Museau de Singe (2003)

Double bass, Piano and Computer

for Jeremy Baguyos

Robert Hamilton

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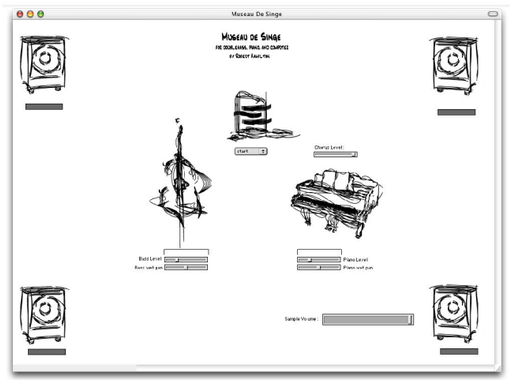
Museau de Singe Performance Notes



Introduction

Museau de Singe, in its initial conception, was designed to be performed as a trio consisting of Double Bass, Piano and Computer with the computer voice realized live on stage by a computer performer or, to quote Jeremy Baguyos (for whom the piece was written) a "laptop virtuoso". For the premiere of the piece at the Peabody Conservatory of Music, and for a number of subsequent performances, this staging of the piece was recreated with the computer performer following the score and manually triggering score events with a set of USB computer controllers. The score as presented in this edition reflects the trio formation of the performance ensemble and denotes both triggering cues and actions (to be enacted by the computer performer) as well as visual representations of the sounds generated by these actions. Subsequent releases of the software patch - written in the MAX/MSP environment - allow for the performance of the piece as a Double Bass and Piano duo - with the computer cues performed using a foot-pedal triggering system - or as a solo double bass piece, with pre-recorded piano samples and computer cues all triggered by the bassist. Regardless of the performance configuration, the visual representations of the computer voice will aid the performers to both understand and recreate the piece as it was intended to be performed. To further this goal, the following performance notes will hopefully clarify any non-standard notational figures or instructions that might not be immediately clear to unfamiliar performers.

- Robert Hamilton
October 4, 2003

Technical Setup and Performance Practice:

Museau de Singe consists of a traditional score for double bass and piano as well as an interactive computer "patch" written in the MAX/MSP audio processing software environment. The interactivity between live performers and computer is achieved by routing audio signals from the performers into the computer and then sent from the computer via a four-channel audio system. The performance of the piece can be realized in a number of different configurations, making the piece performable by a number of different ensembles.. The possible configurations are as follows:

- Trio:
  Live double bassist, pianist, and computer performer. The double bassist and pianist perform without the use of foot pedals or any other computer triggers. The computer part in the score is performed by the computer performer, using a computer keyboard keyset or external MIDI or USB controller. In its first performances, the computer part was performed using a ShuttlePRO USB jog-dial controller.

- Duet (double bass & piano/double bass & computer):
  By connecting a standard MIDI footpedal or similar trigger-controller to the computer, the piece can be performed as duo between either double bassist and pianist OR double bassist and computer performer. When no pianist is used, a set of piano samples of the piano score will be played back by the computer performer in an integrated fashion with the standard set of computer triggers. When a pianist is available, the bassist will perform the computer triggering using the footpedal.

- Solo Double Bass:
  In a similar fashion to the Duet configurations, i.e. though the use of a footpedal, the piece may be performed as a solo double bass piece. The bassist will trigger all computer cues and piano samples with a footpedal or similar triggering device.

Minimum/Recommended hardware and software configurations

Due to its use of processor-intensive MAX/MSP poly~ objects and numerous sets of 44.1 kHz audio sample buffers, the following hardware configurations are suggested for the performance:

Computer:
- Currently, the MAX/MSP software application is available for computers running the Apple Mac OS X and OS 9 operating systems as well as for the Microsoft Windows 2000/XP operating systems. Apple systems with a processor speed of at least 867 Mhz and 256 MB of RAM are required to handle the processing generated by the use of multiple poly~ objects and the real-time audio buffering. No testing of the piece has yet been performed on the newly-released 4.3 version of MAX/MSP for Windows systems. A system of comparible power to the previously mentioned Apple system is reccommended.

Multi-channel Audio Interface:
- A multi-channel digital I/O interface for the computer allowing at least 2 discrete channel inputs and four discrete channel outputs.

Four speakers (powered or unpowered with amplifiers):
- Four matched speakers are necessary to properly configure the "vertical-quad" speaker setup.

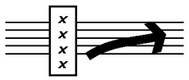
Microphones:
- Four microphones are used in Museau de Singe. Two microphones are used for each the double bass and piano. One of each microphone pair should run straight into the hall sound-system to be used for blending. The other microphone of each pair should be connected into the audio interface for processing.

Mixing Board
- Any standard multi-channel mixing console is sufficient for this piece.

Museau de Singe Performance Notes (continued)

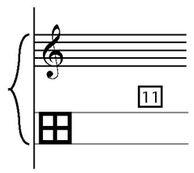
Notes for Double Bass Notation and Performance Practice:

This notation depicts a hand-rub on the body of the bass near the microphone and is used primarily for the capturing of samples by the computer. The rubbing should produce a light sound without being too forceful or fast. The level of the hand-rubbing should be loud enough to be picked up by the bass microphones. If necessary, a paper towel or cloth may be used to generate the sound.

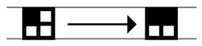


This figure instructs the double-bass player to perform a 4-string glissando roughly following the shape of the dark-black arrow. The goal is for the bassist to cover all four strings while performing the glissando, creating an unspecified chordal gliss.

Notes for Computer Notation and Performance Practice:

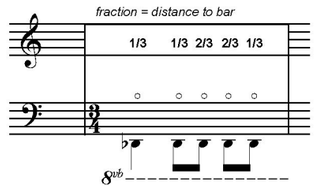


The computer notation for Museau de Singe is written in two systems: one on a standard 5 line staff, denoting computer voices in as standard a notational style as possible, and the other in a composite system denoting both computer cue numbers and a four-speaker panning grid. For each of the three short "movements" of the piece, the computer part tracks trigger cues as simple integers within square boxes. These numbers correlate exactly to cues displayed on the MAX/MSP patch used by the computer performer. The performer must trigger the events on the computer as marked in the score by simply pressing the designated trigger button at the appropriate moment; the events themselves are pre-defined within the code.

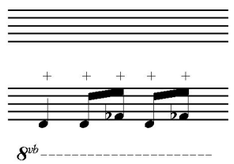


The four-speaker panning grid displays the speaker or speakers to which the computer processed sound is currently being sent. The speakers are to be arranged in a "vertical-quad" arrangement if possible (see tech notes for more details) but may also be arranged in a more traditional quad-speaker arrangement if necessary. The panning motions can either be predefined within the patch or triggered manually by the computer performer. Certain events include shorter duration panning motions which are denoted by smaller panning boxes directly under the event. In addition, arrrows between panning boxes represent the motion of the voices from one panning setting to the next.

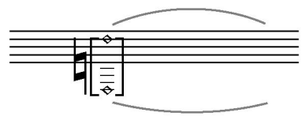
Notes for Piano Notation and Performance Practice:



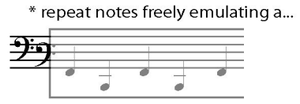
This notation is used to describe the rough placement of the pianist's finger on the specified string in the generation of piano harmonics. The fractional numbers are intended to denote the amount of distance between the piano hammer and the first cross-bar (horizontal bar) within the piano. The intent of this notation is simply to specify general harmonic ranges without targeting exact partials. The pianist is instructed to place their finger either 1/3 or 2/3 of the distance from hammer to horizontal cross-beam, allowing for a random element of pitch within a general constraint. NOTE: seeing as piano cross-beam placement can vary greatly from one piano to the next, the pianist may position the hand past the beam if necessary.



In a way similar to that of the fractional values given in the previous example, the mute (+) markings in this example indicate that the performer is to play a muted on-string harmonic without any necessary specification of pitch. Most likely this note will be played near the nut, closest to the hammers.



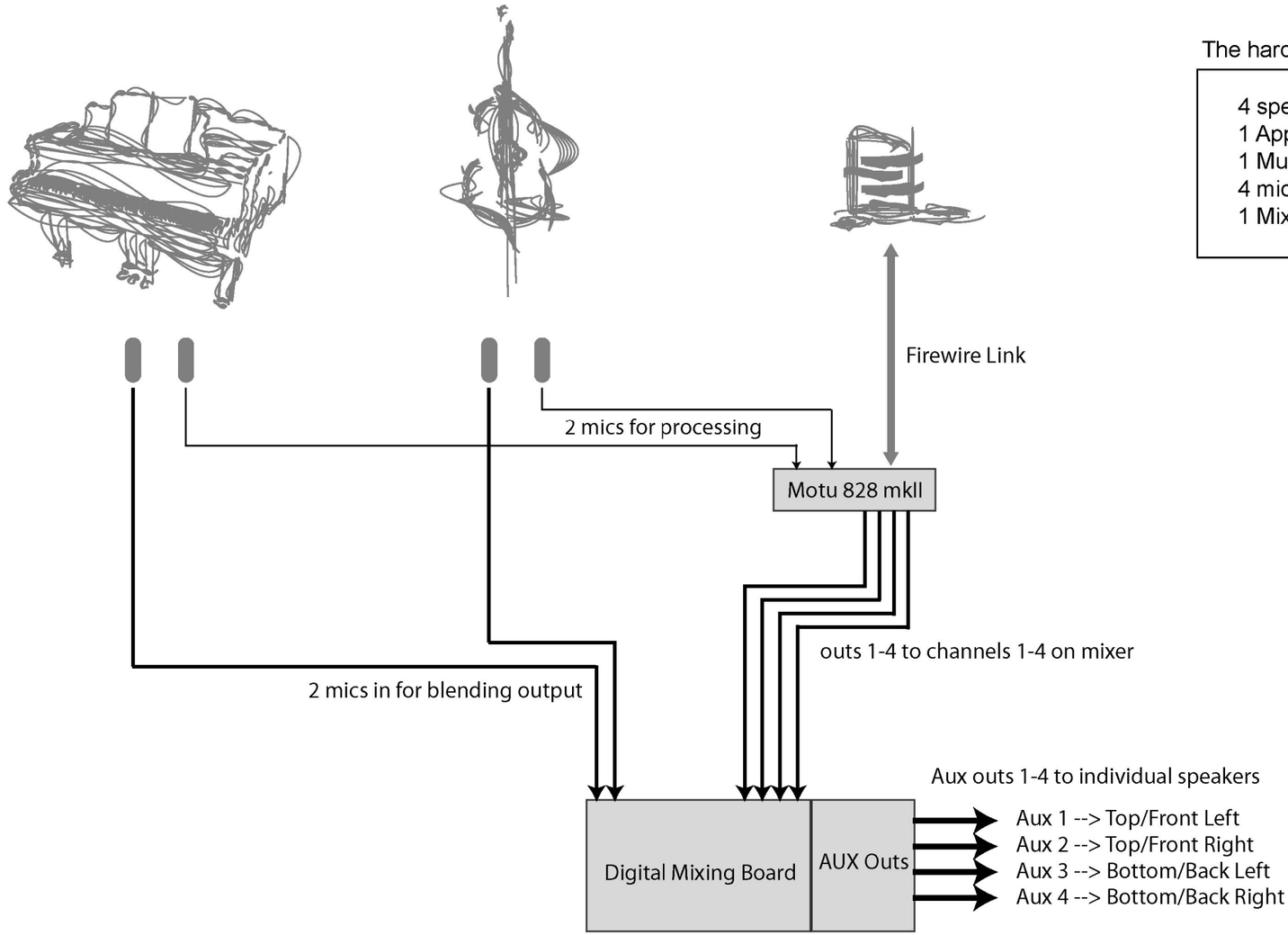
The bracketed figure with enlarged natural sign is intended to show a depressed cluster of natural notes with a "white-key" range specified by the diamond-shaped noteheads.



The caption for this figure reads: "repeat notes freely emulating a slightly off-rhythm computer loop." The idea is for the piano (or bass) to play off the looping/samplng quality of the computer parts by taking the figure within the box and repeating it with an emphasis on arhythmic qualities.

Museau de Singe Technical Setup

The basic hardware configuration for Museau de Singe:



The hardware requirements are as follows:

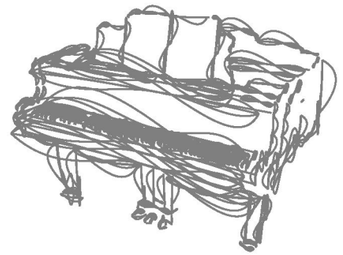
- 4 speakers with amplification
- 1 Apple G4 computer
- 1 Multi-channel audio interface
- 4 microphones
- 1 Mixing board with 4 independant channel sends

Museau de Singe Program Notes

Museau de Singe (2003), written for Jeremy Baguyos, is an interactive work for double bass, piano, and live computer processing. In Museau, the composer wanted to create an environment within which the computer could extend the capabilities of both the bass and piano, while at the same time retaining the elements that make each instrument unique. The voice of the double bass is transformed into a hyper-bass of sorts, with no constraints on duration or pitch. The piano's voice is similarly released from the restrictive decay of its strings to be heard at tempi and pitches previously unimaginable. By realizing the computer's voicings in a vertical-quadraphonic soundscape, he attempted to introduce a new dimension to the performance, that of motion.

The technical goal of Museau was to create a flexible audio-processing architecture that would afford the user complete pitch and spatial control over short sample sets of the live instruments. To this end, the composer utilized multiple instantiations of Max/MSP's poly~ object to allow either individual or group manipulation of each sample or sample set. By introducing randomized dynamically generated buffer~ objects alongside a fully scripted computer performance score, a balance between deterministic and indeterministic events was achieved. By allowing the computer performer to subtly react to the performance of the double bass and piano while not having to worry about the technical details of the patch, Museau can be performed as a truly interactive trio between double bass, piano, and computer.

The score for Museau de Singe was written entirely in the Adobe Illustrator software application using the Maestro font alongside computer-drawn notational objects. The computer performance is notated in the score through the use of a combination of triggering cues and representational images designed to better aid the performers in understanding the planned interactions between humans and computer.



Museau de Singe (2003)

Robert Hamilton (b. 1973)

Calmly yet tentatively (♩ = 92)

Double Bass

ppp *mf* *dal niente*

Computer

1- 10 *take10 samples from bass*

11 *ppp* *mf*

Piano

freely

p *with pedal*

A

D.B.

circular rubbing motion w/hand on bass body

Comp.

12 13-22 23 *0.1 spd. - low rumble on sample 2*

Pno.

muted harmonics (fraction = distance to bar)

1/3 1/3 2/3 2/3 1/3 | 1/3 1/3 2/3 2/3 1/3 | 1/3 1/3 2/3 2/3 1/3 | 1/3 1/3 2/3 2/3 1/3

mf

8vb

D.B.

p

Comp.

24 *auto-records 10 samples from piano*

25 26 27 28 29 30 *low rumble on sample 2*

0

Pno.

1/3 1/3 2/3 2/3 1/3 | 1/3 1/3 2/3 2/3 1/3 | 1/3 1/3 2/3 2/3 1/3 | 1/3 1/3 2/3 2/3 1/3

mf *mp* *cresc.* *n.*

8vb

B

D.B.

Comp.

Pno.

p

cont. low rumble on sample 2

31

32 *p*

randomized panning

mf

33

34

mp with pedal

p with muted strings

8vb

D.B.

Comp.

Pno.

35 36 37 38 39 40 41 42

mf

f

full-perimeter panning

p

8vb

D.B.

Comp.

Pno.

43 44

cresc.

8vb

D.B.

Comp.

Pno.

mf *ff*

45 46 47 48 49 50 51 52 53

p *mf* *ff*

Slowly and freely C

pizz.

rit. *strum* *strum*

54 55 56 57 58 59 60 61 62 63 64

start voice swirls

with pedal

mf

D

D.B.

Comp.

1 2 3 4 5 6- 15 *Take 10 samples from piano* 16 17 18 0

Pno.

f 15mb 8vb *p* 8va

E

D.B. *gliss.*

Comp.

19 0 20 0 21 22

p *start voice swirl*

Pno. *with pedal* *pp*

D.B.

Comp.

23 24 25 26 0

Pno. *Depress note range and hold with arm or pedal III* *sf* *sf* *sf*

III 8va

F

pizz.

arco

pizz.

D.B.

Comp.

Pno.

27 28 29 30 31 32 33 34

15mb

arco

pizz.

II IV

D.B.

Comp.

35

0

Pno.

f

Depress note range and hold with arm or pedal III

15mb

III

G

With an unyielding pulse (♩ = 144)

D.B.

Comp.

Pno.

(♩ = 144)

mf

cresc.

f

Ped.

D.B.

Comp.

Pno.

mf

4

pizz.

cresc.

5

0

cresc.

f

Ped.

H

arco

freely

D.B.

Comp.

6

p

mf

7

8

Pno.

mf

I

D.B.

mf

n.

Comp.

0

9

mf

mp

f

* repeat notes freely emulating a slightly off-rhythm computer loop

Pno.

rit.

mf

* repeat notes freely emulating a slightly off-rhythm computer loop

mp

f

J

D.B.

Comp.

10

11

12

start random voice panning

Pno.

D.B.

Comp.

Pno.

8vb

D.B.

Comp.

Pno.

8vb

D.B.

Comp.

Pno.

8vb

13

14

15

0

K

hold until computer entrance

legato

D.B.

Comp.

Pno.

pp

16 17 18 19 20 21 22

freely

pp *with pedal*

L

D.B.

Comp.

Pno.

f

23 24 - 26 *Trigger freely* 27 - 29 30 - 32 33 - 35 36 - 38 39 - 41

p *cresc.* *mf* *cresc.*

8vb

*descend slowly until lowest note on bass then detune (or play Db with C extension)

D.B.

Comp.

Pno.

ff

42 43 44 - ...

mp

0

* descend with a lurching feel and fade leaving bass and computer

ff

pp

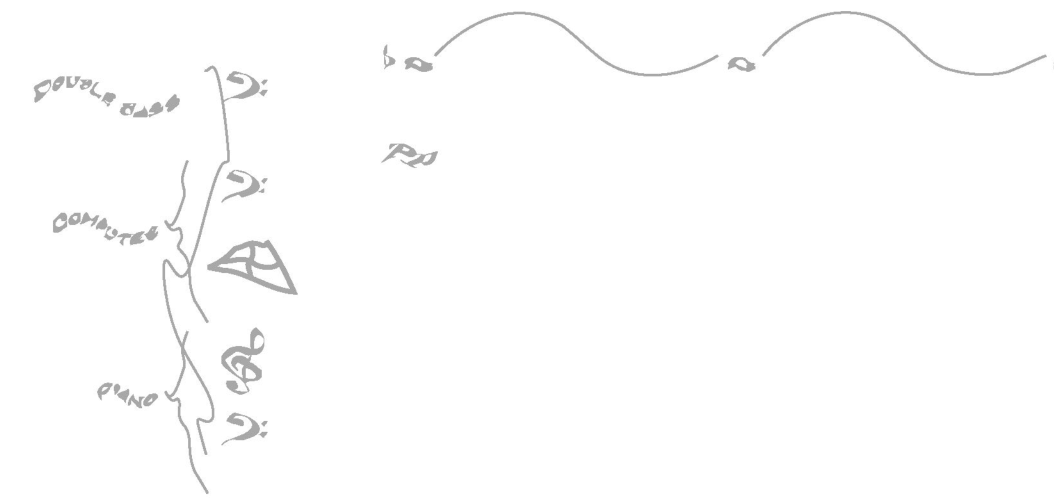
8vb

(Baltimore, January - April, 2003)

Museau de Singe (2003)

Double bass, Piano and Computer

for Jeremy Baguyos



Robert Hamilton