oriental cultures and in hot jazz" (Cage, 1937. p. 5).

- Gruppo di Improvvisazione Nuova Consonanza (Franco Evangelisti, Giancarlo Schiaffini, Egisto Macchi, Ennio Morricone, Giovanni Piazza, Antonello Neri): the "all-composers" group of improvisation, founded in Roma, 1964.
- Luigi Nono's scores of the 80s, that came in their fixed form after listening hours of free improvisation by his reliable performers.

There is one more definition I would like to add to the above indicated by Bailey: it is the most difficult musical practice. Above all if it is performed in a multifaceted context like GEO. In fact it requires the understatement of the historical background of the different musical cultures involved and the knowledge of a huge body of works, from folk to jazz, from classical and avant-garde Western tradition to Middle-East tradition, from acoustic to electronic culture. This is why, as we will see, all the practical activities in GEO were introduced by historical and theoretical lectures.

To start dealing with improvisation we gave the following guidelines:

- A good improvisation implies more listening rather than playing.
- Instead of limiting your interaction with the other performers to pitch, dynamics and tempo, concentrate your listening and sound production to timbre. To develop this skill use the metaphor of Timbre Space as formulated by psychoacoustic researchers such as John Grey (Grey, 1975) and, more recently, William Hsu (Hsu, 2005).
- The acoustic performers have to work in what we call, after Xenakis, the "hors-temps" (out of time) composition dimension, before realizing any performance "en temps" (in time) (Xenakis, 1965). So they are invited to investigate more their sounds microstructure.
- The sound environment can be a common ground for both acoustic and electroacoustic performers, a kind of soundscape.
- Start with very short improvisations on one only sound (pitch, dynamic, duration or timbre), or articulation.

Probably the most demanding changes of attitude, we asked to electronic performers. It is an important and innovative aspect of the electroacoustic culture the transition from the traditional idea of 'instrument' (i.e. a tool for producing restricted categories of sounds) to the new idea of 'environment' (i.e. a manifold tool). But we often confuse live electronics with improvisation. Live electronics is a performing environment designed for a specific piece, and generally lasts as long as the acoustic instruments (or any other sound source) play, as the performance is mainly based on real-time controlled transformations of the live acoustic source. While the acoustic performer can change in a blink of an eye many different properties of her/his sound modifying one only parameter, the live electronics performer has usually to bang

buttons, move sliders, turn virtual knobs, before changing significantly her/his sound. To achieve what we call improvisation we therefore need to gain immediacy, musician's interaction, flexibility, unpredictability. So for electroacoustic improvisation, we have to adopt the instrument model (fast but limited), in spite of the compositional, manifold model ("unlimited", but slow).

Other sources of inspiration for the improvisers came from the IP activities as we will describe later.

THE GEO IP[1]

What is an IP? An Intensive Programme is a study programme within the Erasmus Lifelong Learning Programme 2007-2013 (usually ten days), which brings together students and teaching staff from the third level institutes of at least three different countries participating in the programme. The aim is to foster the teaching of particular subjects and to allow the people involved to benefit from learning and teaching in very favorable conditions.

Although the organization of the GEO IP does not concern the topic of this paper, it has been an important and much demanding part of the project, so I would like to mention here the staff involved in: Patrizia Conti (Project and International Activities Coordinator), Raffaele Guido (Administrative Director), Manuela Benedetti (Administrative Assistant), Elisa Tabò (trainee). Coordinator of the GEO IP project was the Music Conservatory "Niccolò Paganini" in Genova, while the Partners were Istanbul Bilgi Üniversitesi, Istanbul Teknik Üniversitesi, Universitat Pompeu Fabra in Barcelona, Music Conservatory "G. Pierluigi da Palestrina" in Cagliari. The teachers enrolled on have been Mauro Balma (Ethnomusicologist, Genova), Sinan Bökesoy (Sound Artist, Istanbul), Fabrizio Casti (Music Composition, MC Cagliari), Tolgahan Çoğulu (Anatolian Folk Music, ITÜ), Roberto Doati (Electronic Music, MC Genova), Alessandro Olla (Electronic Music, MC Cagliari), Sertan Şentürk (Music Technology, UPF), Xavier Serra (Music Technology, UPF), Francesco Surdich (Historician of Geographical Exploration, University of Genova), Tolga Tüzün (Composition and Computer Music, Bilgi).

The project started with the students' selection. They were from Bachelor's degree, Master's degree and Doctor's degree with proven experience in one of the following areas: composition, improvisation, interpretation with acoustic and/or electronic instruments within classic, jazz or folk music. The students we finally selected were 33 with different musical backgrounds.

[1] A booklet and a documentary DVD with a selection from lectures, workshops, laboratories and Genova concert is available on request from Conservatorio di Musica "Niccolò Paganini", via Albaro 38, I-16145 Genova, http://conspaganini.it/

MC Genova: 2 from classical music (harp and cello) with no improvisation experience, 3 from jazz (voice, electric guitar, tenor saxophone), 4 from electronic music (just 1 with improvisation experience with electric bass);

Bilgi: all 5 from electronic music with improvisation experience;

ITÜ: all 5 from Anatolian Folk music, playing traditional instruments (bağlama, kemençe, ney, tar, voice) with no free improvisation experience;

UPF: 6 from electronic music and science technology (3 with improvisation experience), 1 from Carnatic classical music (mridangam, a percussion instrument) with no improvisation experience;

MC Cagliari: 6 from electronic music with improvisation experience, 1 from Sardinian traditional folk music (voice and percussion).

Within each institution the students were prepared in advance. For example in Genova, where we had the less experienced improvisers, the departments of Music Composition (Riccardo Dapelo), Jazz (Pietro Leveratto) and Electronic Music (Roberto Doati) organized "Improvvisa-mente", a joint workshop (24 hours) on different forms of improvisation, with lectures and practical sessions.

The IP activities

As it can be seen in figure 1, the activities were divided in Lectures (20 hours), Workshops (28 hours), Laboratories (24 hours), an instruction visit to the Galata Sea Museum (6 hours), a rest day with boat trip to San Fruttuoso, concert rehearsals and a final public concert (10 hours).

We chose on purpose to do the IP after mid-July, when exams and classes are finished. So the whole Conservatory was available, using single classrooms for practicing and the concert hall for lectures, workshops and labs.

Different subjects were covered during the IP: Acoustical analysis (microphones as sensors), Interaction, Music Notation, Gesture, Control Interfaces, Embodied Knowledge, Laptop Performance, Computational Analysis, History. In fact, as we stated before, the practice of collective improvisation is more fruitful when it becomes a behaviour, i.e. when the performers define their actions in conjunction with a physical and cultural environment. So what we did during the IP was to produce such an environment touching different aspects. Therefore my idea of GEO was of creating an organism (Galata Electroacoustic Organism?), were all the musicians respond to different stimuli as a system within the same shared set of properties.

Conservatorio di Musica "Niccolò Paganini - Genova

GEO (Galata Electroacoustic Orchestra)

INTENSIVE PROGRAMME

LECTURES (L) - WORKSHOPS (W) - LABORATORIES (LAB)

Figu

	DAY 1 Monday July 15th	DAY 2 Tuesday July 16th	DAY 3 Wednesday July 17th	DAY 4 Thursday July 18th	DAY 5 Friday July 19th	DAY 7 Monday July 22nd	DAY 8 Tuesday July 23rd	DAY 9 Wednesday July 24th	DAY 10 Thursday July 25th	DAY 11 Friday July 26th
9-11	Roberto Doati (L) *The GEO Project*	Xavier Serra (L) *Music information processing and traditional music*	Sertan Şentürk(L) *Information processing techniques applied to traditional turkish music*	Roberto Doati (W) *Forms of the GEO concert I*	Alessandro Olla (L) *Cantu a tenore: Traditional song of center Sardinia*	Tolgahan Çoğulu (L) *Microtonal music and temperament systems*	Alessandro Olla (W) *Azimuth: Live Electronics improvisation with traditional sounds and acoustic identity*	Tolga Tüzün (Lab) *Bilgi Laptop Orchestra*	Roberto Doati (W) *Forms of the GEO concert II*	GEO Concert Rehearsals 1st group
	Coffee break	**Coffee break**	**Coffee break**	**Coffee break**	**Coffee break**	**Coffee break**	**Coffee break**	**Coffee break**	**Coffee break**	**Coffee break**
11-13	Francesco Surdich (L) *Routes, travels, trade and cultural exchanges in the Mediterranean Sea*	Fabrizio Casti (L) *Traditional folk music in Sardegna*	Tolgahan Çoğulu (W) *Ottoman/Turkish maqam music and Anatolian Folk Music*	Tolga Tüzün (L) *Turkish Electroacoustic Music: an Historical Perspective*	Alessandro Olla (W) *Azimuth: Live Electronics improvisation with traditional sounds and acoustic identity*	Sinan Bokesoy (Lab) *GEO concert with live transmission of the harbor sounds*	Alessandro Olla (W) *Azimuth: Live Electronics improvisation with traditional sounds and acoustic identity*	Tolgahan Çoğulu (W) *Ottoman/Turkish Maqam Music and Anatolian Folk Music*	Sinan Bokesoy, Roberto Doati, Tolgahan Çoğulu, Tolga Tüzün (Lab) *GEO*	GEO Concert Rehearsals 2nd group
15-17	Mauro Balma (L) *Traditional folk music in Liguria*	Fabrizio Casti (W) *Sounds coming from afar: signs and gestures*	Tolgahan Çoğulu (W) *Ottoman/Turkish Maqam Music and Anatolian Folk Music*	Tolga Tüzün (Lab) *Bilgi Laptop Orchestra*	Fabrizio Casti (W) *Sounds coming from afar: improvisation and composition*	Sinan Bokesoy (Lab) *GEO concert with live transmission of the harbor sounds*	Tolga Tüzün & Roberto Doati (Lab) *The Galata Electroacoustic Orchestra*	Tolga Tüzün & Roberto Doati (Lab) *The Galata Electroacoustic Orchestra*	Sinan Bokesoy, Roberto Doati, Tolgahan Çoğulu, Tolga Tüzün (Lab) *GEO*	GEO Concert Rehearsals 3rd group
	Coffee break	**Coffee break**	**Coffee break**	**Coffee break**	**Coffee break**	**Coffee break**	**Coffee break**	**Coffee break**	**Coffee break**	**Coffee break**
17-19	Xavier Serra (L) *Traditional folk music in Catalunya*	Tolgahan Çoğulu (L) *Basic theory of Ottoman/Turkish Maqam Music*	Xavier Serra (W) *Music information processing and traditional music*	Sertan Şentürk (W) *Pitch analysis of traditional turkish music*	Xavier Serra (W) *Music information processing and traditional music*	Sinan Bokesoy (L) *Electroacoustic treatments on sonic potential*	Tolga Tüzün & Roberto Doati (Lab) *The Galata Electroacoustic Orchestra*	Tolga Tüzün & Roberto Doati (Lab) *The Galata Electroacoustic Orchestra*	Sinan Bokesoy (Lab) *GEO concert with live transmission of the harbor sounds*	GEO Concert Rehearsals ALL
21										**Concert**

We will see now in more detail the contents of the GEO IP activities. Francesco Surdich in his “Routes, travels, trade and cultural exchanges in the Mediterranean Sea” traced the extremely complex and intricate historical-cultural reality of the Mediterranean Sea, which all the three Countries involved in the GEO project have been facing. Mauro Balma, Xavier Serra, Fabrizio Casti and Alessandro Olla, thanks to several videos and listening sessions, presented respectively the traditional folk music of Liguria, Catalunya and Sardinia (mainly *launeddas* and *cantu a tenore*).

But the most treated traditional music was of course the Turkish one. We started with Tolgahan Çoğulu who first distinguished Ottoman Art Music and Anatolian (Asia Minor) Folk Music. Then he defined the concept of 'makam' and gave a classification of them: Simple, Compound and Transposed. He further discussed tetrachords/ pentachords and microtones that form the skeleton of makam, along with the melodic progression (*seyir*) concept and the rhythmic structure (*usul*).

Traditional folk music brings new timbres to our hearts (each traditional folk music is exotic, because of time and/or space distance), as well as new compositional models, not only in terms of pitch scales, but also as time organization. To better understand this it has been extremely important to follow the work driven by Xavier Serra at UPF who just started “CompMusic. Computational Models for the Discovery of the World's Music”, a research project funded by the European Research Council (2011-2016). Its main goal was to advance in the automatic description of music through the development of information modeling techniques applicable to five non-Western music cultures: Andalusian (Maghreb), Turkish-makam (Turkey), Han (China), Hindustani (North India), Carnatic (South India). This explains why we had three Indian students from UPF.

Sertan Şentürk introduced us to the information processing techniques applied to tonic identification, makam recognition, tuning analysis, melody modeling and instrument modeling in traditional Turkish music. Finally Tolga Tüzün gave a historical perspective on Turkish composers of electronic and electroacoustic music. From the pioneering work of İlhan Mimaroğlu and Bülent Arel to the music of the latest generation.

The practical nature of the workshops started with Tolgahan Çoğulu. All the makam's improvisatory characteristics and melodic progressions were played live by his students. After a discussion on the possibilities to play microtones with the Western instruments, all the other acoustic performers joined the group.

Figure 2: the GEO IP participants on the concert-hall stage at the Genova Music Conservatory

Fabrizio Casti during his workshop, “Sounds coming from afar: signs and gestures”, made an analysis of some musical to be used as models for the generation of new music material. Then he entered the gestural code subject, choosing from this material the most apt to be transformed in visible signals.

“Forms of the GEO concert I & II” by Roberto Doati are concerned with description and listening sessions of the different forms Western music took in the second half of the 20th century from Serialism to Free Improvisation. Then guidelines were given to electroacoustic (laptop) performers for dealing with assigned task on short, single/duo performers' improvisations.

One important tool for the laptop performers seemed to us the acoustic analysis of the acoustic instruments. So Sertan Şentürk devoted a workshop on pitch analysis and embellishments - such as slurs, tremolos, legatos - of traditional Turkish music with the aim to produce a stronger performers' interaction.

Then time had come when students started to know each other, both socially and musically. Therefore we started to make them playing together. Alessandro Olla and Fabrizio Casti held two workshops where collective improvisations – little by little

merging the different musical cultures - were directed using a vocabulary of gestures and signals agreed with the performers, in a way similar to Butch Morris 'conduction' (Stanley, 2009).

During the laboratories Tolga Tüzün and his students (Bilgi Laptop Orchestra) gave an example of their skill of improvisers. The main method used was an analytical listening leading to the development of some cognitive maps for a better understanding of the electroacoustic/traditional Turkish music realm.

The second week we introduced a new figure: the sound artist. While I was preparing the draft of the GEO Project, I found on the web the following statement made by Gluck (2005): I believe Turkey will have more possibilities to let young composers become educated in this field [electronic music] and promote themselves to the world with their art. I expect especially new things to happen with mixing the native culture and Western tools. Who declared this in 2003 was Sinan Bökesoy, a Ph.D. in Computer Music & Composition at University of Paris VIII, under the direction of Horacio Vaggione. His idea to combine native culture and Western digital tools together with his growing use of sonic events from the city convinced me to invite him to integrate an acoustical mapping of the live harbour sounds with the GEO concert. He thus introduced the students to his newly developed Cosmosƒ plugin to transform the sonic eco-system of the Genova harbour.

After seven days monitoring the students, and four days before the final concert, it was time to form the orchestra. We decided to proceed according a step-by-step plan. First we formed 8 groups of 4 performers each following the rule of the largest heterogeneity, both in terms of musical instrument's nature and cultural identity (B=Barcelona, C=Cagliari, G=Genova, I=Istanbul):

Group 1: 2 percussions (B, C), 2 laptops (B, I)
Group 2: ney (I), tenor saxophone (G), 2 laptops (B, C)
Group 3: bağlama/female voice (I), female voice (G), 1 laptop (G)
Group 4: bağlama (I), harp (G), 1 laptop and electric guitar (C), 1 laptop (I)
Group 5: clarinet (C), electric bass (G), 2 laptops (C, I)
Group 6: tar (I), electric guitar (G), 2 laptops (C, I)
Group 7: kemençe (I), cello (G), 2 laptops (B, I)
Group 8: 4 laptops (B, C, G, G)

The groups had different tasks - although following their personal musical choices - and they had to practice their improvisations in separate rooms under the teachers'

supervision. The tasks were quite simple[1] albeit quite demanding to improvise on: realize 2 different modules (1 slow, 1 fast) on one of the following structural principles: textures, pointillistic structures with short and long single sounds, melodic counterpoint using Turkish makams, interweaving rhythms using folk models, accumulation, discontinuous patterns. Each laptop player was allowed to use whatever software she/he preferred, except those of Group 8, who had all to learn the usage of Cosmosƒ plugin.

It is worth mentioning that at the beginning the Turkish folk musicians and the Indian percussionist from Barcelona were shocked by the idea of free improvisation. As we already mentioned quoting Bruno Nettl, the Eastern concept of improvisation is basically of choosing, combining, recombining, and rearranging tones, scales, sequences and embellishments within a strong tradition. But after having listened to the way the Western students played their instruments, the Turkish started to acquire the abilities to improvise in free form. As for the Indian student, his feeling changed completely as soon as he realized that playing one of his 128 beats *tala* with its irregular accent pattern, would have sound to our Western ears as a totally free improvisation! We could therefore say that GEO's main goal is to have built "a social environment in which cognition, reception, performance, improvisation and composition take place" (Lewis, 2009, p. 462).

Two days of single group intense practicing were considered enough to reach a high degree of interaction between its components, so we moved to a larger ensemble. Now they had to play under the guidance of a conductor. Tolga Tüzün and Roberto Doati were in charge for three groups each.

Tolga Tüzün started to rehearse with Groups 3, 4, 7 choosing few signs and shaping the music from simple articulations. He was working at musical material level, always improvising but according to some given principles: long values beyond of short term memory, short values under temporal integration, past events figuring in present (ghost events), future events figuring in present (clairvoyance/pre-echo), continuum (rhythm, pitches, timbres), dynamic spaces, textures, granulation, striation, elasticity.

Roberto Doati was directing Groups 1, 2, 6 with a more "electronic" attitude. Having first heard all the modules each group prepared, he kept them in mind as in a multitrack mixer calling them at will, modifying their dynamics. One of his instructions was that whenever a module was called for a second time, rather than start it again from the beginning, the musicians had to continue from where they arrived before.

[1] It is important to recall that in Electroacoustic Music each performer is a composer, so they are aware of formal issues.

Group 5 was free from any direction, as during the single group supervision we noticed that the students were quite forward in developing a complex timbral interchange and formal control. Group 8 was under control of Sinan Bökesoy (as it will be explained later).

The small concert hall we were rehearsing in determined the arrangement of the orchestra in a curved shape and the two conductors were not face to face. While Tolga Tüzün dealt with his groups taking decisions mainly on listening, Roberto Doati since the beginnings noted down the most succeeded passages. In figure 3 there is his final notation for the concert. Rather than a score, it is a mnemonic device.

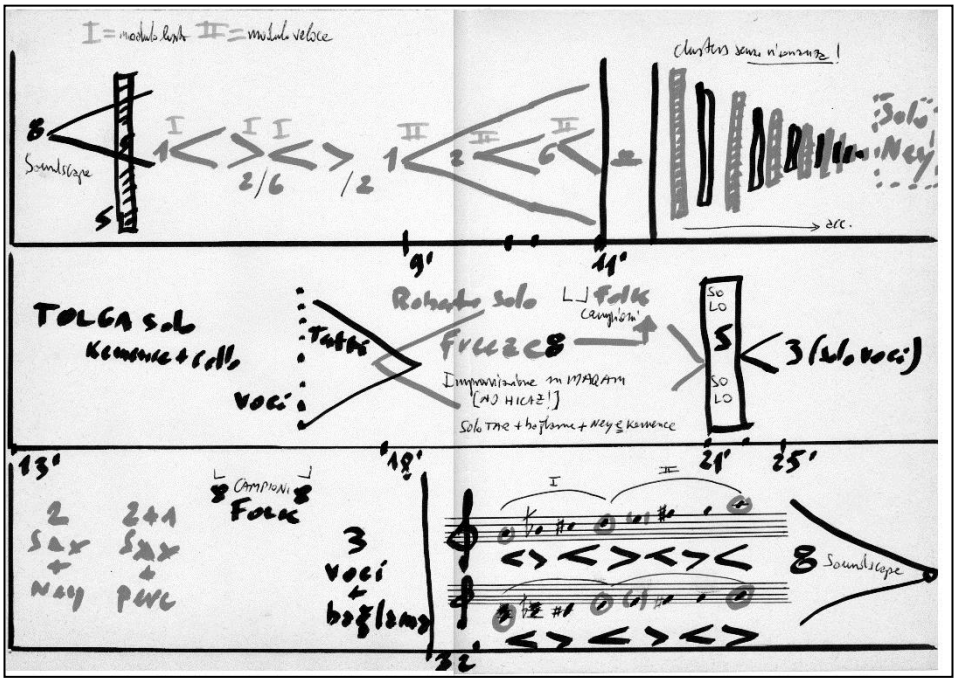

Figure 3: Roberto Doati's notation for Compasso da navegare. On the x-axis is time in minutes. The cardinal numbers refer to GEO's groups, the ordinal numbers to improvisation modules.

COMPASSO DA NAVEGARE

The last day of the IP was finally devoted to rehearse a guided collective improvisation to be performed on the stage of Piazza delle feste (figure 4), in the Genova old harbour, restored by Renzo Piano in 1992.

Figure 4: the tensile structure of Piazza delle feste (by Renzo Piano), Genova old harbour

Any composer needs a metaphor to start her/his musical creation, and as the dialogue between the three countries involved in the project was an important target for GEO, we adopted the portolan chart. A portolan chart was a tool that during the European Middle Ages served as a kind of guide for sailors, a book of sailing directions with charts and descriptions of the coasts.

So we called our concert *Compasso da navegare* (Callipers to sail), from the name an anonymous gave to his and oldest portolan chart of the Mediterranean Sea (1296)[2]. When a ship docks, the goods – in our case: the musical products – from one country are unloaded and goods from another country are loaded: this was our guide for playing.

As it can be seen in figure 5 and 6, each group is considered as one hyper-instrument: the loudspeakers (1 for each laptop) are close to the performers. The direct signal from amplified acoustic instruments goes to the laptop soundcard. Furthermore, each soundcard output is connected to a sound reinforcement system around the audience.

[2] It is worth mentioning that a pioneer in the field of the portolan chart was the Genoese cartographer and geographer, Pietro Vesconte (end of the 13th – beginning of the 14th century). He influenced Italian and Catalan mapmaking throughout the 14th and 15th centuries.

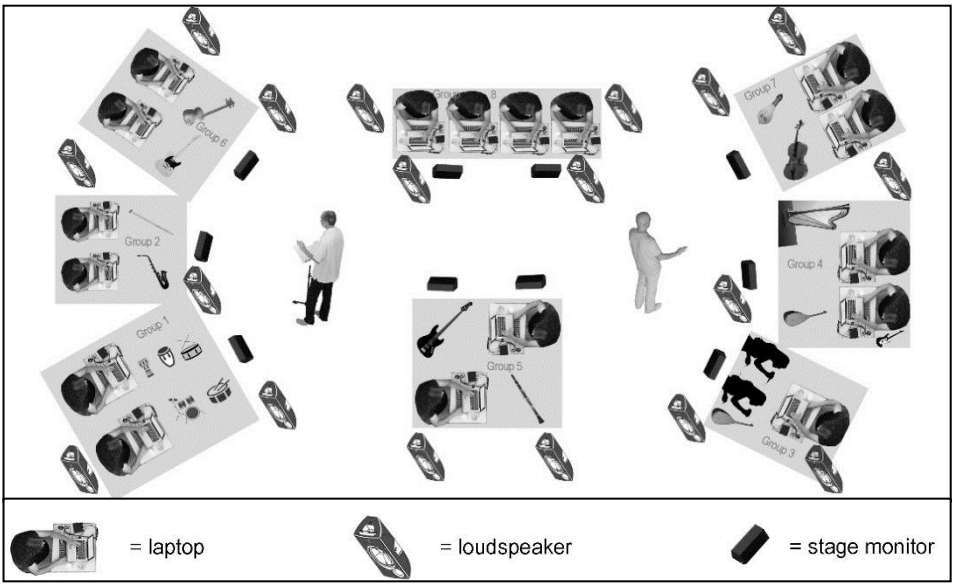

Figure 5: GEO arrangement on concert stage

Figure 6: GEO concert at Piazza delle feste, Genova, July 26th 2013 (photo Diana Lapin)

We did not use any networking, except Group 8. As we mentioned before, Group 8 was mainly under the control of the Turkish sound artist Sinan Bökesoy. He was invited to realize a sound installation in the old harbour to be integrated with *Compasso da navegare*.

Two microphones on the roof of the Magazzini del cotone (see figure 7) were connected via internet lan ADSL to a router on the stage where Group 8 transformed and mixed the sounds captured in real time in the Genova harbour (cranes, alarm signals, engines, boats, etc.) with the sounds arriving from the Istanbul bay along a similar audio streaming.

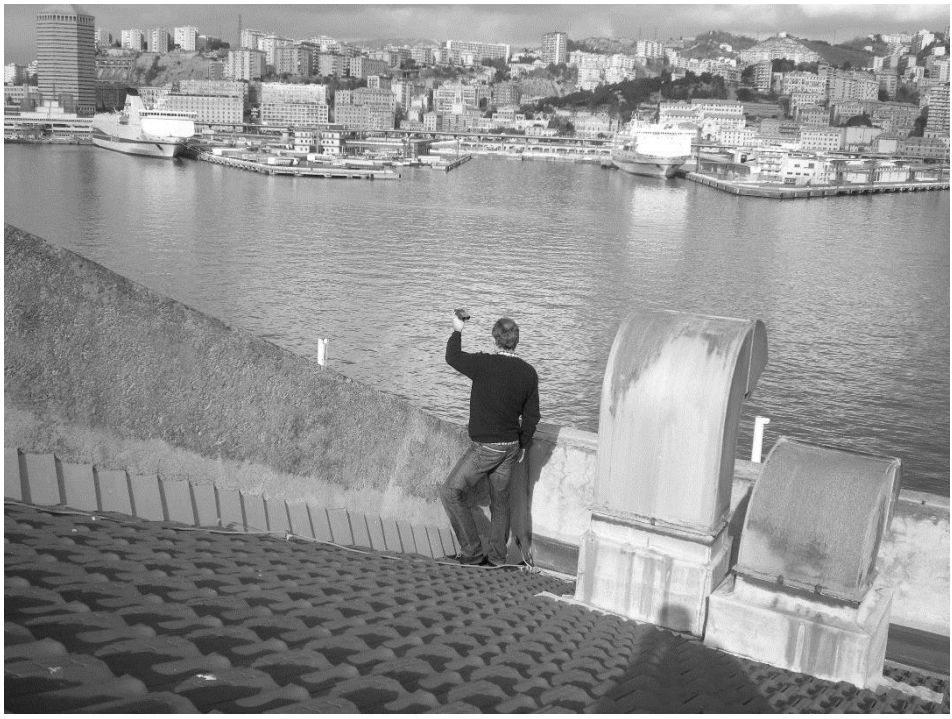

Figure 7: Sinan Bökesoy recording samples on the roof of the Magazzini del cotone (photo Roberto Doati)

Compasso da navegare ends with a tutti quasi-unison on a Hicaz makam, expanded over two octaves (figure 8). We could also call it “double unison” - one by Groups 1, 2, 6, 8, one by Groups 3, 4, 5, 7 - meaning that the two conductors can change duration and dynamics (always crescendo and diminuendo) of the notes at will, as well as their order (ascending or descending).

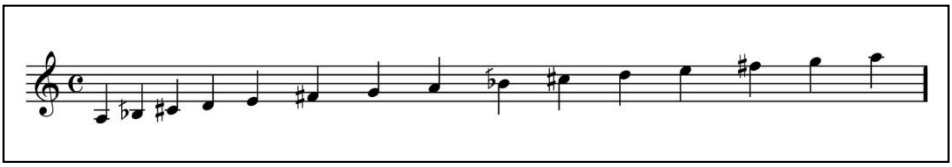

Figure 8: Hicaz makam stretched to cover two octaves

The musicians in Genova were: Simone Amodeo (electric guitar), Stefano Bertolotto (tenor saxophone), Caterina Bevegni (harp), Federico Bragetti (cello), Emin Abdulkadir Çolakoğlu (ney), Ufuk Elik (bağlama), Seval Eroglu (voice & bağlama), Emre Eryılmaz (tar), Neva Gunaydın (kemençe), Edoardo Lattes (electric bass), Sandro Mungianu (clarinet), Federico Onnis (voice & percussion), Alice Quario Rondo (voice), Ajay Srinivasamurty (mridangam), Valentino Nioi (electric guitar & electroacoustics), Can Aydınoğlu, Ayberk Çanakçı, Umut Çetin, Robert Clouth, Giacomo Gianetta, Sankalp Gulati, Gopala Krishna Koduri, Nadine Kroher, Daniele Matta, Francesco Medda, Felipe Navarro, Luca Plumitallo, Luca Serra, Diego Soddu, Ali Somay, Matteo Spanò, Okan Yaşarlar (electroacoustics), Sinan Bökesoy (soundscape), Roberto Doati & Tolga Tüzün (conductors).

Follow up

In 2014 GEO was invited to the 58th Festival of Contemporary Music at La Biennale di Venezia (whose title was *Limes*) by his Artistic Director Ivan Fedele. In place of Sankalp Gulati, Gopala Krishna Koduri, Ajay Srinivasamurty and Federico Onnis we had Alvaro Sarasua (electroacoustics), Rubén Martínez Orio and Michele Uccheddu (percussion).

On October 5th *Compasso da navegare* was performed at the Corderie dell'Arsenale (the ancient Venetian naval ships industry), so that Sinan Bökesoy' sound installation put in dialogue Turkish and Venetian cultures. We mentioned that GEO is inspired by the alliance between the Genova Republic and the Byzantine emperor Michael VIII Palaelogus. However, beyond the many commercial advantages, this alliance has suffered numerous defeats in the Mediterranean Sea by the Venetians; so I like to think that *Compasso da navegare*, which resonated in the place where the Venice Republic's massive ships were built, is a sort of bloodless revenge on our arch-rival of those days. On the other hand, the word *arsenale* derives from the Arabic *darassina'ah*.

In 2015 *Compasso da navegare* received one of the Premio “Franco Abbiati” prizes, an important recognition from the Italian Music Critics association, with the following motivation: *For the multicultural vocation of the Galata Electroacustic Orchestra, exemplary training integration model created by Universities and Music Conservatories of Genova (coordinator), Istanbul, Barcelona and Cagliari; for the rigour*

of the improvisational game performed in the concert 'Compasso da navegare' conducted by Roberto Doati and Tolga Tüzün at the Music Biennale in Venice, and for the original mix of contemporary language and sounds/instruments of Mediterranean musical traditions, achieved with instrumental discipline, imaginative project and no easy 'exoticisms'.

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GEO was realized with the support of the Municipality of Genova, in cooperation with Regione Liguria, Porto Antico di Genova Eventi, Museo del Mare.
The electroacoustic "Rainbow" harp for the Venezia concert was kindly made available by Salvi Harps.
All the people who contributed to make our project a reality are mentioned in this paper, but one I wish to thank more than the others is Patrizia Conti: without her determination, even in the most disheartening moments, GEO would not have succeeded.

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GEO PROJEKT

Sažetak

GEO projekt (Galata elektroakustični orkestar) inspiriran je povijesnim odnosima između Ženeve i Istanbula. Opći ciljevi GEO IP-a bili su: 1) osnovati Galata elektroakustični orkestar prema ideji žive kolektivne učeničke skladbe; 2) spojiti zapadnu klasičnu tradiciju notno zabilježene glazbe s improvizacijskim tehnikama, posebno onim koje potječu iz osmansko-turske makam glazbe i anatolijske narodne glazbe. Glavni je cilj bio povezati digitalne i tradicionalne instrumente u praktičnoj izvedbi. Prema našem mišljenju, konceptualni i tehnološki alati za elektro-akustičnu glazbu omogućuju takvo stvaranje i vode prema novim glazbenim iskustvima. Geo IP aktivnosti podijeljene su na predavanja, radionice i laboratorijske vježbe. Uz ideju da se miješaju različite kulture i glazbeni instrumenti, sastavljen je orkestar od osam različitih skupina, u svakoj po četiri učenika (2 na akustičnim, 2 na elektroakustičnim instrumentima). Ostvareni ishodi učenja uglavnom se odnose na stjecanje vještina i sposobnosti u sljedećim područjima: teoretsko, etnomuziko-loško, tehnološko, izvođačko i skladateljsko.

Glavna postignuća GEO IP projekta su:

- *Compasso da navegare*, koncert izveden 2013. godine u staroj luci u Ženevi i 2014. godine na La Biennale di Venezia, festivalu suvremene glazbe (za taj je koncert GEO 2015. godine dobio nagradu talijanskih glazbenih kritičara Premio Abbiati);
- Knjižica i dokumentarni DVD o IP iskustvu.

GEO je program cjeloživotnog učenja IP n ° 2012-1-IT2-ERA10-38878.

Koordinator: Conservatorio Statale di Musica „Niccolò Paganini“ (Genova-I). Partneri: Istanbul Bilgi Üniversitesi (TR), Istanbul Teknik Üniversitesi (TR), Universitat Pompeu Fabra (Barcelona-E), Conservatorio Statale di Musica „G. Pierluigi da Palestrina“ (Cagliari-ja).

Ključne riječi: Glazbeno obrazovanje, međupredmetno povezivanje, improvizacija, elektroakustična glazba, kolektivno stvaranje.