

Berklee College of Music

CEMi Rig

Building a Live Performance and Production Tool

Submitted in Partial Fulfillment of the Degree of
Master of Music in Contemporary Performance (Production Concentration)

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Valencia Campus, Spain
July 2018

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Abstract

The purpose of this project is to create, by using both hardware and software tools, an environment that allows me to perform and produce my own music. As a saxophonist and electronic music producer, I had been struggling with bringing these two musical sides closer throughout the years. By figuring out my own personal creative rig, I would find new ways of incorporating the saxophone into my music through different techniques such as looping, live sampling and effects processing. Throughout the process, I tried out different hardware devices, such as MIDI controllers, synthesizers and effects learning a lot about sound design and MIDI programming to achieve what I wanted. As a Ableton user, this software was also implemented to have interconnectivity between all of the tools used. Specific effects were designed to transform the saxophone and almost 100 original patches were designed to be used with Teenage Engineering's synth, the OP-1. This led to the creation of a web store where all of these patches can be purchased. I hope these explorations help musicians seek new ways to perform or produce by expanding the limits of acoustic instruments through electronics.

Keywords: creative project, saxophone, live sampling, synthesizers, Ableton Live, Teenage Engineering

1. Introduction

Carlos Emilio Llerena was born in Lima, Peru on February 24, 1992. With the saxophone as his main instrument, he immersed himself in the language of Jazz and improvisation since very young. This opened doors for him, as he developed the versatility to adapt and play many different genres. For many years, he explored with jazz, groove, funk, peruvian folk music and free improvisation going through many different projects and bands. By 2009 he knew he wanted to be a professional musician, but living in Peru made it very difficult, since by that time there were no universities or college music programs. Carlos Emilio prepared for auditioning to Berklee College of Music in Boston, eventually receiving a scholarship to study an undergraduate degree in Jazz Performance. While in Boston however, it was when he was first exposed to electronic music and music technology. This woke up a latent interest in him, which led him to record an album of experimental electronic music called “Doja Gardens” where he discovered the power of Ableton Live and sound design.

From listening to Sonny Rollins, John Coltrane, Miles Davis, Hank Mobley, he started listening to more modern artists that were pushing Jazz limits to new directions, such as Chris Potter, Joshua Redman, Robert Glasper, JoJo Meyer, Mark Giuliana, etc. He was impressed by how these artists were taking elements from modern music to create something new and original. At the same time, he was listening to Dubstep, Drum and Bass, Hip Hop, Independent Dance Music and other styles.

Back in Lima in 2013, the need of playing “gigs” and producing income had him once again performing actively in different contexts. He formed a band of Live Electronic Music called “Nassa” in which he was in charge of live effects, sampling, Ableton Live and playing the saxophone through effects. Together they played in Electronic Music festivals in Peru and the project made an impact in Lima’s music scene. Carlos honed his live performance skills during this time and learnt a lot about creative audio routing.

Eventually, he started his career as an independent producer and he first started composing and producing beats and tracks for corporate events, advertisements and rappers. In 2014 he was contacted by the artist “Alejaru” to produce her EP “Lucido” in which he got his first experience actually producing for another artist. This EP had huge success and marked an important moment in Carlos Emilio’s career. After working with other artists and producing several full albums, he decided to release his first EP under the name CEMi¹ in 2017. Combining modern harmonies, polyrhythms and creative sampling he achieved an original sound but deeply rooted in his groove influences. As a goal, he set to create a unique palette of drum sounds by sampling his saxophone in creative ways and making his own drum kit to achieve a signature sound. However, although the saxophone was still his main instrument, he did not incorporate this instrument at all in his first release. The sound of the saxophone did not find a place in the mix for him and he felt that the minimalistic sound of the EP was lost with it.

This proved to be a problem, since he could not find a way of integrating both his

¹ Free Online Stream of CEMi <https://cemi.bandcamp.com>

electronic music productions with the saxophone in a way that he felt was natural but innovative at the same time. While in a band setting, he could play the saxophone with effects, in a live solo performance setting, he would use Teenage Engineering's synth, the OP-1² and Ableton Live.

2. Proposed Culminating Experience

As a continuation of his first EP, Carlos is on a quest to explore unique and personal sounds with those instruments that he feels a connection to. The need to create electronic music without leaving behind the saxophone is what drives him. He finds there is a gap between his two music personas, the jazz saxophone player and the electronic music producer and he wants to bring those two closer together and explore a whole new world of sonic and creative possibilities which will allow him to express his music. As Kenny Werner says "seeking new levels of technical mastery should be a lifelong pursuit - not because you want to impress, but to facilitate any direction the great spirit inside you wants to go."³

The main idea of this creative project is to build a solo live performance environment or set of tools which incorporates the saxophone, sampler/synth OP-1 and Ableton Live. By environment, there's an emphasize in noting that it's not only one performance but more of a "collective" instrument in which the saxophone acts as the main instrument but then both the OP-1 and Ableton Live will expand the saxophone's capabilities by either effects, live sampling,

² Teenage Engineering's flagship synth, the OP-1 <https://www.teenageengineering.com/products/op-1>

³ Kenny Werner, *Effortless Mastery* (Alfred Music; Pap/Com edition, 1998)

audio manipulation and sound design. This performance environment would then be used for both live performance and composing/producing.

3. Objective & Sub-Objectives

This live performance environment has the goal to allow one to perform from scratch a song, either improvised or composed. Without relying on loops or pre-recorded material, everything would have to be created on the spot. Part of this is aimed to explore the new capabilities of acoustic instruments, in this case, the saxophone, in electronic music context. Then also, approach composition the other way around. From an improvised piece using the “rig”⁴, one could potentially continue to further produce the song in the studio to have an actual song.

As part of the process, a lot of sound design is required. All of the sounds both from the OP-1 as synth patches or devices used from Ableton Live, will be created from scratch. Eventually, all of these presets and patches will be organized and polished to be released on an online store for purchase or as free downloads. The songs composed on the rig will be work as short demos for these preset packs.

To achieve the final goal, specific steps have to be prepare before hand:

⁴ From now on, “rig” will define the set of tools, both hardware and software, used for this project.

- Create 8 FX⁵ saxophone patches which can be controlled via the SoftStep 2 controller.
- Master OP-1 workflow and tricks to be able to sample and resample on the spot.
- Set up an Ableton Session template with all the needed audio routing, mappings, tracks etc. and map some functions to the Softstep 2 controller.
- Figure out the physical audio routing and signal flow.
- Compose, produce and mix a song and adapt it to be performed on the rig
- Compose a song out of the rig
- Document the process and set up

The saxophone's natural sound usually sits in the middle of a mix⁶, therefore it is very difficult to have it stand out in electronic music without it been actually meaningful and impactful. Therefore, it is very important to discover and achieve "signature" FX's patches that vary from leads to more ambient sounds. These could not only be applied for live performance but for actually electronic music production of original songs, by then resampling these new sound. Teenage Engineering's portable synth, the OP-1, is a great powerhouse synth/sample that lets one use it according to personal needs. However, it takes time and practice be able to fully operate in a fast and useful way. Part of this project is to explore the sampling and FX capabilities of the OP-1 in a live performance context and combining it with other synths, tools, etc.

⁵ FX is used to shorten "effect" in Electronic Music and other musical environments.

⁶ Please refer to <http://newt.phys.unsw.edu.au/jw/saxacoustics.html> for more information regarding saxophone acoustic characteristics.

4. Methodology

The method in which this project will be carried will be a combination of “action-research” and “performative-research”. Even before actually utilizing the rig, the rig has to be planned out and tried. This requires a lot of trial and error, see what works, what doesn’t, what sounds good, what could be better. Many versions of the rig will probably be created in order to find one that best suits performance and creative needs.

4.1 Plan of Action

1) Create a Ableton Live Performance Template

Ableton Live allows the user to do easy creative audio routing for quick sampling and resampling. A saxophone track will be set to feed the OP-1 to sample/resample by using an interface with several outputs. On this same track a Looper device will always be active. This Template will include all of the MIDI assignments to control specific elements of the Session by utilizing a MIDI foot controller. These elements include FX dry/wet signals, controlling volumes, controlling the Looper device and moving around the Session View in Ableton.

2) Creating FX patches for the saxophone

Once the template is set, FX chains will be explored to figure out at least 8 specific patches with different characteristics and uses. Patches will be divided in three categories, Leads, Pads and Keys. It is important to note that this FX chains must have low latency in order to work for live performances. This FX will be activated and used with the MIDI foot controller.

3) Creative exploration of the FX patches and sampling

This step is to help refine the patches specific roles. The live rig will be set to improvise and to see how well the patches are performing in real context. According to this, changes will be made to the patches or new ones will be created to have distinctive sounds. Here, sampling exploration will begin with the OP-1 and the saxophone as a way to start a constant practice with the rig.

4) OP-1 Presets creation and sampling from other sources

A wide of collection of presets and patches will be done to put up on sale on a simple website. Presets made with OP-1 native synth engines but also sampling from other sources such as Ableton's Wavetable, Serum and real sources. They will all be tweaked and be completely playable on the OP-1.

4) Composing, producing and mixing a song

One song will be composed, produced and mixed in Ableton Live with the aim of performing them with the rig. This two songs won't necessary use the "new" FX patches, they will be composed and produced by "traditional" methods used by Carlos Emilio.

5) Performing and video recording that song

Once the the song is completed, as a way of practicing using the rig, they will be adapted for live performance. Here, there will be an emphasize on using both the FX patches and the

OP-1 capabilities. This step will help reveal any problems with the rig to further improve it.

After this step, the rig's workflow should be mastered.

4.2 Timeline

January	February	March	April	May	June	July
Practicing, exploring, trying out the live rig						
Creating Ableton Live Template	Creating FX Patches for sax and OP-1	Compose, produce and mix song 1	Perform and video record song 1&2	Setting up the website/organizing patches	CE First Presentation	CE Final Presentation
Program Softstep Midi Controller		Revise routing and FX patches		Edit videos of whole process		
Practice OP-1 techniques/Study Live Performances					CE Revision	
Practice saxophone daily						

January

- Practicing/exploring the Rig
 - Booking a teaching/ensemble room for at least 3 hours
 - Video record set up
 - Get comfortable with set up
 - What can be discarded? What can be changed?
- Program Softstep
 - Read the manual

- Program it to control Ableton's Looper
- Program to control FX patches
- Specific Ableton transport controls (Stop all clips, volumes)
- Creating Ableton Live Template
 - Set number of tracks
 - Figure out Audio Routing for Resampling on OP-1
 - Set and tweak two drum racks for Ableton Push
 - Configure Looper device
 - Configure all MIDI assignments

February

- Practicing/exploring the Rig
- Create FX patches for saxophone
 - Using Ableton, create FX racks for original saxophone sounds
 - Configure FX patches with Softstep
 - Test out patches

March

- Compose/produce 2 songs
 - Create a Live Performance version of each
 - Adapt songs to the rig

April

- Perform and Video Record Song s
 - Practice the songs to be performed using the Rig

- Set up teaching/ensemble room with action camera and record
- Tweak or change anything that comes up.

May

- Edit patches and polish samples to catalogue
 - Finish website and be ready to upload packs
- Edit videos

4.3 Resources/Materials Needed

- Technical Resources
 - MacBook Pro 16GB RAM with Ableton Live Suite
 - Tenor Saxophone
 - Keith Mcmillen Softstep 2 Midi Controller
 - Keith McMillen K-Mix interface/mixer
 - Teenage Engineering OP-1 synthesizer
 - Ableton Push 2
 - Samson Wireless Saxophone Microphone
 - Digitech Whammy Pedal
 - Action Camera

- Space Requirements

- Practice rooms
- Ensemble room/teaching room
- Fully equipped music recording studio

5. Justification

Although saxophone and FX processing has been done before, this project aims to go much further than that. By creating this new environment or rig, we are taking a source (the saxophone) and expanding its capabilities by using other “instruments”, the OP-1 and Ableton Live. So it is not just an insert effect, it is more like a live collective instrument. This will not only show a complete new and original way of using the saxophone but also of the OP-1 and Ableton Live. The saxophone as an acoustic instrument has its limits, but what this is all about is breaking those usual limits.

Many musicians nowadays are starting career as independent electronic music producers, but many times they can't find a way to perform their music in an original way. They would either rely on classic Dj style performance⁷ or Ableton loop based performances. The possibilities that will be demonstrate throughout this project, will definitely give other performers ideas on to how to translate their electronic compositions to live acts. Although the project uses Ableton Live as mainly an audio hub, I think it will spark more ideas in the future

⁷ Traditional Dj setting with two decks and vinyls

for other people. A laptop/computer doesn't need to become the "main" instrument but more of a mixer for very specific audio routing that can't be achieved otherwise.

As for the sound design part of the project, by putting together a website that sells at a very low price, preset packs and samples, many other OP-1 users can easily access them. This will help refresh their own OP-1 sound library and perhaps inspire them to keep using their OP-1 to produce their music. Although the OP-1 was released in 2011, its user base is still very active. People are always finding new ways of achieving certain sounds or certain effects. This part of the work aims to be a deep study of the synth itself to not only achieve more OP-1 techniques for myself, but to share with fellow producers.

6. Execution

6.1 Setting Up

The first steps to take, was to figure out what hardware and how everything was going to be connected. A lot of time was put into exploring different gear and this dates back to 2015. Many different controllers and synths were tried, such as Korg's Volca line, modular gear, iOS softsynths, the Kaoss Pad sampler and many more. However, by discovering the OP-1 and its capabilities it was very easy to decide that this piece of hardware had to be incorporated in the set up. By 2017, Carlos also had built up a lot of experience using Ableton Live and the Push 2 controller, so he knew that perhaps it would be possible to build something from there.

In October 2017, the first ideas for the C.E project started to be drafted out. Carlos wanted to figure out a way of live looping the saxophone and then send it to the OP-1 for resampling. The fastest way would have been with an exclusive looper pedal and then just route that out to an interface with more than two outputs, so that two outputs could then send out to the OP-1 for resampling. However, buying a looper pedal was not in the budget so many solutions were thought out. Having already the K-Mix interface by Keith McMillen Instruments and knowing of the good quality of their controllers, the SoftStep Controller was a very good choice. Not only would he be able to MIDI assign Ableton's Looper to it but also many other parameters. As soon as the SoftStep arrived Carlos started to figure out how to program it to do what he wanted, because it was not as simple as it looked.

Keith McMillen Instruments provides an extensive manual⁸ on how to program the SoftStep however, it isn't very clear. A dedicated software is required to do specific programming called "Softstep Advanced Editor" and here is where one can create different presets to upload to the controller. After watching almost every single SoftStep tutorial online plus contacting Keith McMillen for support, programming started based on the different functions that were going to be needed.

Ableton's Looper has a "multi-purpose button" that changes function depending on how or how many times you press it, so this would be the first assignment to program to get looping

⁸ Keith McMillen Instrument's Sofstep 2 Manual
https://files.keithmcmillen.com/downloads/softstep/SoftStep_Manual_v2.0.pdf

working. Eventually, after trying out many different configurations, due to where it is located, Pad #5 was chosen for this role (see figure 1). The SoftStep also allows for visual feedback depending on what is going on in Live's looper so some LED configuration was done as well. When the LEDs are blinking green it's because the looper is waiting, when red, recording and when green, it's playing. This was done so that there would be no need to see the computer's screen to know what is going on with the looper.

As this foot controller has so many possibilities and functions, Carlos thought it would be very useful to make a pedalboard with a few different effects in Live and then be able to control them with the SoftStep. First, a simple reverb and delay were assigned to Pads #2 and #7. They are controlled depending on the amount of force put in the Y-axis of these pads. Two effects were created by combining several effects into an FX rack and then using Live's Macro Controls to control specific parameters from the different devices. These two FX were called "Dreams" and "Psychic". Their purpose is to create more of an ambient and texture effect to the saxophone and expand upon its natural sonic capabilities. Then Pads #8 and #9 were assigned to turn On or Off these effects, while #3 and #4 control the Dry/Wet also through the Y-axis. Some more fine tuning was done throughout the months as to make the SoftStep as expressive as possible and easy to use.

While on "Hosted Mode" the Softstep will only connect if the dedicated software is open all the time. However, for unknown reasons, it would randomly disconnect making it useless for a few minutes and it would only reconnect when the editor software was selected. After trying

different USB cables and messing around with the MIDI routing, it would still have the same issue. Therefore, the SoftStep preset was translated to the “Standalone Mode” which allows the SoftStep to be connected without having to have the Editor software running. With this mode, the SoftStep was working as it meant to and not having to have another software running, meant another thing less to worry about.

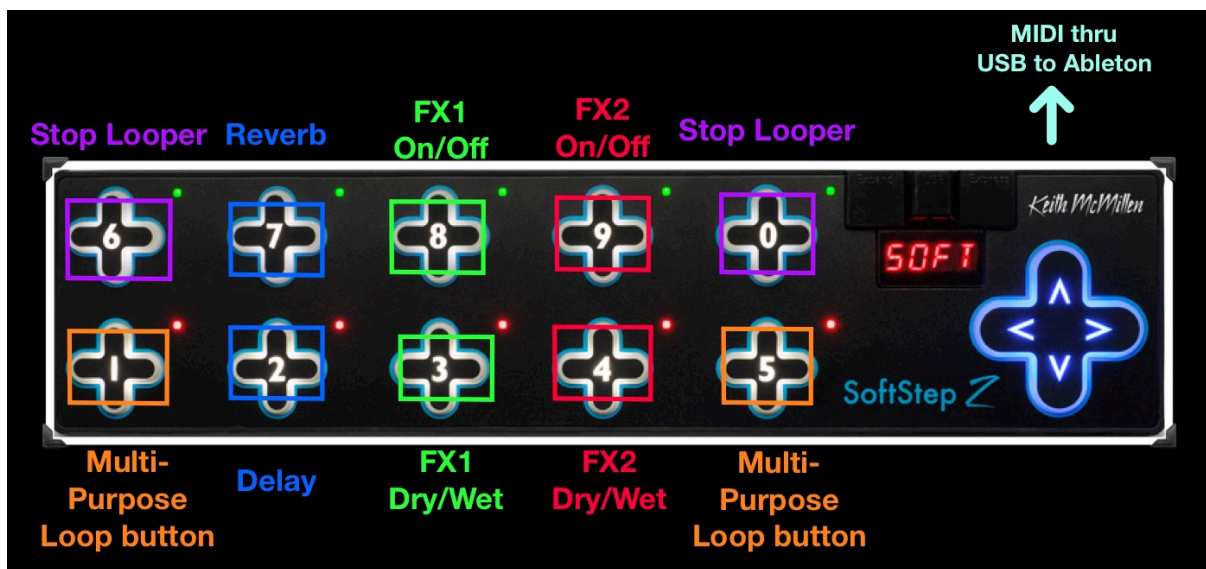


Figure 1

The next step was to create an Ableton Live template (see figure 2) that already had all of the required MIDI assignments plus the specific audio routing settings. Once the Looper was set up, there needed to be a way in which whatever was looped could be sent into the OP-1 for resampling. Ableton Live allows for very specific audio routings so this came really handy at this point. The Looper Track would be always sending to the Master Output track, however another track which is called “OP-1 Sampling” would be listening to this track the whole time but instead of sending out to the Master Track it would be sending to the Auxiliary Outputs that the K-Mix

interface offers. This way, output 3-4 are sending whatever is looped on that track to the OP-1 and to sample it or capture that audio, you simply set the OP-1 into Line Input sampling mode and press a key. This way, the Looper is still running even after sampling.

Once this was set up and running, the rig began to be explored in practical situations as to see what else was needed and how it could be implemented. For several practice sections, every piece of gear was brought in. Ableton Push 2 was set up to play drum beats using my personal drum kit, because of how easy it is to input a pattern on it. Two Teenage Engineering Pocket Operators were tried as to have more sonic options. Moog's Minitaur synth would be taking care of the bass, controlled through an Akai keyboard controller. The OP-1 was loaded with both Synth patches and Drum kits to be able to input at any point. But after a few sessions, the workflow proved to be very complicated and even more so the set up. If this project is to become practical, it has to be as portable as possible and also have a quick workflow to be able to create everything from scratch. By having so much equipment it was very hard to achieve what is wanted because it was impossible to concentrate on any gear and the roles of each of them were not really clear.

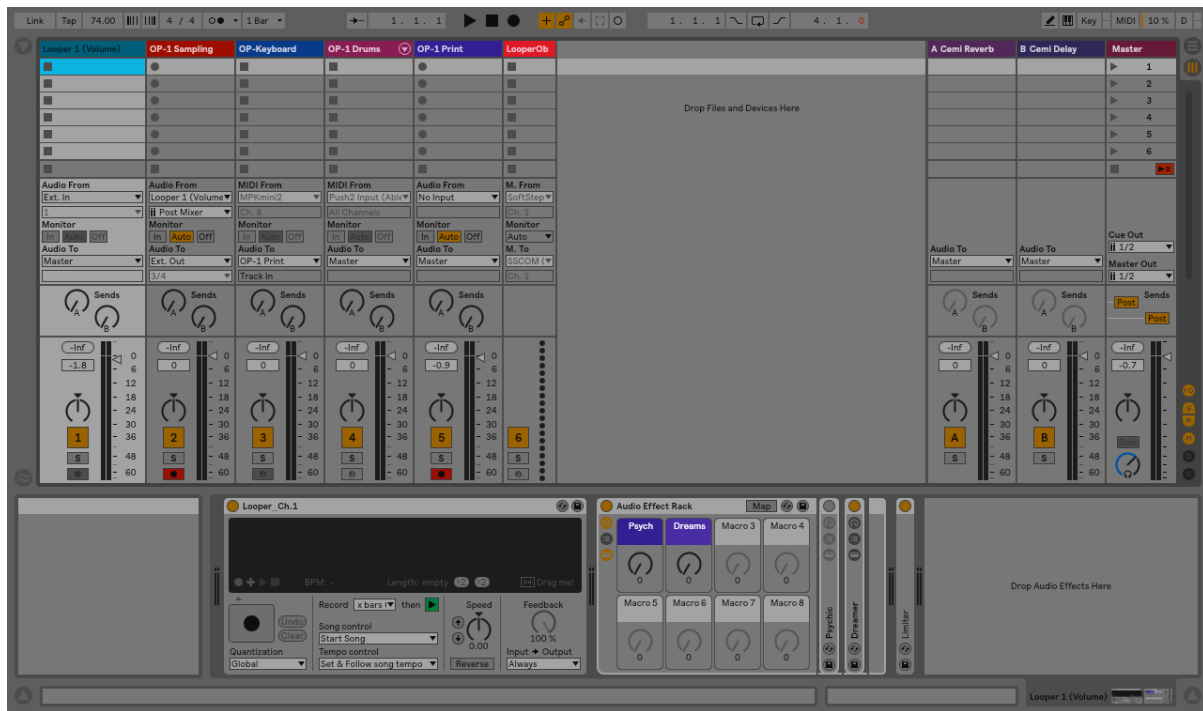


Figure 2

The rig went through several revisions, hardware-related speaking. So throughout the months, a lot of gear was removed from the rig, eventually just focusing on the OP-1, as it started. It was noted that Ableton Live was basically taking a role of a mixer plus the Looper/FX pedal board and the OP-1 was where most audio was happening. This simple set up, OP-1, Ableton Live and the SoftStep felt much better in terms of workflow and portability. It didn't take long to set up and creating from scratch on the OP-1 is fast thanks to its Sequencers and effects. The only problem was that the only way for inputting notes was using the OP-1's keyboard, which (see image) is very small and has no velocity controls, which for playing drum kits is a must have. To solve this issue, two more tracks were added to the Live template. The first one "OP-1 Keyboard", gets MIDI notes from an Akai keyboard controller and sends them to the

OP-1. This way, Synth patches can be played through this controller instead, giving more expression and more range. The second track is “OP-1 Drums” and this required more time to be prepared. This track was loaded with Ableton’s Drum Rack device which shows drum pads in an Akai MPC sort of way. Usually, one can load samples into each of these pads and then you can trigger them through any MIDI controller. As the goal was to play the OP-1’s drum kits through MIDI, Push 2 came back into play. Instead of loading samples into the pads, Live’s External Instrument device was loaded into 24 pads, which correspond to the OP-1’s keyboard. Then each of these pads was individually set to trigger the corresponding notes on the OP-1. This track would be receiving MIDI from the Push 2 set in drum pad mode, which allows for very smooth control over the drum kits on the OP-1. Now, not only is velocity available, but I can also sequence from the Push, giving more freedom and options as to how to input notes or drum sequences.

6.2 Trying out the Rig

Once the rig was put together in terms of hardware, it was time to try out how practical it was in real situations. Starting in February, 4 hour sessions were booked in different Berklee Valencia’s facilities to practice the rig and get comfortable with it and change what needed to be changed. For the first sessions, a lot of time was spent setting up and then, packing away the gear. Roughly about 30 minutes for set up and 30 minutes for packing up. At first, it was hard to memorize the cable connections, the position of each gear, the required electrical connections and volume levels. Therefore, I started taking pictures to memorize everything and be as efficient

as possible with set up. If this rig eventually leads to performance opportunities, then it has to be practical in every sense and avoid any over complicated steps. However, each time I would set up things faster and I would have more time to get hands-on the rig.

For the first four practice sessions, I would build up improvisations using different elements of the rig and different approaches. At first, I was obsessed with the idea of beginning with a looped saxophone and then build upon that. The Looper device would set the BPM of Ableton once it began looping. I liked this feature, but Ableton would not round up the BPM to a whole number, so I would end with something like 98.34 or 114.95, which was very troublesome because the OP-1 can't sync with decimal BPM. I came up with several solutions for this issue.

- 1) I could start the Ableton session and enable the metronome, so that the Looper device follows whatever tempo I input before. This way, the Looper device record and stops recording on the first beat of the measure after I press the Multi-purpose button.
- 2) Having the OP-1 running with a metronome and use that metronome to guide myself.
- 3) Use in-ears and send a metronome out from Ableton.

Even though I tried these solutions, I still felt like it was not the right way to go. It was too easy to lose sync between the OP-1 and Ableton. Inspired by Mason Self, a fellow musician who also explores electronic live music, I set myself to embrace musical "accidents". In the

following to videos “Court: Live Recording”⁹ and “Silt Tutorial: Permutations”¹⁰, Mason Self shows how he goes by to create his songs with no pre recorded material but a lot of preparation before hand. I personally asked (through Youtube’s comment section) him how he went on to synchronize different devices. In the first “Court Live Recording”, he has Ableton running and he’s listening to that metronome through his headphones, which the audience can’t hear. The OP-1 is set to the same tempo and he manually presses Start. In “Silt Live Recording” something similar happens, but this time he begins recording a piano into Ableton’s clip while having the metronome in his headphones. The OP-1 is again, set up with the same tempo and manually launched after. This workflow seemed very interesting because by letting the OP-1 be manually synced you don’t lose certain creative capabilities like moving the tape back and forth manually to create glitches or slowing the tape down drastically.



Figure 3

⁹ Mason Self - Court: Live Recording <https://www.youtube.com/watch?v=7HJHX9ibHlo>

¹⁰ Ibid <https://www.youtube.com/watch?v=nKeyowyyWJo>

For research purposes I ended up recording two video performances in which I try two different workflows. On the first one, I simply rely on the OP-1 for everything, thinking of this set up more to produce songs or come up with idea to further work later. The second one, I use more devices, like Ableton's Looper combined with the OP-1 for sampling, to create more of an experimental live performance. These will be further explained later on.

After deciding which two workflows I would use, I noticed I was still not convinced by the sound of the saxophone in this kind of electronic music. So I decided to incorporate three hardware pedals to further alter the saxophone's sound. This would also give more hands-on manipulation on dialing however I wanted to effect that instrument. With the Whammy Pedal, a Pitch Shifter effect, I would change the octave at which the saxophone is played, but it also gives a very digital characteristic to the sound. This would be very useful to create Lead type sounds. After the Whammy, I connected the "Hall of Fame" reverb and the "Flashback" delay. With these two, I could shape the decay and sustain of the saxophone more to my personal liking.

Finally, I got to record the two videos in two separate sessions. For Video #1¹¹, I am basically only relying on the OP-1, Ableton is doing all the MIDI routings and FX's but all the sounds are coming out from the OP-1 and recorded into Ableton. The Click comes from the OP-1, which at first I found to be not adequate for a real Live Performance situation, but I think somehow, it manages to blend as part of the song. As I have four tracks to record onto the OP-1,

¹¹ CEMi - Using the Rig for Production <https://youtu.be/42N9T2Pj1FM>

I can build up songs by record onto different tracks and then perhaps, mute some sections to create variation.

Although I like this set up, because of ease of connectivity and comfort, there's a limitation on to how much I can do to keep things interesting. I can build up loops or sections easily, but I would have to stop everything if I wanted to make a drastic change or add even more sections. However, having the Push and the MIDI keyboard to quickly input harmonies, melodies or drums is very quick and convenient. This set up would work more as a "song sketch" rig from where I can layout beats and ideas and then continue working on them for a fully produced song on Ableton.

For Video #2¹², I used a totally different approach. I started by looping my saxophone onto Ableton. For this to work, I had to start with something very simple and spaced, like a drone. If the initial loop was very busy and complex, then there's not much room for building up. Then, without even looking at the tempo, I had already set up a Drum Pattern through one of the OP-1 sequencers and I would launch it when the saxophone loop completed one cycle. Even though they are not at the same tempo, because the first loop is very sparse, it feels as if it was shifting around the time signature. Once the drum pattern was printed on the OP-1 I would enable the Whammy to overdub onto the ongoing saxophone loop. This time, instead of long tones, I would play more staccato, almost randomly pitches, to create a contrast. As the OP-1's drum loop is running freely, it allows me to do something called "Tape Tricks" which is the term

¹² CEMi - Using the Rig for Performing (Live Improvisation) <https://youtu.be/QKLnyO3jiKs>

used for manual tape manipulation such as fast forwarding or rewinding the tape, beat repeat, “scratch” effect like sounds, etc. As everything was playing, I sampled the previously loop directly into the OP-1 and moved around the start and end points of that sample. Then, I reversed the whole sample and pitched up an octave to further process it. This plus the COW effect of the OP-1 would give me the ability to create very drastic textures over whatever is playing. It would then take some coordination to be able to trigger the beat repeat, play the sample back, use tape tricks and move the effects parameters but the results were very pleasant.

6.3 CE.Sounds Website and Preset Packs

At some point during the whole process of figuring out the rig for performing and producing, I noticed that I had been building an extensive collection of OP-1 patches to play my music. I have always thought that one of the secrets to make electronic music sound original, is to spend a lot of time creating personalized sounds, either if its through Synthesis, sampling or Sound Design. As mentioned earlier on this work, on 2017 I released my first electronic EP which uses all original sounds created through the Prophet 08 synthesizer, the OP-1 and resampling techniques on Ableton. As a continuation of these explorations, in January I took the “Creative Sound Design” class taught by Ben Cantil (Encanti) to further hone my Sound Design skills and incorporate them in this project.

This sparked the idea of creating a simple website which I call CE.Sounds¹³. Here I have uploaded through services like Gumroad and Weebly, my own OP-1 presets in several packs for people to purchase. For starters, I have made a free demo, one pack with only keyboard patches and a last one called “OP-1 Patches Vol.1” which has over 50 different patches both sampled and synthesized. The idea is to use the two videos recorded to showcase some of these patches, plus other songs that are posted on my updated Soundcloud site¹⁴. This would work two ways because if someone enjoys my music and is a fellow producer, they can purchase my presets, but if a fellow OP-1 user knows about the presets and likes them, then they will also reach my music. This would potentially give me more chances of building an audience since I would be putting out myself not only as an artist/producer but also as a Sound Designer.

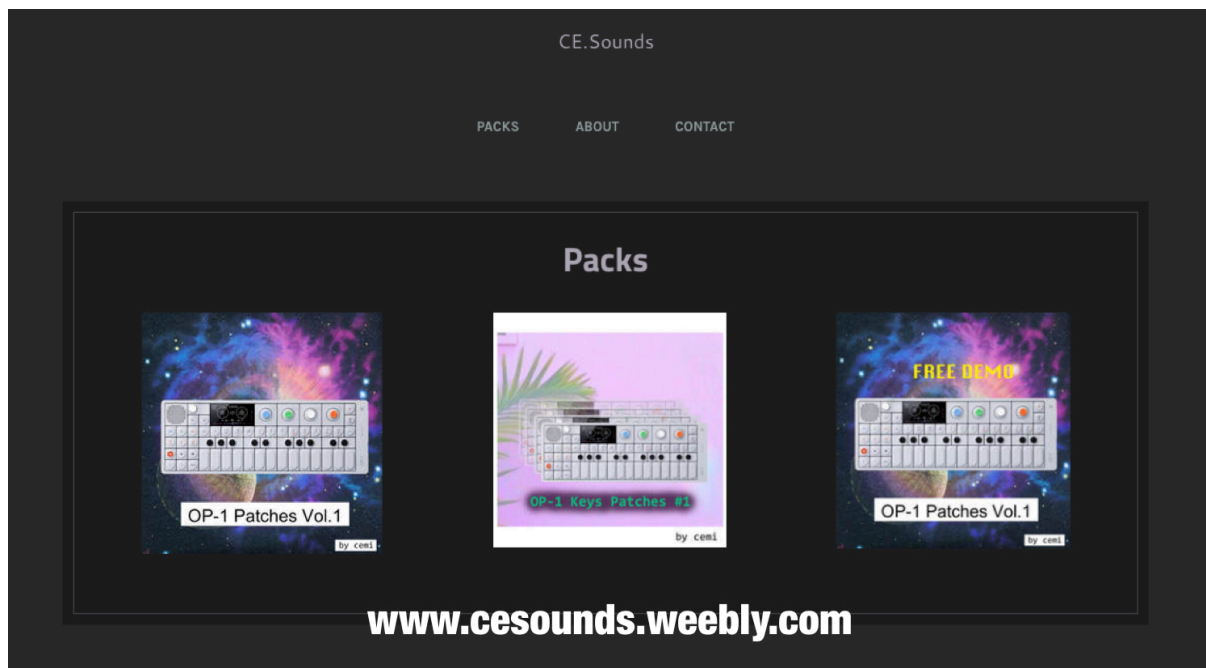


Figure 4

¹³ Ce.Sounds Website <https://cesounds.weebly.com>

¹⁴ My SoundCloud <https://soundcloud.com/cemill>

7. Professional Plan

This project would serve as Carlos Emilio's main instrument/rig for live performances, composition and production. With it, his electronic music can be performed in a unique way which will allow him to get gigs and tours. The whole process of creation will be documented and eventually, a series of improvisation videos will be uploaded to Youtube as live sessions. Hopefully, it will have a positive impact in Ableton's and Teenage Engineering's community, making it possible to assist conferences such as NAMM or Loop as an artist. The rig will be probably be continued to be revised and perhaps different version will be eventually created to fit different scenarios. Eventually, he would like to incorporate it in an ensemble, to expand even further the possibilities.

The Website CE-Sounds will help him showcase his skills as a Sound Designer and if the patches gain popularity, there's a strong chance that Teenage Engineer will include some of them in future versions, or perhaps for future hardware they plan on releasing. Not only this, but other Sound Design jobs could be possible, like creating presets for companies such as Native Instruments, Korg, Roland, etc.

8. Conclusions

This project was in my mind at least one year before coming to Berklee Valencia. Since I started a career as an electronic music producer I have always struggled to blend my two musical

personas, specifically, incorporate my saxophone, my main instrument, in the music that I produce. One of the main reasons for coming to Valencia, was because I knew I would have the time, the space and resources to really figure out a practical rig in which I can comfortably produce and perform. Throughout this months of trial and error, I personally think that I have made huge steps towards what I envision. With this rig I feel I can finally incorporate my saxophone in creative ways that I think fit my music.

However, I do imagine the rig continuously changing, especially for live performances. With more time, I don't doubt I would get more and more proficient with it and probably figure out different ways to achieve more dynamics and changes as to escape from monotonous and over repetitive music, which I think the rig fall into naturally. In a not so distant future, I would like to make the rig completely independent of a DAW. For budget reasons, I wasn't able to incorporate an actual physical looper pedal or more devices that I have in mind such as Elektron's Digitakt. The good side of this is that, this limitations forced me to learn more about MIDI programming that I ever thought I was going to need.

Although this project was aimed to be something very specific, many other skills have been polished and learnt along the way. Spending so much time with Ableton has made me more efficient while working on it. I've explored characteristics of Ableton's internal routing options that I had no clue were possible. I feel much more comfortable working with synths than ever before and my workflow using the OP-1 has definitely improved just because I've spent so much time with it over the year.

In conclusions, the initial objective was met and with it many other useful tools were acquired during the process. The whole idea behind this project was to create a tool or a rig using the saxophone and electronic instruments to achieve new creative ways of composing, producing and performing. I have spent over a decade studying the saxophone to get to a point where lack of technique doesn't get in the way of creativity. Now, I have to learn how to play and compose from the rig to the point where the different tools allow me to express in ways I couldn't before. I would say there is still a lot of room for changes and improvement that throughout further experimentation, will be addressed.

In these months, not only did I achieve my main objective, but I have learnt new skills and honed others. Sound design is a subject that deeply interests me and has proved to be crucial in the whole project. I will continue to create new sounds with the saxophone, through synths and samplers because I think that the key for achieving engaging electronic music, is original and characteristic sounds.

Finally, in today's music scene, I think it is not enough to just do one thing. One must find several subjects within music that you are passionate about and excel in those. In the long run this will make you a more well-balanced musician and professional with several tools at your disposal. Then it's up to yourself to decide when to use them. For me, jazz, improvisation, sequencing, sound design and electronic music are passions and tools I'll use to express my music throughout my career.

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