TECHNOCULTURE

The preservation of electroacoustic music

Episode 36

Full transcript

Guest: Serge Lemouton [Serge]
Host: Federica Bressan [Federica]

[Federica]: Welcome to a new episode of Technoculture. I'm your host, Federica Bressan, and today my guest is Serge Lemouton, computer music designer at IRCAM, the Institute for Research and Coordination in Acoustics / Music, one of the world's largest public research centers dedicated to both musical expression and scientific research. IRCAM is part of the Centre Pompidou in the heart of Paris, France, and is specialized in avant-garde electro-acoustic art music. Welcome Serge! You've been with IRCAM for many years. Would you please introduce yourself to the audience and tell us a little bit about your background?

[Serge]: When I was a student, I was interested in music, but also in science and mathematics. And I didn't want to choose one direction or the other, so I tried to find an occupation, a job that will conciliate this interest into music and science. And I was interested in musical creation, contemporary music. My [study program] was in composition, so I learned composition at the National Conservatory in Lion with Philip Manoury, who was already working at IRCAM. And then when I finished my study at the conservatory as composer and computer music, I arrived at IRCAM, and I'm still at IRCAM, since then. And it's a job that conciliates the interest for music and science, so I'm happy.

[Federica]: You're one of the members of the Working Group on Collaborative Archiving and Creative Preservation of AFIM.

[Serge]: AFIM is the Association Fracophone d'Informatique Musicale.

[Federica]: What is the mission of this group? What does it do?

[Serge]: In fact, it's a working group. Each two years the francophone association for computer music is promoting a research group, so for this two years we are working and trying to develop systems for better archiving of electro-acoustic music.

[Federica]: Is this action specifically targeted at the music produced here at IRCAM, or not only IRCAM?

[Serge]: No, in fact I think we have to go back to IRCAM repertoire, because IRCAM is an institution that exists since more than 40 year, and we have a lot of creations. Each year we produce around 20 new works in the studio, and so after 40 years it makes a lot of works. We want to be able to play, it's like our patrimony, it's a repertoire that we want to preserve and to be able to play, so we have this problem, because music that uses technology needs some elaboration to be re-performed after a few years, because of obsolescence and the fact that technology is not something very permanent, it's not easy to replay a piece that choose technology after a few years, to say it in short. So, at IRCAM we develop some know-how and some techniques and some knowledge, to be able to preserve and to re-perform the music that has been created in the past. Yes, at IRCAM. And the working group of AFIM is something different, because there is the same problem for all the musical creation centers in France and in Europe, so we want to give to the community the know-how, the knowledge we have developed inside IRCAM to preserve our own creations, and we want to give it to the community, so that's a goal of the AFIM working group.

[Federica]: What is the relationship between music and technology in the productions that you do? So, where does the challenge for preservation lie?

[Serge]: It's really related to your subject of technoculture, because when we think about classical repertoire, about literature, about graphic art, it's quite easy to preserve a painting, or a book. As soon as we are using some interactive technology or some digital technology or any computer, we need to preserve not only the artifact, but also the way to expose it and we know in daily life how a simple software update can break everything on your smartphone, for instance. And it's the same for all the musical or artistic works that use technology. So, it's true for music, but it's true also for museum installations that use cathodic tubes, or a television set. As soon as you are using a technology which is subject to very quick obsolescence, it brings a lot of problems, and it's a kind of acceleration of time, so if we need to preserve a painting it's quite easy: in a museum, you need to restore it after several centuries, but for a work of art produced with a computer, you need to restore it, you need to reprogram it every five years. The lifetime of an interactive computer, technology system is not more than four or five years. So that's a problem.

[Federica]: Sometimes in this field, where I also work, we tend to say that preserving books and paintings is easy... and I would like to give the devil its due and say that it's not easy in absolute terms at all, but when we deal with interactive systems that rely on computer technology or digital technology, the lifespan of the systems can be measured in a few years, four-five years, so it's definitely a different order of magnitude that we deal with here compared to traditional cultural heritage materials. And you've made this point beautifully, thank you for that. I think it would be very nice at this point to try and listen to how one of these pieces may sound. It's just an example of course, but a notable example nonetheless. It's also close to my heart because the composer is Fausto Romitelli. Romitelli comes from my same hometown, Gorizia, in Italy. He was very active and appreciated at IRCAM and abroad. He sadly passed away a few years ago, so this is my way of paying homage to him and to our hometown. The excerpt that we are going to listen to is from Entrance. Entrance is a work commissioned at IRCAM in 1995, and I would like to thank you so much, Serge, for providing us with this excerpt. The duration of the excerpt is 2 minutes and 53 seconds. [Music]

We know today that this type of technology becomes obsolete rapidly, but were we aware of this years ago? How has the perception of obsolescence changed along the years and at IRCAM with respect to the preservation of this works?

[Serge]: It is interesting to study this life span and all we think of the future of things produced today with technology, because in 20th century, so in the beginning of IRCAM, this question of perennity, of preserving what we are doing for the future, was not really a question. There was a kind of optimism about technology, and people were thinking that as soon as you are using high technology and new technology, it will last forever. I remember very well when the CD (Compact Disc) came out: the commercial advertisement and the idea on that is that we have a medium that we are supposed to preserve the music [on] for eternity. And now we know that it's not true. And for instance, I can find some recordable CD, recorded in the 1980s, in the 1990s, that are not readable at all today. So, it was an illusion that with the technology we can last forever, and it was a very strong illusion, and after beginning of the 21st century we realized that we were building things on non-stable mediums...

[Federica]: Well, speaking of instability: most platforms and tools for preservation aim to be "future proof." What is your take on building a future-proof system? What do you base your decisions on, when it comes to planning strategy for the preservation of the works produced at IRCAM?

[Serge]: It's a related topic to long-term preservation of digital media and some projects about trustfulness on digital repositories, and it involves a lot of considerations, like financial considerations, like political and geopolitical considerations, because if we want to preserve some material, for some digital information, for the long-term, you cannot count on institutions, because institutions have a limited lifetime; you cannot even count on States, because

war can happen. So, these are really difficult subjects. The thing is that, to preserve digital data, you need to give some energy. I mean, if you unplug the server or if you don't give enough human resources, permanent human resources to preserve the repository, it will disappear, it will die. That's something we have also observed in this context, because since the beginning of the 21st century there have been a lot of initiatives to preserve electro-acoustic music, for instance, or interactive music, or musique mixte, and a lot of these project were financed for a certain amount of time, and after the end of the project it disappeared, so even on internet we can find a lot of repositories, but as they are not maintained they disappear. So, they start to make a kind of cemetery of dead projects, and are quite a lot. So, now about your question, we are trying to think about what I call meta-preservation, which means that we want to preserve not only the content of what we want to preserve, but also the container. So, we want to preserve the preservation project itself. And that's also something we have learned from previous experiments. You can give a lot of energy to a project, but if you don't think about the preservation of the project itself, it will disappear, and what you have done is done for nothing.

[Federica]: Even if we don't know what the future will bring, IRCAM is taking action to preserve its own productions. You do have a system in place that collects all the information about these production. Can you talk a little bit about this system?

[Serge]: We have an internal system we are using to preserve our repertoire, which is called Sydney, and we are using this system at IRCAM productions since 2008. We are using on daily basis to document pieces, and also to retrieve the information when we want to perform the piece, or someone outside of IRCAM wants to perform the IRCAM pieces, we are sending the information from the database.

[Federica]: And how does Sydney work?

[Serge]: It's a database, with a web interface, with a website, which is part of the Brahms website, which is a public database with information on contemporary music. But the signal part is a kind of hidden part of Brahms, which is only accessible inside IRCAM.

[Federica]: And what do we find if we look into Sydney?

[Serge]: For each version of each piece, we can find three elements, very important elements: one is the list of material, hardware and software, that we used for this precise performance, so it's important to know what are the technical material and software and hardware that we used at this time for the performance. The other element are the files. So we are preserving, using several strategies, the files, the software programs, Max patches, sound files, a lot of different kind of files and instructions, so, text, a kind of instruction manual that tells the performer

how to use the material and the software, to play a piece. So it's just a written text with its instructions. Another important information is the name of the people that produced this performance, like the sound engineer, the soloist, computer music designers... because even if we have all the information like files, instructions, and the list of material, maybe sometimes we want to speak with people and ask them how it should sound. So, it means that even if we are using high technology and computers and digital things, it's also important to find some witnesses of the event, because even if we are in high technology, oral transmission is quite important. So, the information of knowing who was present at the performance is also crucial. And an important thing also to say about our system is that we are not preserving the work as item, as an object, but every new version of the work. So, the preservation item is a version of the work, is an implementation of the work, and we are presenting all the successive re-working of each piece. So, the idea is that the work is not fixed, it's in constant evolution. So, we want to have a system that is dynamic enough to allow this incremental preservation.

[Federica]: What is the oldest piece that we find in Sydney?

[Serge]: So, in the database that we are using to preserve the production material of IRCAM pieces, we can order it by creation date, production date, and the oldest piece in the Sydney database is a piece by the late David Wessel, who was working at IRCAM since the beginning. And it's a piece for tape, produced with a computer, and it's a piece called "Antony,"" and it was produced on a 4A computer which was designed by Giuseppe Di Giugno, and it was a first version of several real-time digital signal processing computers that will finally go to the 4X, which would be the kind of "fer-de-lance," one of important computers in IRCAM history, and that was used for "Répons" by Pierre Boulez, so 4A was used to produce the Antony tape.

[Federica]: And we can listen to an excerpt of Antony right now. I understand that the concept of the piece is that of a rich sound spectrum that slowly evolves over time, so in order to appreciate the piece better we would have to listen to it in its entirety. We only have an excerpt about one minute long, but we can still get an idea of how it sounded. So, here is an excerpt from David Wessel's Antony, produced with the 4A digital processor at IRCAM in 1977. [Music]

This piece was produced with the 4A digital processor. Do you still have this? Do you keep this historical hardware?

[Serge]: No, we don't even know where the 4A is, and the 4X is no more at IRCAM now, it's in a museum now. So, it's not functional at all.

[Federica]: But you mentioned that you keep the software and the sound files and the hardware. So, what do we find in Sydney?

[Serge]: No, in fact in the database we are keeping a list of the hardware that is used, but we are not preserving the hardware itself.

[Federica]: What if you want to re-perform a piece? For example, Antony.

[Serge]: Ok, it's a piece for tape, so if you want to re-perform it, we just have to play the tape. But if we want to reproduce it, we need to use new systems. It's really not possible to reproduce it from scratch with the original computer, because the original computer doesn't exist at all today.

[Federica]: Aha, so maybe that's why there is a special focus on real-time systems. So you don't have a tape to store. What will be performed, actually needs to happen real time. So what do you do with the missing hardware there?

[Serge]: Yeah. But it's not so clear than that, because sometimes we want to be able to reproduce even tape music. And it happens that, for instance, a piece by John Chowning, from the same period, which has some new implementation, so it's tape, it's like David Wessel, but it has been produced on a real-time version. So, it exists as original tape, but it also exists as real-time piece. And John Chowning has given his blessing on the real-time version also, and it happens that [service?] also more recent version of the Antony tape by David Wessel, which was reworked by some young composers to produce a real-time version of the piece. So, it means that it's not because it's a fixed media that we are not going to produce a real-time version of it. And it's very important, because it's related to the fact that all this repertoire, all this kind of music, exists not only because it's stored, not only because it's played before an audience, but also because it has a possibility to be reworked, to be reproduced, remixed, by some other interpreters, other performers. So, we can find also a real-time version of Antony by the David Wessel.

[Federica]: And you never keep the hardware. It doesn't matter what piece it comes from, you just keep the software patches and documentation, but not the actual hardware. By choice, this is by design in your preservation strategy. Do I understand correctly?

[Serge]: It's a good question. And I think it's a choice, because if we decide to preserve all the hardware, it means that we are to preserve really ALL the hardware, and we don't have the resources for that. So, as we cannot preserve all the hardware extensively, it's not [subject?] each time we have to perform a piece with an obsolete hardware, instead of trying to make this hardware work or trying to emulate it, we are trying to virtualize it, so trying to describe the process, how it sounds in a way that is abstract enough to be able to reproduce it on several hardwares. And yes, it's a choice, because we can also make the choice of emulating all the hardware, but we are not decided to go in this direction. And it's a choice, yes.

[Federica]: And do you ever keep the recording of how a piece sounded, in your database? So, when you try to rework a piece after a couple of years and you only have the materials, you can have a sense of how it sounded? So, is the recording of a possible output of a performance part of the documentation?

[Serge]: Yes. It's an interesting question, because in this performing arts world, we can think that as long as we can have a memory of the performance in the form of recording, or video of the performance, then we can say that we have preserved the event, we have preserved the object. And in mixed music, like concert music with instruments and electro-acoustic spatialised [tone,] it's not true at all. In fact, because if we are only the recording of the event, it's impossible to reproduce it. So, it's a naive way to think that if we have a recording of the event, you can reproduce it. It's not true at all. So, in fact, even if we have a recording of the concert, it will not help us a lot to reproduce the work. It's like a kind of memory of the event, but just to make a new version of the work, recording it is just something that can give us a faint idea of what it should be. A more important thing for us, in our memories, to record the input in the computer and the output of the computer, because if we add that, we can consider that [the] digital signal processing system or the software programs that treat sound is like a black box, and we have the input of the box and the output of the box, and we can try to replace this black box, and compare the input and the output of the original event. I mean, sending the input to the new version and comparing the output of the new system with the output of the old system which has been recorded. And it's something that helps us better than having a recording of the old events.

[Federica]: How many works are documented in the IRCAM database? Can you give us a figure?

[Serge]: The repertoire of pieces created at IRCAM is around 800 or 900, since 1997. And in the database we preserve around 600 pieces.

[Federica]: And how of this material is public or accessible online - if at all?

[Serge]: I think that at IRCAM we want to be able to give everything that has been produced at IRCAM to everybody, but it's not possible for legal reasons. Because in this database, we have a lot of different files, like published scores, like recordings from musicians that didn't give the right to distribute the recording, so there are a lot of different elements which depend on different kind of property rights. So, it means that we are only able to use it internally, as long as we have not cleared all the rights of all the files in the database, which is pretty difficult because there are a lot of different files, from different origins, and we don't have the rights on all the files. There can be also some commercial software, it's something that we can use only

internally, and we cannot distribute it to everybody.

[Federica]: And the most performed, the most played name in the IRCAM database is Pierre Boulez...

[Serge]: Among all the composers that have been commissioned works at IRCAM we can find Pierre Boulez, but it's not the most important composer in the database. He's a composer like the others, but his pieces like "Répons," "Antèmes 2," "...explosante-fixe...," are played very often in the whole world. So, this music has a lot of diffusion, but [Boulez] is just a composer as others in the Sydney database.

[Federica]: When Boulez was director of IRCAM, was he aware of the issue of preservation? Was he sensitive to this topic?

[Serge]: No, I don't think so. It was not a guy from archives, and it was more someone thinking about the future. So, at this time, they have some idea about progress, art evolution, and he was more someone thinking about the future than thinking about the past. It was composer into a kind of tradition, but it was also of the generation of a kind of "tabula rasa." It was not really interested so much in the past, but now if we want to play his music we need to preserve his patrimony, his memory.

[Federica]: So he wouldn't even be obsessed over the preservation of his own production?

[Serge]: I don't think so. It's like I said before, like, it was a composer to write a very precise score, so if you write a very precise score is because you want to transmit your music to musicians, so to transmit your music in space, and also in time. You want the music that you have written on paper to stay in time, but he was not concerned about the preservation of the electro-acoustic [part?] at all.

[Federica]: If we keep digging into this database, what other interesting example can we find, that we can listen to?

[Serge]: Now, for instance, we have listened to the oldest piece in the database, and I can find in the database a piece that has a lot of different technological re-implementations. For instance, "Jupiter" by Philip Manoury, which first version was also for the 4X, but after that there is a version for ISPW (IRCAM Signal Processing Workstation) which was the next computer with specially designed boards, which is also an old system which is not functional anymore. And after that, there was a version for Silicon graphics computer and a version for Max/MSP. So, there are a lot of different re-implementation of the same music, and with our Sydney database we can compare these different software implementations of the same works.

[Federica]: And of all the re-implementations, which one are we going to listen to now?

[Serge]: I have a version from 2004, that uses the ISPW.

[Federica]: Thank you for sharing this with us. We are going to listen to an excerpt of Philip Manoury's "Jupiter." The duration of the excerpt is 2 minutes. [Music]

I think it's pretty clear by now, how archiving is a collaborative effort. The composer, the sound designer, maybe a performer, they all can contribute to the documentation of a piece. But the other half of the name of the working group that you're a member of, that we mentioned earlier, the Working Group of AFIM, is "Collaborative Archiving and Creative Preservation." So, how is preservation "creative?"

[Serge]: Okay, what I mentioned [earlier] is that we realized at the end, that a work of art using new technology, and if we compare it to a work of art not using new technology, like a painting or a sculpture, the object we want to preserve in an archive is really the object, the painting, the sculpture, in the best conditions. But we cannot do that for a work of art including technological means. So, technoculture... we cannot preserve the work of art in the technocultural world in the same way, because if we keep the file like something fixed, it will not be readable or performable after a few years. So it's a big challenge, because we want to build a culture, and to build a culture we want to preserve the work of art, but we cannot preserve them because if we preserve it as closed objects it's dead. So, the only way to make it live, is to re-perform it always, and to be able to always reinterpret, so it's a challenge, but it's also a chance, because to make a living we have to constantly reinterpret it. So, that's the creative part. And again, we realizes that it's really common nowadays to reinterpret even music that is on fixed media, like a tape, like "Antony" by David Wessel, or a piece by John Chowning, which we can think of as a fixed media, because it's a sound file, but even that we want to re-perform it to make it live. So, it's also a chance, and that's why we call it creative. It's because the fact is... I mean, archiving this kind of work of art is not the right word, it means that to preserve it you need to re-perform it and to reinterpret it constantly.

[Federica]: If I understand this concept correctly, in order to keep the musical repertoire alive, it is not just necessary to document it, but it's also necessary to keep playing it, that is, active playing, [of] the music, becomes an active strategy for its preservation.

[Serge]: Yes, that's exactly what [it means.] The only way to make it live is to play it.

[Federica]: As of today, it is really fair to say that IRCAM really cares about the preservation of its own repertoire; and by developing tools and methodologies, and by sharing them, IRCAM can also really help other institutions follow the example to the benefit of the music

repertoire produced everywhere, not just at IRCAM. Can you talk a little bit about how this machine works, how many people are involved, is there a preservation team? How many resources are devoted to this? So, how much energy goes into this activity of IRCAM.

[Serge]: Yes. One of the main missions of IRCAM is to make some new creations using new technology, that's one of the main goals at IRCAM, so each year we commission some composers to make some creations, since 1977 until today, so we have each year some commissions to composers. And the commission is to to make some new creations, but we also want to be able to re-perform the piece, because music is not only a kind of ephemeral art: the important thing is the concert, when the music is alive and the audience is listening to the music. But it's also culture, so we want to be able to re-play the pieces we have played. It's not a one shot! So, at the beginning of IRCAM, it was a time of pioneers, and we were making new creations, so the question of repertoire was not a question. We want to create some new musics. But after a few years, it becomes a kind of repertoire, and we want to be able to replay all the pieces that have been created at IRCAM. And we are involved into this preservation, and also towards the composers, because a classical composer writes a score for string quartet or piano, we will always be able to read the music and to find some musicians to play the piece, but if we ask the composer to use a computer or a specially-designed device, we want the piece to be able to be re-performed after some time has come. So, that's the reason why we want to preserve it, it's not for the future, but we need to be able to make the music present in concert, even if it has been composed 10 or 15 years ago. So, to answer your question, there is a department for preserving what has been produced at IRCAM, but our goal is really to be able to re-perform, so it's a short term preservation, and it's really to keep the music alive. So, it's not really an archive and there is no department for that, except production department which is the department that consists in production managers, and sound engineers, and computer music designers. And our main goal is to produce concerts, so we want to be able to replay this from the past.

[Federica]: I would like to challenge you with the last question a little bit. It's a 1 million dollar question, like every question around culture and around reflections on culture - and our technoculture, precisely. Thank you for using the word earlier on in the interview, that's what it all boils down to today. So, the efforts put in place by IRCAM to preserve this type of repertoire, which is always considered a niche, how is it of importance for society at large, or how is it important for people who are not directly engaged and involved with electro-acoustic music? So, how does this preservation effort fit and contribute to the big picture of cultural heritage today?

[Serge]: Yes, we can think of music as something ephemeral, something that is an event that happens only once, and it's true because that's natural of music, [it] is something that is immaterial and that doesn't last longer than the event - and the concert. But we are in a

certain musical tradition that lives with a certain historical conscience, so even the composers sometimes, they think only of the moment of the composition and of the creation, and they don't think about their own future, about the future of the works and what will happen of the music after they disappear of this world. But it's also an illusion, because if you are writing a score or if you are writing a computer program in an artistic context, it's because you want what you are producing to live longer than yourself, so that's a reason. So, it's really a question of culture and civilization. Yes.

[Federica]: What a beautiful note to close on, "preservation as an act of civilization." Thank you so much, Serge, for receiving me here at IRCAM today, and for sharing with us so much of your knowledge and so much of the music. I would like to close this episode with another excerpt by Fausto Romitelli. The excerpt comes from a piece called "Natura Morta con Fiamme" and the duration is about two minutes. [Music]

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