

Musicologie e Culture

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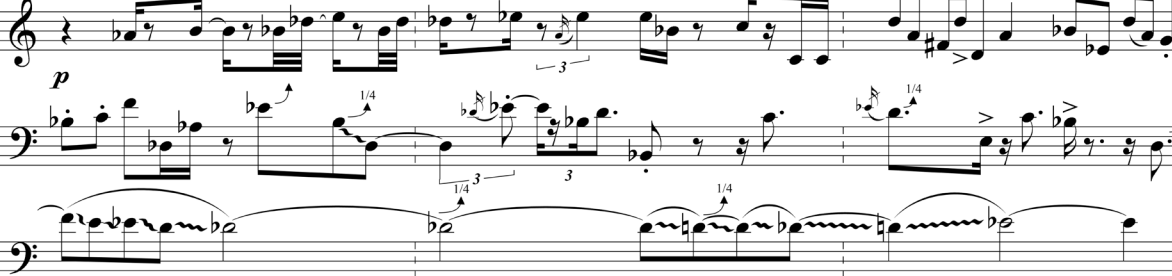
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La collana si propone come una piattaforma ideale per un dialogo tra la pluralità di approcci, metodologie, epistemologie musicologiche, senza preclusione quanto agli oggetti di studio, ai testi, alle pratiche, ai repertori, sia nella dimensione diacronica che sincronica, superando distinzioni disciplinari che appaiono sempre più inadatte a rappresentare il campo discorsivo contemporaneo sul “suono umanamente organizzato”.



Giovanni Mori

Live Coding? What does it mean?

An Ethnographical Survey
on an Innovative Improvisational Approach





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Giacchino Onorati editore S.r.l. – unipersonale

via Vittorio Veneto, 20
00020 Canterano (RM)
(06) 45551463

ISBN 978-88-255-3244-9

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I edition: June 2020

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To Verbena

Acknowledgements

As every work which involves ethnographic procedures, this text is the result of a multiplicity of personal contacts I managed to establish during the research conducted in occasion of my PhD. Then, the text below stems from this three-years-long fruitful research. Nevertheless, it contains also some additional development of the above-mentioned research, in particular inside the section that interprets the live coding's approach to musical improvisation, that is one of the most interesting tracts charactering this fascinating musical practice.

The revision and updating of the research have been conducted independently, without any academic support or aid and if I managed to reach this result, I have to thank, first of all, prof. Vincenzo Caporaletti who proposed me to publish the PhD thesis and he has always pushed me to go ahead also providing very stimulant references.

Another person I have to express my gratitude to is Francesco Giomi, the director of Tempo Reale, a music research institution founded by the composer Luciano Berio in 1990 in Florence, Italy. He had always warmly welcomed my proposals with interest, and he has always stimulated me to organise and conduct events and workshop centred around live coding. Among the most important examples are: a live coding laboratory for ten years old children in collaboration with a local school and a workshop on SuperCollider

held by Alexandra Cardenas at the Tempo Reale's headquarter. All these activities have greatly stimulated my reflections on the nature of live coding and then they have been crucial to go ahead in the research.

Additionally, I am still indebted with the live coding community as a whole because it has continuously stimulated me in researching and practicing this activity. Additionally, many members of the community made me feel that they were deeply interested in my research. In particular, I would say thank you to Alexandra Cárdenas for accepting my invite to hold the workshop at Tempo Reale and for the interesting discussion of that day, to Renick Bell for the interesting discussion we had during his tour in Italy, that made me reflect on different aspects of the practice and to all the members of the Italian branch of the community, for their continuous and febrile action in spreading live coding verb in Italy and for sharing the increasingly numerous event with me.

Moreover, I would thank all the people I have met in Prato during the last three years. Tommaso Rosati, for his interest in live coding and for the stimulant discussions we had in many occasions; Jacopo Buono and all the PHASE collective for their kindness and for producing events related to live coding; Alessandra Tempesti and all the girls who run LOTTOZERO experimental textile workshop, for their welcoming behaviour during my visit. Last but not least, many thanks to all my work colleagues at the Centro Pecci for their continuous support and encouragement.

Finally, but not less important, I would thank again Prof. Maurizio Agamennone, my tutor during the PhD research, for having introduced me to Ethnography and Ethnomusicology, perspectives that I have never adopted before then. These subjects have greatly changed my point of view on many aspects of music and music making process and therefore I manage to document and interpret many interesting tracts of the musical practice under scrutiny. I would also thank Prof. Thor Magnusson for his support and stimulation during my period of research in the UK because it allowed

me to gain a very internal insight in the live coding community that has been very useful also in this text that follows the PhD thesis.

Thanks to all these contributions, I had the chance to deepen the main aspects of live coding and then to write a more thorough and complete analysis and at the same time to synthesise and distillate the PhD thesis that sometimes was too much descriptive and redundant. I hope the reader will enjoy this variation. Thanks to all of you.

Introduction

During the first phase of this research, a person I was speaking with asked: “Live coding, what does it mean?” when I tried to explain to him the focus of my inquiry. This question, in different forms, is still asked to me in different occasions. This is due to the fact that live coding is a quite young experience in the field of performing arts. However, more and more events on live coding or which involves live coding in some form are taking place. Then, people are probably understanding the creative possibilities allowed by this technique and more and more artists feel that programming languages can be an efficient way to express themselves. Nevertheless, it is still quite common to meet people who do not know anything about it.

At the time I was asked this question, I found it difficult to explain clearly what stands behind the expression “live coding”. In fact, live coding is a very multifaceted field, that spans from purely programming activities done in front of a camera to artistic performances. Therefore, for this text I needed to establish exact boundaries in which I could conduct my research. Then, I decided to focus on the activities brought ahead by a particular community of live coders called TOPLAP, with a stronger attention on the musical practices developed inside it.

Citing an important book written in the early days of computer science, programming is “the process of drawing up the schedule of the sequence of individual operations required to carry out the

calculation”¹. By consequence, live coding, sometimes called also live or on-the-fly programming², is in its broadest sense the activity of drawing the above-mentioned schedules of operations in real time. This means that the live coder is a programmer who interacts with the program that is running on a computer. In the cases studied during the present research, this activity often happens in front of a variable number of audience members and consequently is a performative practice. TOPLAP has been founded to promote an artistic and performative approach to programming around the world. After all, TOPLAP stands for: Temporary Organisation for the Promotion of Live Algorithm Programming³.

We said that TOPLAP community promotes live coding as a performing technique. Consequently, by means of live coding, members of the community play music, audio visual animations, choreography and even weaving, among other things. Then, a performer may obtain many different outputs using the same approach. All is determined by the modality in which this code is interpreted. In fact, if it shapes and represents musical sounds and structures, and the computer is programmed to interpret this input as music, the output will be a more or less complex pattern of sounds. Instead, if the computer is programmed to interpret the code as something else, obviously the output will be different. Code in textual, alpha-numerical form is the interface with which live coders interact with computers.

This research is mainly focused on the audio-visual, mostly musical, practice of live coding, that is one of the most dynamic and lively inside the community. As the chapters below will explain, this live performance practice began to emerge in early 2000s from a

1. Hartree, Douglas, *Calculating Instruments and Machines*, Cambridge, Cambridge University Press, 1950, pag. 112.

2. Wang, Ge, Cook, Perry R., “On-the-fly Programming: Using Code as an Expressive Musical Instrument”, *Proceedings of the International Conference on New Interfaces for Musical Expression (NIME)*, Hamamatzu, Japan, 2004.

3. See the About section of the TOPLAP official website: toplapp.org.

group of young students in different fields. They generally were computer scientists in the field of Humanities and electronic musicians. In the first chapter, I trace back the origin of this practice by comparing it with some other pioneering experiences in computer music field. However, the one under scrutiny has been the first compact and organised movement that employed this technique with a quite homogeneous approach.

TOPLAP community emerged from discussions between the first pioneers of what is now called live coding, who decided to establish an informal assembly of like-minded people grouped around a mailing list that later became an online blog and then a community with an ever-increasing number of active and enthusiastic members from all around the world, from the Americas to Asia and India passing from Europe.

My interest in live coding originates from my background in musicology and in particular in contemporary musicology. During my three-year degree at the University of Pisa, I became interested in the pioneering phase of Italian Futurism, the one that spans from 1907 to the beginning of World War I. Futurism covered a very wide array of creative fields: theatre, poetry, literature and also, even though quite laterally, music. Similarly, live coding is a very multi-disciplinary field. Additionally, Futurism and live coding movement share the same will for merging different art forms together and innovating the cultural environment around them. With regards to Futurism, Luigi Russolo was among the most active members of the Italian Futurists. He started his participation in the movement as a painter, with many important and revolutionary canvases⁴. After this initial phase, he became interested in experimenting with sounds, and in particular with noises, following the new industrial soundscape that was growing in Italy during early 20th century. He wanted to translate in music the innovations that Filippo Tommaso

4. Gasparotto, Anna, Tagliapietra, Franco, *Luigi Russolo. Vita e opere di un futurista*, Milano, Skira, 2006.

Marinetti had brought in literature. This passion about music was probably anticipated by his hypnotising painting called *The Music*, in which he depicted a very concentrated pianist surrounded by many masks representing the emotions stimulated by music.

Inside the Futurist movement, the “official” composer was Francesco Balilla Pratella. Then, Russolo was an outsider in this field. However, he tried to extend the field of music by introducing noises. The first Russolo’s experience in sound research was the development of the *Intonarumori*. He started to think about how he can reproduce and interpret the new sounds produced by the industrialised society and he came out with the idea of these instruments called *Intonarumori*: bizarre boxes provided with a crank attached to a rotor which stimulates different kinds of sonic bodies. He built numerous boxes which can reproduce different kinds of intonated noises. This was the first trial of unleashing the expressive potential of noises and elevate them to a form of art⁵. In 1913 he wrote his manifesto, *The art of Noise*, in which he explained his research. He went on in experimenting with noise developing also some other bizarre instruments like the *Rumorarmonio* that was a sort of organ that emitted diverse kinds of noises. He struggled for a long time to convince the once-criticised composers to adopt his instruments in their compositions, but he never succeeded. Then, he decided to retreat on the Italian Alps, where he resumed to paint peaceful and esoteric canvases until his death in 1947.

Russolo’s lesson was not taken very seriously by his contemporaries. It was understood only after the end of WWII by Pierre Schaeffer, Edgar Varèse and all the subsequent electronic music artists. One of the first electronic music pieces composed by Luciano Berio in 1954 was called *Ritratto di Città* (Portrait of a City), concept that closely recalled the *Risveglio di una città* (Awakening of a City) written by Luigi Russolo in 1914. Since then, noises have become an integral part of many music compositions. In my research during

5. Prieberg, Fred K., *Musica ex Machina*, Torino, Einaudi, 1963

three years-degree at the University of Pisa, I traced back also the path for the introduction of noise in music, starting from Russolo and reaching contemporary figures in different music fields, either in the so-called popular music domain and in others.

One of the leading figures that emerged from this inquiry was Pietro Grossi, an Italian computer music pioneer who mainly worked between Pisa and Florence in Italy in 1960s and 1970s. In the first part of his career as composer and experimenter in sound, he explored many different sonic phenomena and the possibility of employing them in music composition. The most fascinating experiment he did in the electronic music field was *Battimenti* (beats, in English) in which he explored the effect produced by a combination of two or more sinusoids played at very close frequencies⁶. After this phase, he continued his research in Pisa by replacing oscillators and tape recorders with the computer. Here, working at the National Council for Research, he developed a lot musical software as well as his most advanced theories such as the one of automated composition, the infinite piece and so on. These are projects that can be accomplished better using computational procedures instead of traditional ones. Then, I decided to deepen this musician's work during my Two Years degrees at the University of Pavia, conducting the whole research on Grossi's computer music. In my opinion, this musician has been crucial in computer music history, even though he is not very well known. In fact, he played the first documented networked performance from Rimini to Pisa in 1970 and he has been one of the first to play with a "proto live coding" approach⁷.

During the research for Two Years degrees, conducted in 2007-2008, I encountered some of the early articles written by the live coding movement protagonists, in which they discussed the use of computers in the field of performing arts and what effects they ob-

6. Giomi, Francesco, Ligabue, Marco, *L'istante zero. Conversazioni e riflessioni con Pietro Grossi*, Sismel, Firenze, 1999

7. Mori, Giovanni, "Pietro Grossi's Live coding", *Proceedings of the First International Conference on Live Coding*, University of Leeds, Leeds, 2015.

served both on the side of the public and of the performers. I was interested in this aspect because, as I will explain in the section on Pietro Grossi below, these experiences were very close to the work of the Italian computer musician.

Then, the passage from Grossi to live coders has been a quite smooth one. Aided by my PhD supervisor, Maurizio Agamennone, I developed a research plan for an ethnographical survey on the people who practice this performing technique. I leaned more by means of an ethnographical research because this was the best way to observe the widest array of aspects in detail and search all the characteristics thoroughly from an internal point of view. In fact, during the research, I managed to get in quite close contact with many people, musicians, video artists, sound artists, dancers, scholars and computer programmers, who were involved in live coding practice from some point of view. During the research, I started to play music using live coding myself, to understand even better the mechanisms that characterise this musical technique as I am going to illustrate in the sub-section 2.1.3. The ethnographical approach allowed me to go deeper into the movement's internal mechanisms and to understand better the values, the technique and what the community members think about many different topics.

Nevertheless, as many different strands of ethnographical research has taught us⁸, an effective research in this domain has to limit its field to a particular and homogeneous aspect or section. Live coding community is quite widespread. It has ramifications all over the globe and in many different fields. Consequently, it would have been impossible to document and analyse the practices developed by all the community. Then, I decided to concentrate my attention on the community's activities happening in the United Kingdom. One of the main reasons is the fact that this region has one of the most active and dense live coding scenes in the world. In fact, there

8. Burgess, Robert G., *In the Field. An Introduction to Field Research*, London and New York, Routledge, 1984.