One Player, Two Instruments

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ABSTRACT

With the rise of more user-friendly music technologies and the accessibility of these tools, more acoustic instrumentalists explore the world of live electronics in relation to their own instrumental practice. These range from working with effect boxes (digital or analogue), to the use of hybrid/extended instruments, to performing with autonomous improvisatory systems, or a variation/combination of the above. The use of live coding in combination with one's own instrumental performance is not excluded from this movement although it is less prevalent. This paper analyses three examples of works which require one player to both play an instrument and live code before: Xavier Riley's *Don't Drop The Bass,* Alexandra Cardenas' *Feedforward,* and Nick Collins' *Robot Schumann.* The analysis focuses on how the performer interacts with the two individual performance practices during their performance, how they overcome the physical challenges of shifting between two interfaces and how they deal with performance flow and continuity.

1. INTRODUCTION

With the rise of more user-friendly music technologies and the accessibility of these tools, more acoustic instrumentalists explore the world of live electronics in relation to their own instrumental practice. These range from working with effect boxes (digital or analogue), to the use of hybrid/extended instruments, to performing with autonomous improvisatory systems, or a variation/combination of the above. The use of live coding in combination with one's own instrumental performance is not excluded from this movement although it is less prevalent.

Over the years, various performers have included instrument duality in there sets but unfortunately many of these are not documented and consequently cannot be discussed in this paper. This paper analyses three examples of works which require one player to both play an instrument and live code before: Xavier Riley's *Don't Drop The Bass,* Alexandra Cardenas' *Feedforward,* and Nick Collins' *Robot Schumann.* These works do not aspire to present an exhaustive list of performers combining instrumental performance with live coding but have been selected for their accessibility and diversity in approach.

2. RELATED WORKS

A key characteristic of instrumental performance combined with live coding is the presence of two interfaces for music making. Certainly if adhering to Thor Magnusson's "weak" definition of live coding which includes "trivial code manipulation" (Magnusson 2014), many performers incorporating live electronics in their solo sets face the same challenges of physically shifting between the acoustic instrument and their computer. Performers working with live electronics often opt to include pedal boards or discrete controllers to act as a more subtle and manageable interface for their computer. Sometimes these controllers are combined with using the computer directly and when this is the case the same challenge of maintaining the musical and performance tension built during their instrumental playing and temporarily put "on pause" as they interact with the computer remains. I dare say, this challenge is exacerbated when the live coding is "weak" as the computer interaction is invisible to the audience and not contributing to the unfolding process of the performance.

The challenges of interacting with two interfaces by one performer are also faced by artists combining non-acoustic but gestural instruments with live coding such as Marije Baalman in *Wezen – Gewording* (2015) or Draghica Kahlina in *living sound* (2015). Such performers, much like ones which combine acoustic instruments with live coding, find their own manner of interaction with their respective interfaces and managing their stage presence.

3. CASE STUDIES

In this section I analyse how artists in three case studies deal with interfacing an acoustic instrument and live coding simultaneously. The analysis is done in a subjective manner and focuses on how the performers interacts with the two individual performance practices during their performances, how they overcome the physical challenges of shifting between two interfaces and how they deal with performance flow and continuity. It is the hope of the author that an analysis of these works will give her insight as to how she may engage with a one player, two instruments setting in her own practice.

3.1. Xavier Riley's *Don't Drop The Bass*

Riley performed *Don't Drop The Bass* at the 2017 Brighton Ruby conference. In his performance, Riley is playing the electric bass and uses Sonic Pi to live code; setting out to show the new features of the period which support instrumental and MIDI input (Riley 2017). The performance lasts around 5'30" long which is by relatively short by live coding standards.

The work opens with a simple Sonic Pi beat and Riley promptly proceeds to coding a live sample loop buffer which he then records with his bass. Following his initial recording of the loop, he then manipulates the sample with slicers, choosers, rate reversal and other manipulations for the next 80secs, essentially setting up a layer from his sampled bass loop. The performance continues with Riley moving between coding and playing as outlined below.

0'10" - coding
0'44" – playing loop sample
0'53" – coding
2'13" – playing - new sample
2'33" –coding – setting up effect for bass solo to come
3'18" – playing
3'43" – playing interspersed with coding
4'06" – evaluation of code followed by more playing
4'19" – coding
4'46" – play single note
5'00" - playing interspersed with coding
5'38" - end

During the opening minutes of this work the coding is leading the performative narrative with the bass playing serving largely as sample input for the coding. Besides the percussion beat launched in the beginning of the performance, all the sounding sounds are derived from the bass samples, creating a unity between the live coded and played material. The coding, except the opening beat, is done from a blank page and in doing so gives the audience "access

to the performer's mind" (TOPLAP Manifesto) and shares the performer's thought process. The shift switches primarily to playing from 3'18" with some interspersed coding. Some parts of this coding seem to not be premeditated and appear to be Riley trying to fix something. In contrast, other parts, such as the ending, are clearly done in a structural way.

I think it is really admirable how smoothly Riley moves between his two instruments. The presence of a very large, high quality screen assists the gestural strength of the live coding parts and balances out any potential unevenness in computer vs instrumental performance practice.

3.2. Alexandra Cárdenas' *Feedforward*

Cárdenas performed *Feedforward* at the 2015 International Conference on Live Coding in Leeds. In her performance, Cárdenas used a combination of her electric guitar and IXI Lang, making much use of IXI Lang's *autocode* function. The performance lasts around 11mins.

The work opens with a layer of distorted sound produced by the electric guitar which is fed into IXI Lang. Once the *autocode* function is launched, the performance unfolds as an improvisation between the performer and the laptop. As Cárdenas describes, the performance is "an interaction of preexistent code and new born code, of preexistent sounds and new born sounds" (Cárdenas 2015). Below a time breakdown.

0'05" – setting up guitar
0'20" – coding
1'00" – autocode is launched
1'28" - playing
10'40" – stops playing
10'50" – sound stops

In this performance, the guitar is leading the performative narrative and Cárdenas is only minimally engaging with the act of coding. Instead, by engaging the generative *autocode* function, she has eliminated the need to engage with the laptop herself whilst still keeping the code *live*. This connects her performance to the broader field of performers interacting with generative systems. However, an advantage of IXI Lang's *autocode* is the transparency of its generated code which allows it to be just as easily followed by audience members as human coded IXI Lang code.

The sounds in *Feedforward* are all derived from the guitar input with *autocode* applying a variety of effects, transformations and manipulations. Cárdenas uses a range of extended techniques on the guitar, which is lying flat on a table for the duration of the concert, to create an electroacoustic, noise style performance (ibid).

3.3. Nick Collins' *Robot Schumann*

Collins performed *Robot Schumann* at the 2013 Live Code Festival in Karlsruhe. In his performance he uses SuperCollider to live code a Disklavier, alongside a text narrative and playing the Disklavier himself. The performance lasts just under 8mins.

This is primarily a live coding performance with a strong theatrical component. Schumann's Symphonic Etudes Op. 13 are used as a source for pitch and time structures which are then manipulated through "live coding intervention" (Collins 2013). Alongside coding the Disklavier, Collins launches a text writer which prints a letter for every note played on the Disklavier. The text unfolds as a humorous biographical story and Collins also calls a number of Schubert related images. An outline of events is below.

0'15" – coding
2'20" – playing
2'40" – coding
3'45" – playing
3'54" – coding
6'37" – playing
7'14" – coding
7'57" - end

The proportion of piano playing to coding is leaning greatly towards the coding. However, because the coding is also playing the Disklavier, there is a great unity between the two actions. Much like the code controlling the Disklavier, Collins also plays extracts of Schumann's Symphonic Etudes although in their original form and not manipulated. This gives his playing a distinct sound, one of Romantic piano performance, which contrasts the more mechanical output of the Disklavier but shows the two as being distinctly related. Furthermore, Collins codes whilst in a half standing position where a pianist usually sits and this visually binds the audience's perception of whether he is playing or coding.

4. REFLECTION

These case studies share the presence of only one (main) audio source which undergoes a series of manipulations by the live coding. Where Riley played both his bass and coded a relatively similar amount of time, Cárdenas and Collins clearly favored one instrument over the other in their performances. However, their choices were compensated for by the presence of *autocode* continuing the live coding (Cárdenas) and the Disklavier playing the piano from the live coded parts (Collins). This compensation also meant that the practice of live coding and instrumental performance were engaged throughout their performances, albeit not by them.

In these case studies the performers did not attempt to code and play simultaneously. This is not surprising as instruments generally require two hands to be played, consequently playing more than one at the same time is challenging, although not always impossible. Of the three case studies, Riley came closest to playing and coding concurrently, squeezing in some minor code adjustments in his later playing passages.

5. CONCLUSION

The transparency of the code and the clear artistic ideas behind these works gave them strength as successful performances in my opinion. As inspiration for my own project, working within one or related sonic realms will be a consideration and I aspire to play and code simultaneously as much as possible. Fortunately, the piano is well suited for instrument duality for two reasons: 1) the presence of sustain pedal enables the piano sound to continue when the hands are engaged elsewhere (the computer) and 2) one can play (some) piano with one hand permitting the other hand to code. [1] I look forward to embarking on my own One Player, Two Interfaces project.

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[1] A later work of Nick Collins', *Type a Personality* (2015) for piano and live coder, does ask the pianist to play and code at the same time. Here the coding (typing) is written into the composition with hands shifting between the two interfaces whilst always continuing to play.

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