

# The Properties of the Spiral<sup>i</sup>

## *Improvisation, electronic sound, and the art of coding II*

**Hugo Solís**

This document analyzes my past, current, and possible paths in future work from a personal perspective. The emphasis is put in my practice, experiences, and personal points of view. It is not a theoretical analysis but an exploration of personal ideas and works. History and theory are approached in the other document *Juum Means Noise in Maya*.

### **Importance of the interdisciplinary work**

On the last bachelor graduation ceremony of DXARTS, while speaking about the properties of the academic program, Shawn Brixey said, “We are scientists doing bad art and we are artist doing bad science.” The comment uncovers important implications of working in an interdisciplinary context. As you know, I studied piano performance and composition, I also studied computer sciences, I have being working in the field of computer music, I have a deep interest in the improvisatory and audiovisual paradigms, and I am becoming more and more interested in the areas of sound art, public art, and interactive art. In other words, I walk in spiral transiting different areas of studies but returning to them repeatedly and cyclically each time covering a bigger area that can be seen as better understanding of the fields.

This exploration is perhaps the only possible journey to do research, discover, and proposing new views in the boundaries of the mentioned fields from an artistic approach. After all these years of studies the axes that drive my work are clear and precise. These are

- Poetical and metaphorical approach with the material meaning that my work is developed and constructed from an artistic perspective. Scientific methodologies, mathematics, digital media, software and hardware development coexist only for assisting a deep desire of poetic and sensual expression.
- Sound as a main vehicle for artistic communication.
- Improvisation as a paradigm for real-time creation.
- Inclusion of computer interaction methods as an extension of the creative paradigm.
- Research in the field of Musical Human Computer Interaction as a vehicle for systematizing and updating technical knowledge in the area of art interaction.
- Complementary elements that appears in some of my works including dynamic images (usually non-photorealistic), installation, interactivity, and electronics among others.

## Sound and Musical Computer Human Interaction

The main medium of expression in my work is sound. In many cases my pallet is the acoustic piano extended with electronic sounds. Initially, I explored different sound areas during my studies such as classic performance, rock, jazz and latin jazz, radioart, soundscape, contemporary avant-garde music, free improvisation, and electronic/electroacoustic music<sup>1</sup>.

With the time, I focused my attention mainly in the production of electroacoustic improvised music. It was in this area where I felt that most of my sonic interest could be explored and developed. This exploration has been supported by the development of technologies for augmenting and extending the human material with algorithmic processes using computers. I started to work with computers at an early stage in my carrier.

My first attempt in the field was my undergraduate thesis *Gab* [2]. It was an electronic system that allowed the reinterpretation of musical material in real time and designed to be used by a pianist during the performance of musical improvisations.

Another important element that was added to my exploration was the use of image in my work leading me to work in a second project. The *Improvisatory Music and Painting Interface* (IMPI) [1][3] is a piece of software for the creation and guidance of audiovisual improvisations. By drawing into a digital tablet using a defined syntax, a conductor generates in real time both the music displayed in several formats on computer screens for the musicians, and dynamic graphics projected on the stage in synchronicity with the music.

The two previous works clearly reveled that a good interaction with human and machines requires necessarily a good understanding about what we as human do when creating music. A personal attempt to analyze my music behaviors and the relationship among musicians inside an improvisatory group was systematically and formally studied in my work *Understanding Collective Gestural Improvisations; a Computational Approach* [4]. This work describes a set of experiments based on signal processing methods and machine learning techniques that are applied to gestural improvisation music.

After that period of methodological research, I had a strong necessity to give more weight to the poetry and metaphor of my work and I decided to enroll in the DXARTS program, perform live again, and to work with an artistic over a technical perspective. I decided to developed technologies and do research only as a supportive element of more subjective, poetic, and sensual ideas letting the creativity and imagination to lead the other fields of work.

It is whitig this context that I started to work in the field of interactive installations and I created *Ix-.hel* [9]. This work creates a visual and audio link between three communication methods: hands, Morse code, and cell phone messages. The audience is an active participant in the result of the work, by being asked to resend the last text

---

<sup>1</sup> Style tags are useless most of the time but they may help to give a vague understanding of the sonic properties.

message in their cell phone. The text is used to produce visual and sound events, becoming rhythmic when translated into Morse code. The visual content is generated from human hands images provided by the audience.

Later I developed *Ojos Te vean* [5], a program/portal that intends to be a non-utilitarian channel of poetic audiovisual creation. It is a collaborative net project that produces short abstract videos using the material generated by the users over the Internet. In order to achieve this goal, the project is made of a forum, a customized piece of software, a server, an automatic audio and movie mashing system, an automatic subtitling machine, and a set of public showing events organized by the participants.

Recently, I also create *The Tell-Tale Piano* [8] sound installation. An old acoustic upright piano electronically and mechanically augmented is used for representing the sonic imagery described in the Edgar Allen Poe's story *Tell-Tale Heart*. The piece was composed with layers at different tempos as homage to the American- Mexican composer Conlon Nancarrow. Its duration is seventeen minutes and contains three sections, on each one a different texture is created. Perceptually, one goal of the work is to make people perceive the production of sound coming from beneath, helping not only to hear the work, but also to feel it with the feet and lower body.

Parallel to the creation of this art works, during the last year and started as a project for the digital sound sequence, I am developing a framework for digital art creation that could be use in all my artwork. Up to know, this framework has been used in the production of the last material of the Juum Duet [6], the last two concerts of this duet, two solo performances [9], and the collaboration *Just a minute* presented during the *Dance in the Digital Domain* [9] show. It is also a central element in the work in progress the *Spaceless Space* [7]. The importance of such endeavor is now explained.

## **Importance of coding**

The interdisciplinary nature of my work has leaded me during previous years to study and learn a big amount of programming languages, software packages, and digital technologies mainly because there is not a single environment that encompasses all my artistic requirements. Therefore, during last year, I started to developed individual pieces of software that I have integrated into one single wrapper that allows me to have the freedom and malleability that I am looking for. While this piece of software still in an early stage, it is clear that its creation and constant development has become part of my creative process. Breaking the bridge between the tool and the artistic production has been conceptually and technically an important step in my work that opens new paradigms of creation. I see coding as an extension of the art production and as a mechanism of creativity. Here the importance of creating a personal digital environment for art production.

Juum is a piece of software that I am designing according to my own art requirements. It is not been developed as a generic solution to be used by others but as a personal framework for developing my work. The different modules have been included for specific art projects and an interesting feedback is emerging by breaking the bridge between the tool and the work piece. My artistic production is being influenced by my

code, and my code is the result of my art creation. The exploration of this feedback paradigm is central to understand my future work.

## **Future work**

Which axes of the spiral should I emphasize now that I am phasing a new step in the doctorate program? The influence of the DXARTS program in my work and thinking has been strong. Areas that I used to see central such as Artificial Intelligence, Machine Learning, Digital Signal Processing, and free improvisation are now becoming secondary. On the other hand, areas such as sound art, controlled composition, collaboration, and audience interaction -installation art, and public art- are becoming more important.

Finding throw artistic production a language that derived from my previous experiences using the skills and technical knowledge previously acquired now adapted to my new artistic interests is an artistic challenge that can potentially produce original and valuable artwork. In the coming year, I would like to produce art works with sound as central element supported by other mediums where the integration between human behaviors and digital technologies produces experiences of subtle, poetical, and sensual meaning.

## **References and links**

- [1] Solís, Hugo. The Experience of Teaching and Collaborating with a Young Composer in the Creation of an Electroacoustic Piece. 2003.
- [2] ---. GAB: Sistema De Reinterpretación Para Pianos. Escuela Nacional de Música UNAM, 2001.
- [3] ---. Improvisatory Music and Painting Interface. Massachusetts Institute of Technology, 2004.
- [4] ---. "Understanding Collective Gestural Improvisations; a Computational Approach." Universitat Pompeu Fabra, 2006.
- [5] [www.OjosTeVean.net](http://www.OjosTeVean.net)
- [6] [www.DuoJuum.net](http://www.DuoJuum.net)
- [7] [www.hugosolis.net/VoicesOfTheShip](http://www.hugosolis.net/VoicesOfTheShip)
- [8] [www.hugosolis.net/Tell-Tale\\_Piano](http://www.hugosolis.net/Tell-Tale_Piano)
- [9] [www.hugosolis.net/projects\\_research](http://www.hugosolis.net/projects_research)

---

<sup>i</sup> This document corresponds to the written portion of the qualifying examination of the DXARTS PhD program that ask for the importance of the candidate's arts practice providing a brief comparative perspective between personal arts philosophy and a broader reflection of current invention, innovation, and experimentation.