UCLA
Contemporary Music Score Collection

Title
unbound exploration

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unbound exploration

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for viola da gamba and electronics

unbound exploration * tech rider

contact

performers
    on stage
        one gambist
        there was a dancer in the first performance not included in the signal chain
    in the audience
        one computer music performer
        one sound engineer

hardware
    on stage
        one piano chair
        one music stand
        one pick-up microphone for the viola da gamba (dpa 4060 at first performance)
    audio equipment
        mixing board with at least 11 channels IN and 9 channels OUT
        at least 8 speakers + subwoofer
    computer music equipment
        one computer
        interface with at least 1 channel IN and 10 channels OUT
        midi controller with at least 3 faders (vestax vcm 600 at first performance)

software
    ableton 10.0.5
    max for live 8.0.0
    max extensions: spat5

loudspeaker setup * audio connections

viola da gamba *

stage

* speaker 2

speaker 1 *   * speaker 3

speaker 8 *   *audience*   * speaker 4

speaker 7 * | mixer   computer | * speaker 5

* speaker 6

viola da gamba *

1 channel

10 channels

mixer ← → computer

1 channel

mixing desk routing

OUT	microphone	from computer 1	from computer 2	from computer 3	from computer 4	from computer 5	from computer 6	from computer 7	from computer 8	from computer 9	from computer 10
to computer	*										
out to hall 1	*	*								*	
out to hall 2	*		*							*	*
out to hall 3	*			*							*
out to hall 4	*				*						*
out to hall 5	*					*					*
out to hall 6	*						*				
out to hall 7	*							*		*	
out to hall 8	*								*	*	

instruction for the sound engineer

There are 8-channels electronics and additionally, the patches sends effects on the instrumental signal on channel 9/10 that are to be mixed with the amplification of the instrument. The viola da gamba is the soloist, the electronics are the accompaniment. The sound of the gamba should blend well with the pitched synthesis. The electronics should be loud enough so that the details can be heard, as loud as possible with the gamba still being in front. The amplitude of the instrument must be adapted throughout the performance. The overall level should be that of an orchestra playing a comfortable forte in a good hall.

instruction for the computer music performer

There is one midi controller with at least 3 faders to control ableton.

1st fader increases tempo, 2nd fader decreases tempo, 3rd fader increases the effect of a mid-band-compression of the electronics that should make the instrument better audible against the synthesis. If the electronics are too loud compared to the instrument turn up this fader.

To begin press space. With the two tempo faders you are accompanying the instrumentalist, you adapt the tempo to the instrumentalist to make her feel as free as possible. The purpose of the midi-track called "score" is to have a visual representation of the gamba voice. Basically you make what she plays match with what you see on the midi-track.

In section D you have to press the cues "1" "2" and "3." For "1" and "2" the gambist should nod at you to show that she is continuing. The timing of "3" is up to you. There will be one kick-drum sound after you pressed "3," that servers as an upbeat for her to leave the senza misura part and continue with section E.

installation

Ableton 10 and MaxForLive 8 must be installed. Spat5 must be authorized and in the Max extension folder. The file "unboundExploration.alp" must be copied to the hard drive of the performance computer. When opened with Ableton it will install the patch on the computer.

initialization

* *ableton preferences* *audio*
    input Config : disable everything except for mono 1&2
    output Config : disable everything except for stereo 1&2, 3&4, 5&6, 7&8, 9&10
    sample rate : 48000
    buffer size : 1024 was used at premiere. Take 512 and increase if clicks occur.
* check if channel "adc" in group "gambe" receives audio
* *MIDI controller*
    first fader changes dial "rit" on device "tempoTwoDials" on the master channel
    second fader changes dial "acc" on device "tempoTwoDials" on the master channel
    third fader changes "gain" on "gambaSpaceMultiComp" device on the master, on the group "static" and on return "E direct"
* loop off
* song position to start
* Cues are computer keyboard "1" "2" "3" check if it's French or English keyboard?

EXTENDED HELMHOLTZ-ELLIS JUST INTONATION PITCH NOTATION

𝄫 𝄭 ♮ ♯ 𝄪		Pythagorean series of fifths
	Lowers / raises by a	syntonic comma (5th partial) 81:80 ≈ 21,5 cent
	Lowers / raises by	two syntonic commas ≈ 43 cent
	Lowers / raises by a	septimal comma (7th partial) 64:63 ≈ 27,3 cent
	Lowers / raises by	two septimal commas ≈ 54,5 cent
	Raises / lowers by a	quarter-tone (11th partial) 33:32 ≈ 53,3 cent
	Lowers / raises by a	third-tone (13th partial) 27:26 ≈ 65,3 cent
	Lowers / raises by a	17-limit schisma 256:255 ≈ 6,8 cent
	Raises / lowers by a	19-limit schisma 513:512 ≈ 3,4 cent
	Raises / lowers by a	23-limit comma 736:729 ≈ 16,5 cent

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The piece consists of justly tuned intervals. The accidentals I use to notate these intervals indicate deviations from a Pythagorean tuning rather than equal temperament. If there is no unconventional accidental the intervals are Pythagorean, so every fifth is two cents larger than on the piano.
In traditional music the tuning of certain notes need to be adapted to build perfect triads, especially the 3rd in a chord needs to be a bit lower. That's the purpose of the little arrows at some of the accidentals. They indicate that a note deviates by a syntonic comma (81:80 ca. 22 cents) and allow to work with the difference between the large angry-sounding Pythagorean third (81:64) and the warm and soft sounding pure third 5:4. Additional, I'm sometimes using intervals that appear in between the higher partials of the harmonic series: 7, 11 and 13. The 7 sounds like blues whereas 11 and 13 are commonly used in Arabic music.

The numbers above the pitches in the fret-chart are cent-deviations from equal temperament.

I'd like the open strings to be tuned Pythagorean so that D2 to D4 is just. All the forth are 4:3 without any beatings and C3-E3 is consequently the large Pythagorean third 81:64. All frets shall be split a comma apart. With one exception: The augmented fourth above the open strings is only used for one single pitch. I'd like to have the natural interval 11:8 here. I'm also using the flavors of the intervals resulting from the 13th and 7th harmonic. These need to be found above the frets by ear. They are not part of the traditional usage of the instrument and might be a bit difficult at first. But once established they sound very exciting and beautiful.

Fret positions and additionally used pitches

Some pitches might be spelled differently according to the harmonic context.

Possible tuning procedure (indicated is the number of the fret)

unbound exploration

performance score