

The Bucket System

Project Description

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Abstract

The Bucket System is a performance with a new computer-mediated ensemble improvisation system. It comes out of a tradition of structured free ensemble improvisation practices, a.k.a. *comprovisation*¹ in addition to influences from experimental and avant-garde music practices of the post World War 2 period. The Bucket System is a signaling system between musicians, based on a set of Keith McMillen QuNeo:s controllers as both input and output interfaces together with custom software implemented in Pure Data. It allows for a new kind of on-stage compositional/improvisation interaction within a group of acoustic or electronic musicians.

The system is designed for four or more experienced improvisers, acoustic or electronic, including the three authors, and one or more selected from other experienced improvised musicians present at NIME or featured by the organizers.

Duration is variable, preferrably in shorter movements with different musicians and system configurations.

Media links

<http://youtu.be/yxPgHuZ0iAY>

<http://youtu.be/59UpjX2paBM>

<http://youtu.be/mcD6Mt8r2BU>

Background

Earl Brown was a contemporary composer with a jazz background who belonged to the New York school of composers. As the story goes, while he was looking at a mobile by Calder he pose himself a question: how can I make music that at the same time preserve an identity and is variable? One answers was the *open score* or *open work*, where the actual sequence of pre-

¹<http://www.criticalimprov.com/article/view/2904/3286>

composed bits and pieces are up to the performers discretion, a work that has to be done at design time, before the performance. Possibly the most extreme example of such a piece is Stockhausen's *Plus Minus*, which consists of material from previous pieces of him, selected and put together according to a number of rules. Another approach was developed by Cage, e.g. in his *Imaginary Landscape* series, where the sonic content to a certain extent was up to each performer to select, like jazz records or radio stations. The score consists of time windows where the players were asked to make sound from its chosen sound sources. Similar ideas were also explored in Feldman's *Intersection 3* as well as Cage's *Number Pieces* from his later phase. Another piece mention worthy is Cardew's *Treatise* from 1965-67, which consists of 196 pages of graphical symbols, with no given information of how to interpret the score at the outset. This piece has been performed many times since it's first performance, and some versions are close to the plus minus tradition, with extensive pre-concert preparatory work, whereas others use the score as a guide and inspiration for free improvisation. Also his master oeuvre *The Great Learning* contains a lot of freedom within the given instructions.

In free improvisation practices no overt idiomatic constraints are applied, however, in bigger ensembles some pre-defined structures are commonplace. Possibly the most basic rules employed are about to devise who is playing, and who is not. As an example, Eddie Prévost of AMM, in his London improvisation workshop, explains: "a workshop session begins with each of us playing in mobile duos".² No other rules are applied, but it still makes a great difference from "free" playing. One musician and composer who has developed improvisational concepts is Butch Morris, who has developed his concept *conductions*, which is about conducting improvisation by using hand cues and baton gestures. Also worth mentioning is Anthony Braxton who in certain pieces uses signs with letters that calls predefined and prerehearsed playing behaviors and/or interaction patterns to the group. When the saxophone player John Zorn created and coined the Game Pieces concept in the seventies he asked himself: "How can I involve these musicians in a composition that's valid and stands on its own without being performed, and yet inspires these musicians to play their best, and at the same time realizes the musical vision that I have in my head"?³ Zorn's most well known piece is probably *Cobra*, which consists of a set of rules, signs and led by a so-called prompter. One essential concept in *Cobra* is that the performers may ask for permission to do certain actions. e.g. to play with a particular musician as well as being a "guerilla", which try to destroy and overtake whatever going on.

One of the authors, Gino Robair, has previously developed an improv-system, *I Norton*, which is partly based on a mix of ideas from the concepts mentioned above, in addition to his own inventions. In short, *I, Norton*⁴ consist of a large number of learned instructions that is communicated through hand cues by a conductor, but who is conductor may change during a session.

A series of interactive systemic improvisation pieces by another of the authors, Palle Dahlstedt, has also provided valuable experiences for the Bucket System. In those pieces (most notably *Dynamic Triads*⁵), a computer mediates the interaction between a group of musicians, in such a way that the players has to relate in a new way to each other. This can happen in realtime on a timbral level, or using visual or aural cues, all derived directly from the players. There is no pre-determined timeline or form, but it emerges from the properties of the system, in encounter with the personalities of the musicians.

The Bucket System

Based on the above ideas, and the idea of systemic improvisation, where the improvisers are part of a system that regulates their interactions, while still providing large degrees of freedom, we designed the Bucket System. It is a signalling system where a group of musicians can, while playing, define wanted configurations of musicians and behaviors, and place those configurations in a virtual bucket. At certain times, outside of the musicians control, a new

²Eddie Prevost, *The First Concert*. (2011 p.119).

³John Zorn: www.zula.ca/history/cobra_2003.html

⁴<http://www.ginorobair.com/inorton/inorton.html>

⁵<http://hdl.handle.net/2077/31850>

configuration is picked at random from the bucket, and kept for a certain amount of time. Musicians can also, a limited number of times per piece, directly enforce a certain configuration.

Practically, the QuNeo interface is divided into a display area and an input area. Each is conceived of as a geographical map of the performers, with one pad/LED corresponding to one musician. Through various pad presses, the desired configuration is entered and submitted, with various options available (submit to bucket, enforce, etc).

The Bucket system takes democratic musician interaction as its point of departure. Each participant may have an influence on the sequence and combinations of instructions. And the system is very easy to learn and to use. Another salient property is that the system itself does not contain any information regarding musical content but rather basically controls who's playing, and who's not, and pre-agreed definitions of behaviors and musical roles.

The given shared improvisation task and the element of indeterminacy make the musicians stay on the tip of their toes, so to speak, because they don't know what will happen and when they are allowed to play, and in which way. Still, all musicians have equal quasi-control of the form and shape of the piece, which also encourages them to be very active in relation to their role in the ensemble.

In the design of the system, we have experimented with different minimal signals of blinking lights, and the current system is based on a principle of simplicity, both to make it manageable for the participants, and to make it possible to keep the various pre-agreed role schemes in your head, while still have plenty of cognitive capacity left for the actual playing.

Parameters for the random distribution of durations for the configurations, and how they are picked from the virtual bucket (urn, queue, stack, combinations thereof) can be set before a performance. In this way, different macro-characteristics can be catalyzed.

Most importantly, different interpretations of the available signals have been used. Some are only based on the state of your own light (off/slow/fast/steady), while some imply different behavior depending on the number and combinations of simultaneous similar signals. A few of the simpler interpretations used can be seen below:

	Metaphor	Behavioral	Simple Hierarchy	Hierarchy with Opposition
Fast	<i>Busy</i>	<i>Solo</i>	<i>Lead</i>	<i>Lead</i>
Medium	<i>Simple</i>	<i>Interact</i>	<i>Support</i>	<i>Support</i>
Long	<i>Extended</i>	<i>Vacillate</i>	<i>Background</i>	<i>Opposition</i>

Previous Performances

The Bucket System has been used in a series of concerts in Sweden, with a number of different improvising musicians, including the three authors. The premiere was at the 3rd Floor venue in Gotheburg, May 28th 2014, and subsequent concerts have been held at Halland Art Museum, Halmstad, and at the Gothenburg Culture Night, Academy of Music and Drama. The software system is designed to be versatile and flexible for different improvisational situations, and it has also been used to signal between musicians in site-specific contexts, with elements of theatrical performance and musicians having different roles (some active, some more passive), and in conduction settings. However, the main intention is for it to be used as a system for a set of equally participating musicians performing together.

Performers

The three authors are all highly skilled improvisers, regularly performing internationally in various constellations, and will participate on the following instruments:

Palle Dahlstedt: *clavier + electronics* (the Foldings instrument, featured at NIME2014)

Per Anders Nilsson: *exPressure pad* (a custom gestural NIME used by duo pantoMorf)

Gino Robair: *percussion + electronics*

The system is designed for four or more players, so we will invite one or more musicians of the same kind who happens to be present at NIME2015, or if the organizers suggest local improvisers who are interested. We need to be at least four, i.e., at least one more musician is needed, preferably two or three. Instrument doesn't matter, acoustic or electronic, but experience of free improvisation is needed.

In the world premiere at 3^e Våningen, the following musicians participated, in addition to the authors:

Johan Jutterström, sax

Per Gunnar Juliusson, piano

Lindha Kallerdahl, voice

Technical and Performance Requirements for Performance

This performance is suited for a seated quiet audience, because it deals with nuanced interactions between highly skilled improvisers. It is not suited for a club or bar environment.

Performers are placed in a square or semi-circle on the stage, not larger than 5 m diameter (because of USB cable lengths).

We will bring the core gear of the Bucket System:

4 or more Keith McMillen QuNeo pressure controllers with LED pads

1 USB Hub + USB cabling

1 Laptop with custom software implemented in Pure Data

In addition, musicians playing electronic instruments (several NIMEs have been used by participants in Bucket System performances) may need one active speaker/monitor each. We do not use a PA system, but use one active speaker per musician. Depending on the venue, acoustic musicians may need a speaker for amplification.

We will need to borrow:

3-5 active speakers/monitors

1 acoustic or digital piano (for Palle Dahlstedt – or he could possibly bring a keyboard)

1 small drum kit (for Gino Robair)

No PA system is needed, nor any signal routing between musicians.

Bios

Palle Dahlstedt (Sweden, b.1971): Composer, improviser and researcher. He grew up in Stockholm, studied instrumental and electronic composition at the academies of Malmö and Gothenburg, and took a PhD in computer music at Chalmers University of Technology. His music, ranging from piano solos over orchestra to interactive software installations, has been performed on six continents, and been awarded several international prizes (e.g., Gaudeamus Prize 2001). In his research he develops new technologies for electronic improvisation and composition, and studies computer models of artistic creativity. Currently Obel Professor in Art & Technology at University of Aalborg, Reader in Computer-Aided Creativity and main lecturer in electronic music at the Academy of Music and Drama, Gothenburg.

Per Anders Nilsson (Sweden, b.1954): Improviser and electroacoustic composer, professor at the Academy of Music and Drama, Gothenburg. Studied saxophone and electroacoustic music 1981-87 at University of Gothenburg. In 2011, finished his PhD thesis *A Field of Possibilities: Designing and Playing Digital Musical Instruments*. In the 70s and 80s he toured with his own bands as well performed occasionally with musicians such as Willem Breuker, Anthony Braxton, Palle Mikkelborg, Karin Krog and John Surman. In 2009 Nilsson toured Sweden with legendary saxophone player Evan Parker. Nilsson has performed at several ICMCs, GRM, etc, and been visiting scholar at CNMAT, CREATE and CCRMA.

Gino Robair (USA, b.1963) has performed and recorded with Tom Waits, Anthony Braxton, John Zorn, Nina Hagen, Terry Riley, Lou Harrison, John Butcher, Derek Bailey, Peter Kowald, Otomo

Yoshihide, and the ROVA Saxophone Quartet. He is one of the "25 innovative percussionists" included in the book *Percussion Profiles* (SoundWorld, 2001), as well as a founding member of the Splatter Trio and Pink Mountain. His opera, *I, Norton*, based on the life of Norton I, Emperor of the United States, has been performed throughout North America and Europe.