

# Jean Claude Risset's Duet for One Pianist: Challenges of a Real-Time Performance Interaction with a Computer-Controlled Acoustic Piano 16 Years Later

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## ABSTRACT

This study aims to discuss the work *Duet for one Pianist* (1989) by the French composer Jean-Claude Risset (b. 13 March 1938) by analyzing the challenges of the music performance of this Computer-Aided Composition work *Disklavier* and implies Human-Computer Interaction performance. Extremely honored to perform the revised version of the 8 Sketches for One Pianist and *Disklavier* within a research project of CITAR and a new Sketch Reflections (2012) by Jean-Claude Risset dedicated to me in a World premiere in the closing ceremony of Black&White 2012 Film Festival promoted by the Catholic University of Portugal. Several issues on the performance of this work are analysed as a case-study, from the point of view of the performer, particularly the components of expressive performance in a real-time interaction between performer and computer. These components can work as analysis criteria of a piano interpretation, in here, of a pianist and *Disklavier* interpretation.

## KEYWORDS

Duet for one Pianist; Jean Claude Risset; *Disklavier*; Real-time interaction performer and computer; Computer-Aided Composition; Human-Computer Interaction.

## 1 | INTRODUCTION

The live performance “Duo pour une pianiste” at Black&White Festival 2012 was possible due to the research project of *Duet for one pianist* together with António Sousa Dias, André Perrotta and Samuel van Ransbeeck at CITAR. The scores were hand written and the technology used for live interaction between the pianist and the computer could not be used in the 21<sup>st</sup> century.

As Jean-Claude Risset himself states:

*One of my early desires as a musician was to sculpt and organize directly the sound material, so as to extend compositional control to the sonic level - to compose the sound itself, instead of merely composing with sounds. My use of the computer has focused mostly on this goal. I have been able to fulfill this desire to some extent by resorting to digital synthesis and also digital processing of sound. As I shall explain, I had to perform exploration and research to use the computer musically.* (Risset, 2012)

“30 out of my (about) 70 musical Works belong to the genre of mixed music” [1] says Jean Claude Risset.

*The mission of the interpreter consists of several steps: firstly explorer schematic signs and dumb writing and musical archaeologist thought extinct - some work, as archaeologists, bulldozer (Richter, Cziffra, Horowitz ), others with a spoon (Benedetti Michelangeli, Gieseking, Gould) - looking for a 'Urtext' generally unreliable and manufacturer-producer of those curious urban plans that are musical scores, the interpreter wants to end restaurateur and co-creator of an original that nobody has ever heard, except the composer in the intimate mirror of his inner ear. (Armengaud, 2010, p. 181).*

The challenge of a real-time performance with a computer controlled acoustic piano is huge, especially concerning interpretation, following the “inner ear” of the composer.

## 2 | JEAN CLAUDE RISSET AND THE DISKLAVIER

Composer and mathematician and this foremost expert computer of IRCAM (Institut de Recherche et Coordination Acoustique/Musique, founded in 1977 by Pierre Boulez) wrote in 1989 the work of pianist and Disklavier *Eight sketches: duet for one pianist*. In the own words by Jean-Claude Risset:

*This is probably the first piano "duet" for a single pianist: in addition to the pianist's part, a second part is played on the same piano - an acoustic piano, with keys, strings and hammers - by a computer which follows the pianist's performance. This requires a special piano - here a Yamaha Disklavier - equipped with MIDI input and output. On this piano, each key can be played from the keyboard, but it can also be activated by electrical signals: these signals trigger motors that actually depress or release the keys. Each key also sends out information as to when and how loud it is played. The information to and from the piano is in the MIDI format, used for synthesizers. A Macintosh computer receives this information and sends back the appropriate signals to trigger the piano playing: the programming determines in what way the computer part depends upon what the pianist plays.*



Figure 1 | Black&White 2012 \_Duo pour une pianist.

*In these eight sketches, I have tried to explore and demonstrate different kinds of live interaction between the pianist and the computer.*

1. Double.
2. Mirrors.
3. Extensions.
4. Fractals.
5. Stretch.
6. Resonances.
7. Up Down.
8. Metronomes.

*This "duet for one pianist" was realized in 1989 as I was composer in residence in the Music and Cognition Group, Media Laboratory; M.I.T., thanks to a grant of the Massachusetts Council of the Arts. It was implemented with the real-time program MAX written by Miller Puckette at M.I.T. and at IRCAM. I acknowledge the highly dedicated and competent help of Scott Van Duyne. (Risset, 2012)*

The sketches, recorded by Jean-Claude Risset at MIT, appear on CD “Electro-Acoustic Music III”, Neuma 450-87 (with works by Saariaho, Karpen,

Nelson & Fuller). There is another recording by J.C. Risset CD Digital Rewind 25, Media Lab, MIT Experimental Music Studio (with Child, Roads, Vercoe, Harvey, Davidovsky).

### 3 | DISKLAVIER INTERPRETATION: AN APPROACH

The aim of this study is a brief discussion expressed in words on the object of a possible critical reflection on interpretation of a music work Duet for a Pianist by Jean-Claude Risset.

According to Levinson, a critical interpretation is “what we tend to understand by “interpretation” when no qualification is given. A performative interpretation is merely a “considered way of playing a piece of music”.

A real-time performance with a Disklavier challenges the purpose of interpretation, because Interpretation is constrained partly by a concern for fidelity and partly by a need for creativity (Thom, 2007). Overdone fidelity, in the form of mere repetition or literal transcription, is not interpretation and mere willful departures from the object are not interpretation either. So genuine interpretation lies somewhere between these extremes (Thom, 2007).

Composer Jean-Claude Risset seems to agree with this idea referring to the his 8 Sketches (1989), as he writes we have implemented live interaction between a pianist and a computer acting as partner playing on the same piano in ways that depend upon what the pianist plays and how he or she plays. It is difficult to communicate the experience of playing in duet with a virtual partner, predetermined but sensitive.

Also in a man-machine interaction like in this piece, the art of interpretation depends, in fact, on the imperfection of notation, as well as on the composition itself. The composition's interpretational variety can never be exhausted and it is difficult to achieve a precise and true notation. The inexhaustibility, uncertainty, spiritual openness of a musical piece is a precondition of art. Therefore, it is right to state that the musical text lacks what is essential – and that is what an interpreter as an artist intuitively feels from the notation (Zlatar, 1997).

The 8 Sketches + Reflections Duet for one Pianist by Jean-Claude Risset demand the same approach by the pianist. There has been some research on the



Figure 2 | Black & White 2012\_Duo pour une pianiste

subject of performance observation and assessment, as well on qualitative evaluation of the elements of musical performance. There is an agreement that performances comprise both technical and aesthetic appeal, yet there is no knowledge of the source from which this information is being drawn from when assessments are made. This work is described by its composer as to be the first instance of real-time interaction between performer and computer that is entirely within the realm of acoustic piano sounds. A pianist performs the score on an acoustic piano, controlling a second, computer-generated part solely through his or her performance. This second part is played by the computer on the same piano – a genuine “duet” for a single pianist.

I played the new Sketch Reflections (2012) by Jean-Claude Risset dedicated to me, in order to perform a World premiere in the closing ceremony of Black&White 2012 Film Festival promoted by Catholic University of Portugal – Porto (<http://artes.ucp.pt/b&w/2012/index.php>).

*In my “Duos pour un pianiste”, the interpreter is accompanied by a computer, which adds in the same acoustic piano (a Yamaha*



Figure 3 | Black&White 2012\_Duo pour une pianiste

*Disklavier*), an additional part that depends on what the pianist plays and the way he plays. Several types of relationships are possible between what the pianist plays and computer response. This innovative process, I implemented at MIT in 1989, thus affording a solo duet, with an invisible partner, virtual, programmed, but sensitive. (Risset, 1990)

Interpretation is deeply connected to expression because

*System is not in the way of expression: expression happens by, through, human being (first the composer, later the performer) with system.* (Griffiths, 2010)

The components of expressive performance can work as analysis criteria of a piano interpretation, in here, of a pianist and *Disklavier* interpretation. The selection of the components considered in this study are: dynamics, agogics patterning, tempo, phrasing and articulation, accents, pedal, textures. The information and critical remarks depend upon the subtle characteristics of the live performance.

### 3.1 DYNAMICS

For example, under MIDI control, the upright *Disklavier* piano was unable to play softer than a particular minimum loudness, which was really not as soft as artistically desirable. This aspect was greatly improved in the grand-piano version. (...) the velocities of the MIDI-initiated notes and the velocities of human-initiated notes at the same loudness did not always match up.

*Doubles* (the 1st Sketch) starts in *pianissimo*, coming to a short forte trill in the second stave and ends in a very soft *pianissimo*. *Mirrors* (2<sup>nd</sup> Sketch) quotes the first notes of Anton Webern's Variations op. 27, and the dynamics in the 1st bar change every beat as follows: forte-mezzopiano-forte-mezzoforte.

*Extensions* is an exciting Sketch, with a big crescendo and 132 bpm arpeggios. In the form A-B-A' the performer listens to an echo played by transposition and delay. This outcome sounds very surprising because of the harmonization change, so the pianist is compelled to interactive process, just as in *Up-Down*. As Jean-Claude Risset himself describes, "the louder the note, the faster the *arpeggio*"(1996).

It is said by the composer that the computer plays in *Up-Down* with loudness and tempo determined in advance but with loudness and tempo determined by the pianist's playing. In our version, performed in Oporto in 2012, this effect was not always very clear to me in real time performance. Still I could listen and interact with MIDI, following the loudness of the triggering note(s) played by me.

In *Reflections* (the world premiere Sketch) the composer helps the performer in a comment at the end of the piece: *For the piano or pianissimo passages, a slight de-synchronization is normal*. One should try to take advantage of it. That's what we tried to achieve on the 21st April at its World premiere at Black & White Festival.

### 3.2 AGOGIC PATTERNING

The agogic patterning goes naturally through all the interpretation of the 9 Sketches. The character of the new Sketch *Reflections* (2012) at the beginning part, 54 bpm, is lyrical and has no accompaniment of the computer. It seems to announce the next part, again with a big *crescendo*, before the middle section with 112 bpm, very assertive and rhythmical. The 3rd part returns to 54 bpm giving the performer the opportunity of an expressive modification expecting a sensitive accompanist, because MIDI is here no longer in charge.

### 3.3 TEMPO

*Mirrors* quotes the first notes of Anton Webern's Variations op. 27, and the dynamics in the 1st bar depend upon the right tempo and the 120 bpm of the performance.

*Fractals* asks for 106 bpm and from the beginning a very precise rhythm of the lowest note C. Every other "Mirrors" follow precise bpm.

### 3.4 PHRASING AND ARTICULATION

The phrasing and very short articulation of rhythmic patterns in the 1st bar of *Mirrors* helps the dynamics change every beat. The last 4 bars of *Mirrors* demand the same precise articulation, together along with assorted dynamics.

The phrasing of all the Sketches is very important also because of the keyboard layout of the passages, very

often from treble to bass and the other way around (*Up- Down, Fractals*). All this happens in interactive process with the computer.

### 3.5 ACCENTS

In *Mirrors* the accents are very important at the beginning of the piece, in the very first bar. These accents come together with dynamics and phrasing of the music. There are also many indications of *legato*, *staccato* in all Sketches together with articulation, accents (Metronomes).

### 3.6 PEDAL

In the middle section *Mirrors* sounds extremely interesting by the effect of a long Pedal in the 2nd stave 2nd page. The opposite effect *senza Pedal* happens in the 3rd page, 2nd stave. It results in a very beautiful sound together with the computer response.

*Resonances* and *Reflections* provoke sympathetic resonances within the piano and therefore demand a very careful use of the pedal.

### 3.7 TEXTURES

*Resonances* and *Reflections* provoke sympathetic resonances within the acoustic piano (consequence of use of the pedal). In the middle section of the piece the pianist uses 3 long Pedals, and the composer also indicates on the score (*use Ped. sparsely to reinforce MIDI figures – but not for resonance*). The pianist is asked to follow the MIDI part on the score and in a live interaction with the Disklavier change the pedal while producing the mute chords.

## 4 | CONCLUSION

The musical interest of interaction brings us back to the excitement of performance of these works, and the need of creativity interpretation involves, also with a virtual partner. Again according to Risset, these pieces were called Sketches, which points to their brevity and their experimental nature. Each sketch explores and demonstrates a specific and rather simple relation between what the pianist plays and how the computer responds (1996). All the process is controlled by the pianist from the piano keyboard. In the 2012 live performance of this work in progress, it was decided to count on a second partner on stage

(André), just to make sure all the triggers worked during the performance.

The real-time live performance challenges were overcome and give pointers into future approaches for hybrid performances in computer music.

## ACKNOWLEDGEMENTS

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## ENDNOTES

1] Testimony of Jean Claude Risset on the 14<sup>th</sup> June 2014 at Doctoral Seminar Science and Technology of the Art in Catholic University.

[2] Live Performance “8 Sketches+Reflections Duet world premiere :

<https://www.youtube.com/watch?v=do7iE9vTgLw>

<https://www.youtube.com/watch?v=xmhDaaHRKJI>

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Sofia Lourenço is a post-doctoral researcher (FCT Grant <http://www.fct.pt>) at Research Center in Science and Technology of the Arts (CITAR) which integrates since 2007 (Coordination Musical Studies) at Portuguese Catholic University. Pianist, born in Porto, where she concluded graduate studies at

Conservatory of Music of Porto, University of Porto and FLUP. She obtained a Diploma in Piano Soloist (Abschlussprüfung Klavier) at Universität der Künste Berlin (scholarship by the Calouste Gulbenkian Foundation). PhD in Music and Musicology / University of Évora (2005) and Associate Piano Professor at ESMAE / IPP. Concert activity, both solo and with orchestra in Portugal and abroad. Recorded 4 solo CDs between 1999 dedicated to Portuguese Music and 2009 and 2012 in *Black & White* for Disklavier festival *Duo pour une Pianiste* (9 Sketches for One Pianist) Jean-Claude Risset (world premiere dedicated to her).

<http://www.artes.ucp.pt/citar/pt/projetos/mapp-multimodal-analysis-of-piano-performance>