

Berklee College of Music

**VDiVaio Presents:
Form Constants**

Submitted in Partial Fulfillment of the Degree of
Master of Music in Music Production, Technology, and Innovation

Supervisor: Pierce Warnecke

by Vittoriano Di Vaio

Valencia Campus, Spain

July 2018

TABLE OF CONTENTS

ABSTRACT	3
INTRODUCTION	3
REVIEW OF THE STATE OF THE ART.....	5
DESCRIPTION.....	8
INNOVATIVE ASPECTS	14
NEW SKILLS ACQUIRED	15
CHALLENGES, BOTH EXPECTED & UNANTICIPATED.....	15
FUTURE RAMIFICATIONS.....	16
CONCLUSION	17
BIBLIOGRAPHY	18

Abstract

Form Constants is Vittorioano Di Vaio's first project as VDiVaio. It is a solo performance of music and video art narrated by the artist himself, a story that recalls feelings of nostalgia in the aftermath of heartbreak and his coming to terms with uncertainty on the road that lies ahead. To tell this story the way he wanted, this artist needed to explore tools that were previously unfamiliar to him. In the process, he developed a custom audiovisual performance system, a skill set in projection mapping, and most importantly, a workflow for developing music and video content in parallel. Aside from the steep learning curve associated with these tasks, this artist encountered another challenge: finding his 'sound' within the music, and producing something that feels both original and authentic to himself. Going forward, this artist hopes to continue performing and adapting Form Constants for different live settings, while he works on publishing and promoting his flagship singles as VDiVaio.

Introduction

The academic aim of the Form Constants project was to help this artist meet three key objectives, the first and most important of which was to come away from his year in Valencia having achieved a singular approach to producing music and video. Additionally, he wanted his project to incorporate new spatial media, with a special focus on projection mapping. Lastly, he wanted to distill his work into a fully programmed live audiovisual set that could be updated quickly, transported with a carry-on, and standardized for playback over any PA system.

In a 2015 Fader article about Barcelona-based audiovisual artist Zora Jones, this artist remembers reading that Jones dedicated herself to producing one-hundred tracks over three years before deciding on the seven that would feature on her debut EP.¹ Similarly, this artist's first semester marked an exploratory period where he would produce as many tracks and as much video content as possible - exploring different influences along the way - before committing to the sounds and images of his first commercial product.

While there was some uncertainty around the outer limits of his style, this artist knew from the beginning that he wanted to learn how projection mapping could be incorporated within his toolkit. He made this a great academic focus area for himself, taking on both curricular and professional projects that would help him develop this skill set before applying his learnings to his own personal project.

Once this artist had amassed a sufficient quantity of music and video content, his focus shifted to creating and performing a live audiovisual set. Among other things, this process involved deciding which elements would be performed live and which would be played back, creating a seamless system capable of outputting live sound over two line-level XLR cables and projection-mapped video content over two HD video outputs, and practicing the set in as many different environments as possible.

It is worth noting that this artist had originally set one additional goal for himself in this Culminating Experience, which was to produce a five-track EP. While he considers himself

¹ "Meet Zora Jones, The Producer Who Lives Life At 160 BPM", FADER, last modified November 13, 2015

successful along the three above stated objectives, as it currently stands the EP is not ready for release, and remains a goal for the future. Before delving into the details, this artist acknowledges that his project requires at least another year's worth of dedicated work before he would consider a full-length release.

Review of the State of the Art

Form Constants is inspired by the work of fellow producer-singers that have shaped the



Figure 1 (Above): Etienne De Crecy performing inside of SQUARE Cube. Photograph taken from the website of 1024 Architecture

electronica, indie, and synthwave genres – notably Jai Paul, Toro Y Moi, Chet Faker, James Blake, and Nicolas Jaar - without feeling indebted to them. Through their complex and dynamic arrangements, surprising and off-kilter sound design, and melismatic R&B-inspired vocals, these artists have managed to craft an organic and coveted sound within electronic music, a sound that is as bright and playful as it is dark and melancholic.

Jai Paul's "Everlasting" mixtape remains unrivaled as a sonic reference for this artist's work. Released on detailsofmylife.net in 2013 as an unofficial compilation of Paul's prematurely leaked demos, it inspired an up-and-coming generation of DIY electronic musicians. Paul's musicianship and sensibilities as a vocalist shine through on Everlasting; tracks such as "Jasmine", "Str8 Outta

Mumbai”, and “Flip Out” showcase his sense of harmony, quirky synthplay, and funk-infused guitar licks.

The true marks of Paul’s mastery lie within his modern production aesthetic. He tastefully repurposes eighties musical clichés such as wah-pedals, flangers, and video game sound effects, while his sound takes on a harder edge from his use of bleep-and-bloop embellishments, sound effects sampled from films, jarring interjections, and heavy sidechain compression.²

Meanwhile, the live performance and visual elements of the Form Constants projects derive great inspiration from the three-dimensional geometric stages pioneered by artists such as Etienne De Crecy, Amon Tobin, and Flying Lotus. Created in 2007 by 1024 Architecture to accompany Etienne De Crecy’s performance at Festival Trans Musicales de Rennes in France, SQUARE Cube was a projection-mapped scaffolding structure measuring six cubic meters. Covered by scrim fabric acting as a projectable surface, De Crecy would perform in the center of the structure, while a custom interface named EVS – or “Etienne’s Video System” - was developed to synchronize the artist’s music with a series of minimalist, 8-bit visuals.³

Four years later, ISAM was developed to accompany the live performance of Brazilian producer Amon Tobin’s seventh studio album, which shares the same name.⁴ A towering, three-dimensional network of overlapping tetris-liked cubes, the structure and its visual content was

² “Jai Paul – Everlasting (Mixtape)”, detailsofmylife.net, last modified February 14, 2013, <http://www.detailsofmylife.net/mixtapes/jai-paul-everlasting-mixtape/>

³ “SQUARE Cube”, 1024 Architecture, last modified 2009, <http://www.1024architecture.net/en/2009/11/square-cube/>

⁴ “On Visualizing Amon Tobin’s ISAM with the V Squared Team”, Derivative, last modified July 12, 2011, <http://www.derivative.ca/Events/2011/AmonTobinVSquared/>

developed by the animators and programmers at V Squared Labs and Leviathan using Derivative Touch Designer.⁵ ISAM debuted at Mutek in June 2011, and as told by Gizmodo, “it felt like one was transported into deep space or, alternately, inside the Tron grid, a game of Tetris, an M.C. Escher painting, the fiery pits of Mordor, an acid-coloured kaleidoscope, a Splinter Cell video game...”⁶

Following the release of his iconic album, “You’re Dead”, Brainfeeder label boss Flying Lotus –

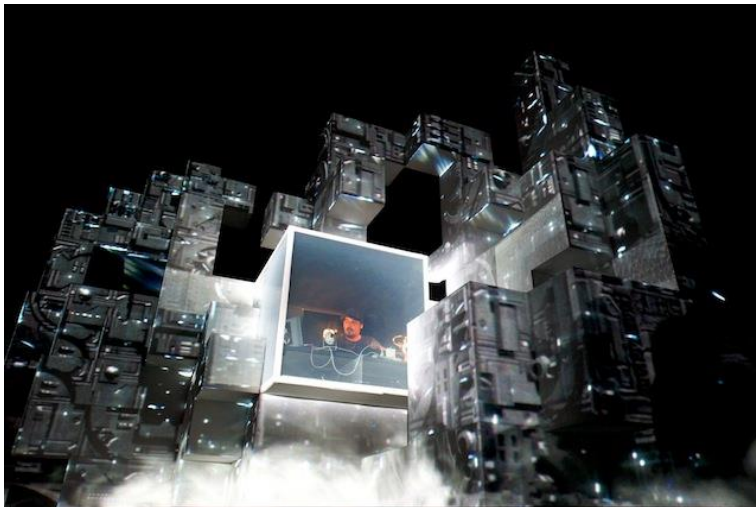


Figure 2 (Above): Amon Tobin performing at the center of the ISAM performance sculpture. Photograph taken by Valerio Berdini – liveon35mm.com

whose real name is Steven Ellison - collaborated with designers Strangeloop and Timeboy on Layer³, an iconic, geometric, projection-mapped performance sculpture that would accompany him on his 2014 tour.⁷ Explicitly inspired by Amon Tobin’s ISAM, the sculpture is a representation

of the tesseract, a four-dimensional analog of the cube characterized by the four lines that connect

⁵ Derivative, “On Visualizing Amon Tobin’s ISAM with the V Squared Team”

⁶ Ibid.

⁷ “Step Inside Flying Lotus’s Mind-Blowing Performance Sculpture”, The Creator’s Project, last modified November 4, 2014, https://creators.vice.com/en_us/article/wnpnp/step-inside-flying-lotuss-mind-blowing-performance-sculpture



Figure 3 (Left): Rendering of Flying Lotus inside the Layer³ performance structure. Photo courtesy of Timeboy.

each of the shapes vertices to one another. Flying Lotus performs at its center, behind a layer of translucent scrim. While meticulously planning went into design, construction, and

content development for the project, the visuals for Layer³ were ultimately performed and manipulated live.⁸ There is a similar element of “video jockeying” within the performance of Form Constants.

Description

Officially, there are three key deliverables associated with the Form Constants project: 1) an Ableton Live 9 project file containing seven tracks and audio input for vocal performance, 2) a Resolume Arena 6 composition containing the accompanying video content for each of those tracks, and 3) a collection of Max MSP patches used for real-time video input. Together, these files make up the foundation of this artist’s live set.

⁸ “Take a Look Inside Flying Lotus’ hi-tech performance cube”, FACT Magazine, last modified November 6, 2014, <http://www.factmag.com/2014/11/06/take-a-look-inside-flying-lotus-hi-tech-performance-cube/>

The six tracks are listed in the order in which they are performed, and they are: “Sleepless in Cordoba,” “By The Way,” “Where My Heart Resides”, “Close To You”, “Dreamscape Interlude”, “Noisey World”, and “Freeze Frame”. These tracks were produced over the course of the past year – some were started and finished mere weeks ago, some are works in progress that this artist continues to refine between performances.

The intention behind creating a live set as a final project was to leave room for this artist to refine his tracks beyond the scope of this Culminating Experience. It is also a way to test how crowd friendly each of these tracks are before officially releasing them, to experiment with different lyrics, vocal processing, and delivery.

Each of these tracks started out on this artist’s sketching tool of choice, the BOSS RC-505 loop station – as such, they share many elements in common. For one, the rhythmic foundations of the tracks are vocal percussion loops and recordings of household objects. Though the productions would ultimately feature overlaid drum samples – it’s hard to make a beatboxed kick drum sound as punchy as the real thing – the way they were recorded (and the way they are layered within the mixes) ensures that percussion retains a natural, heavily swung, unquantized feel.

The melodic foundations of each track were also created with the RC-505. Playing to the strengths of the looper, this artist overdubbed layers upon layers of electric guitar licks and vocal harmonies using the Sennheiser e835. Despite being a low cost dynamic mic, many of these vocals remained in place as the final takes on the produced tracks – this artist has been using the mic for

years, and has by now either grown accustomed to its sound or perhaps even started altering his voice to suit it.

Once the sketches for each of the tracks were imported into Ableton Live, this artist produced bass, leads, keys, and sound effects with soft synths, most notably: u-he's freely available Tyrell N6, xfer's Serum, and Native Instruments' Massive and Monarch.



Figure 4 (Above): A screen capture of u-he's brutally effective and wonderfully free Tyrell N6 soft synth

As this artist finished each track, he would consolidate and bounce the individual channels down to eight stems: "Melodic," "Textures," "Kick," "Accent" (percussion), "Perc" (percussion), Bass, and "Miscellaneous & Harmonic," removing the elements that would be played live, such as vocals and vocal percussion.



As this artist finished each track, he would consolidate and bounce the individual channels down to eight stems: “Melodic,” “Textures,” “Kick,” “Accent” (percussion), “Perc” (percussion), Bass, and “Miscellaneous & Harmonic,” removing the elements that would be played live, such as vocals and vocal percussion.

Figure 5 (Left): A screen capture of a section of this artist’s live set, highlighting his consistent approach to codifying and standardizing the musical content of the performance’s seven individual tracks.

The live set also includes 4 effect return tracks: one instance of the Valhalla Vintage Verb reverb, one instance of the Valhalla Freq Echo for dub-like dotted triple note delays, a custom multi-tap delay made from native Ableton Live audio effects, and one instance of the Max for Live Convolution Reverb, set to create reverberation on a reversed version of the incoming audio signal.



Figure 6 (Left): A screen capture of a section of this artist’s live set, showing the two tracks with live input (Vocal Track, and Drum Racks). Here, the audio signal from Vocal Track is routed through iZotope’s VocalSynth, currently set to the artist’s custom “Clean” preset.

Lastly, and perhaps most notably, the set has two channels for live input: a channel for vocals and a channel with multiple instances of Ableton Live’s native Drum Rack set to play key samples for select tracks. The former

channel carries an instance of iZotope’s VocalSynth, with subtle settings for distortion, delay, lower octaves and higher octaves that vary between each track.

As for the visual content, this artist dedicated himself over the course of the first semester to digitalizing a series of illustrations and programming visuals from scratch in Max MSP. By the end of his first semester, he had found his visual aesthetic in a custom Max patch.

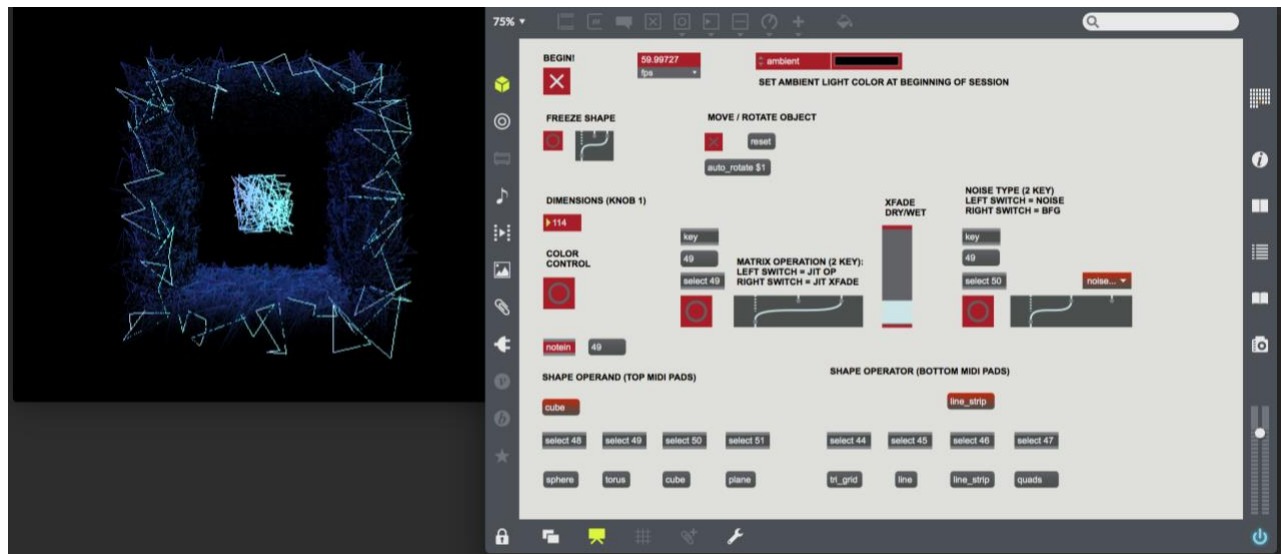


Figure 7 (Above): A screen capture of the video output and patcher view of VDiVaio’s “Shattering Cubes” Max patch

While developing the music, this artist had been working in parallel on several large-scale projection mapping projects to get up the curve on that skill set. Notably, he took on 1) a stage design and animation gig with Zebbler Studios that took him to Uvita, Costa Rica, where he would projection map and video jockey for the Envision festival’s Sol stage, 2) technical leadership over the Berklee Multimedia Installation Ensemble’s work projection mapping an on-site sculpture at the gnration Open Day in Braga, Portugal, and 3) a smattering of other solo projects

It was on this latter project, a three-story wall of vertical bars and a gridwork of cubes, that he would make a connection between the hard-edged geometric content he had been developing and the visual impact of extruded three-dimensional shapes for projection mapping. So, he began developing a combination of abstract, fluidic, colorful, and geometric patches and animations, that take on a slightly retro and post-internet vibe. And notably, he found a local business in Valencia that sold simple Styrofoam shapes in various sizes that he would use as mapping objects.

From there, it simply became a question of integrating the artist's music from Ableton Live with his video clips and patches and forming a visual system. He achieved this with two key tools. The first was Syphon, a texture-sharing app that enabled him to pipe in his Max-generated visuals as clips in Resolume Arena 6. The second was a MIDI connection between Ableton Live and Resolume Arena that triggered clips and effect changes using MIDI notes and CC envelopes.

With these pieces in place, it was time for VDiVaio to begin performing as himself. He had amassed all of the content he needed and over the course of the year had become an owner of all the hardware required to deliver his live set the way he wanted. Starting in late April, this artist began performing his project, and is actively looking for opportunities to continue doing so on an ongoing basis.

Innovative Aspects

This artist feels deeply that his strengths are best conveyed in an immersive live setting, instead of a more traditional EP. A little video and a little theater went a long way to giving the musical performance more depth, and a great deal of added color, that helped the story along as a “concept piece.” What's more, this artist has striven within the Form Constants project to perform every possible task himself – from singing, to DJ'ing, to playing instruments, to managing the visual system, to projection-mapping the artwork. While he distilled his work into a simple project, he attempted to make the digital and physical mappings between his music and video clean, cohesive, logical, and thus deliver an effective and impressive piece. To this date, this artist has been want to find an artist who could deliver projection-mapped video content generated in real

time that reacts to his singing or beatboxing over original music with distinctly sad, funky boy vibes.

New Skills Acquired

As previously mentioned, this artist needed to acquire several key skills to credibly complete this project, the most challenging of which were projection mapping and a path to generating video content. Understanding the importance of these skills and taking on as many opportunities as possible to put his work to the test is what ultimately helped him attain a professional level within the year. For generating video content, he taught himself to use Adobe Illustrator, After Effects, Premiere, and Maxon's Cinema 4D, while pursuing the school's curriculum in Max MSP. For projection mapping, he practiced setting up multi-projector rigs running Resolume Arena 6 in several vastly different environments to test his speed, skill, and flexibility. He now confidently feels he can deliver a video performance of high caliber that is scalable for both small and big stage settings.

Challenges, both expected & unanticipated

All of this work was intended to showcase VDiVaio's music, and one of the key challenges this artist faced was actually finding the time to fully finish the musical content. Learning the skills highlighted above ended up being much more of a full-time job – something this artist doesn't regret, because it has led him to a credible way to make money as a creative going forward.

Luckily, the project was able to advance on schedule by design. Final vocal takes didn't have to be recorded over the tracks – at least not yet – because the tracks were meant to be sung live anyway. In a live setting, it became okay to test out sketches, to sometimes sound raw and unfinished, to make changes on the fly and test them out in public. It forced the artist to bring more of himself as a performer to the fore, to interpret content that didn't always speak for itself the way a radio hit might.

In the past, this artist had difficulty committing to any one style, or finishing tracks with the speed he has observed in the peers he most admires. Rather than lament his speed, he has embraced it, understanding that only time and further dedication makes one better and faster at what you do.

Future ramifications

This artist invested a great deal of time and resources building up a live rig that could be deployed anywhere, while he has built up a library of original music and video content that forms the foundation of his live set. The intention now is to reap the benefits of this preparatory step by performing his set, at zero marginal cost, in as many places as possible in the months to come, while he focuses on his next big goals: launching VDiVaio publicly through a website, single release, and promotion campaign.

Though this artist has fallen short of an EP's worth of content with which he is truly happy, he knows that several of his singles have potential as first bets to test the market for his music, and are worthy of further investment in the form of music videos and a well-articulated strategy

for boosting digital streams. This will be the focus of his work over the summer months – he is reaching out to a family member in Los Angeles for help producing a music video, before packaging his work and disseminating it across his music network to seek release under an independent record label.

Conclusion

The intention behind VDiVaio was simple: to launch a project with purpose and a right to exist, to outdo my past self as an artist and performer. I challenged myself to learn new skills that helped me meet modern electronic music landscape's increasing demand for incorporating DIY visuals and spatial media, and pushed myself to do so on a level that I dreamed for myself at the beginning of the year.

With regards to the music, I have a sound and a style that I finally believe in. The question is now how I can recycle this sound and repurpose it to produce output at a faster rate. I recognize that truly finding oneself requires much more time and commitment than one short year allows, and I understand that dedication over a longer period of time is essential to one's lasting success as an artist.

Bibliography

- 1024 Architecture. "SQUARE Cube." Last modified 2009.
<http://www.1024architecture.net/en/2009/11/square-cube/>
- Count Your Culture. "Form Constants and the Visual Cortex." Last modified March 13, 2011.
<http://countyourculture.com/2011/03/13/form-constants-visual-cortex/>.
- The Creator's Project. "Step Inside Flying Lotus's Mind-Blowing Performance Sculpture." Last modified November 4, 2014. https://creators.vice.com/en_us/article/wnpnpx/step-inside-flying-lotuss-mind-blowing-performance-sculpture
- detailsofmylife.net. "Jai Paul – Everlasting." Last modified February 14, 2013.
<http://www.detailsofmylife.net/mixtapes/jai-paul-everlasting-mixtape/>
- Derivative. "On Visualizing Amon Tobin's ISAM with the V Squared Team." Last modified July 12, 2011. <http://www.derivative.ca/Events/2011/AmonTobinVSquared/>
- FACT Magazine. "Take a Look Inside Flying Lotus' hi-tech performance cube." Last modified November 6, 2014. <http://www.factmag.com/2014/11/06/take-a-look-inside-flying-lotus-hi-tech-performance-cube/>
- Ermentrout, G.B. and Cowan, J.D. "A Mathematical Theory of Visual Hallucination Patterns", *Biological Cybernetics*, no. 34 (1979): 137-150.
<http://www.math.pitt.edu/~bard/pubs/Ermentrout-Cowan79b.pdf>.
- José María Yturralde. "Periodos / 1968-73 Figuras Imposibles."
<http://www.yturralde.org/Paginas/Etapas/et04/et0405-es.html>