

Duo for Cello & Computer

by Cort Lippe

1999, revised 2022

Commissioned by the Fynske Musikkonservatorium of Odense, Denmark

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Cort Lippe
Program Notes

Music for Cello and Computer (1999) was commissioned by the Fynske Musikkonservatorium of Odense, Denmark, and premiered there by Niels Ullner in March of 2000. The electronic part was created at the Hiller Computer Music Studios of the University at Buffalo, New York using the software *Max*, which was developed by Miller Puckette, whose technical support helped make this piece possible.

The computer tracks parameters of the cello, such as pitch, amplitude, continuous pitch change, rests, articulation, timbre, tempi, etc., and uses this information to continuously control and influence all the electronic sounds via compositional and digital synthesis algorithms. Time-stretching, granular sampling, FFT-based cross-synthesis, and analysis/resynthesis using an oscillator bank, as well as more standard signal processing such as harmonizing, phasing, spatialization, etc., are employed. The intent is to create a certain degree of interactivity between the performer and the computer in which the performer influences the computer output based on aspects of the musical expressivity of his/her interpretation of the score. Much like chamber music playing, in which individual expressivity has a fundamental influence on the entire ensemble; the feedback loop between the performer and the computer should have a positive influence on the final musical result.

Some of the sounds in the electronic part come directly from the composed cello part, and are transformed by the computer in real time during the piece. Sound material from other than the cello part is also manipulated. Thus, in certain cases, the musical and sound materials for the instrumental and electronic parts are one and the same, while at other times the parts differ. This instrument/machine relationship moves constantly on a continuum between the poles of an extended solo and a duo. Musically, the computer part is sometimes not separate from the cello part, but serves rather to amplify the cello in multiple dimensions and directions; while at the other extreme of the continuum, the computer part has its own independent musical voice.

Music for Cello and Computer is recorded on the ICMA/ICMC 2003 CD, Singapore, by Jonathan Golove. Duration: 12 minutes.

Performance notes

The cello is notated on four staff lines per system. Each staff has notation for a single string starting from the lowest staff for the lowest string of the instrument.

- ◆ play behind the left hand while playing the indicated note
- ◇
○ play natural harmonic at the indicated pitch location
- ♯
♭ molto sul tasto with excessive bow pressure “crushing” the pitch
- ♯ ♭ ## quarter-tone sharp, quarter-tone flat, and 3 quarter-tones sharp
- 1 electronic event cues; there is one section in the piece with 34 events

Events can be triggered automatically, by the cellist with a pedal, or by a computer operator.

Each system represents one event. Event durations range from 10 seconds to 30 seconds. It is advised that the performer use the computer screen of the Max/MSP patch to follow the timeline and to read the score during performance and rehearsals. (The cellist's computer on stage during the concert does not have to be used for the sound input/output. See the Max/MSP patch README for more details regarding this).

Durations should be interpreted proportionally, but longer durations can be taken with a tempo of approximately one quarter note equals 60 MM. Shorter durations from a quarter note to smaller durations can be played in a faster tempo than represented in the score spacing, so that the proportional nature of the score does not have to be respected entirely. If needed or desired, a phrase of faster durations can be repeated or partially repeated, in order to respect the timeline.

The cello should be amplified with a cardioid microphone(s). A mono mix of the unreverberated cello signal should be sent via a pre-fader aux send to the first input of the audio computer from the microphone(s) used to amplify the instrument.

The computer running the software in Max/MSP in audio mode should be output in a stereo mix.

A reverb unit can be used in conjunction with amplification if needed.

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1

1

I

II

10''

III

IV

Event 1 starts with a single computer sound, while the cello remains silent.

2

senza vib.

pizz.

pp

15''

Event 2 starts with a single computer sound. Cello enters after a long rest.

3

pizz.

pp

15''

Simile...

4

pizz.

pp

sul pont. arco

pp

15''

Cello enters as soon as the computer chord starts to fade away.

5

pizz.

pp

sul pont. arco

15''

Simile...

senza vib. pp

sul pont. arco

6

pizz.

l. h. pizz.

pizz.

arco, simile...

15''

Simile...

pp

pp

gliss molto lento

7

IV-III-II sempre sul pont.

arco et senza vib.

20''

After computer chord fades, enter after a short pause.

pp

pp

pp

alternate bowing by dropping IV briefly when playing II

pp *mp* *pp*

8

pizz.

pizz.

25''

p

IV-III-II sempre sul pont.

arco et senza vib.

p

(s.p.)

gliss molto lento

30''

9

IV-III-II-I tremolando pizz. behind left hand

arco

pizz.

l. h. pizz. *mp* rit.

IV-III-II sempre sul pont. arco et senza vib.

p rapid glisses

arco normale

ritardando tremolando poco a poco

molto sul tasto, *mp* excessive bow pressure

mp *pp* *mp*

30''

10

arco

continuous arpeggio bowing: IV-III-II-III...

pizz.

sempre arpeggio bowing

sul pont.

continuous small glissing

p

arco

gliss molto lento

tr

molto rall. trill

mp cresc...

continuous trilling with various notes

simile...

molto rall. trill

30''

11

(nat. harm.)

l.h. pizz.

(molto s. t., excessive bow pressure)

pizz.

battuto

p

(poco ad lib. irregular rhythm)

p

(normale)

(molto s. t., excessive bow pressure)

30''

12

arco

rapidly changing pitch, glissing continuously

p

arco, normale

p natural harmonics at approximate locations moving to stopped notes

(molto s. t., excessive bow pressure)

pizz. behind l.h.

pizz. behind l.h.

arco

mp

13

sul tasto, arco et senza vib. *battuto* *arco* *simile...*
(poco ad lib., irregular rhythm)

30'' *mp*

14

pizz. *arco* *battuto* *simile...(poco ad lib., irregular rhythm)*
mf *arco* *vibrato lento et meno sul tasto*

30'' *mf* *pizz.* *col legno batt.* *f*

15

arco *batt.* *arco (s.p.)* *simile...* *f*

30'' *mf* *mf* *poco a poco più vibrato et meno sul tasto* *molto vib. et sul pont.* *molto vib., molto s. p. et continuous gliss*

c. l. batt. *f* *c. l. batt.*

16

simile... *simile...* *ff* *ad lib. nat. harmonics* *ad lib. nat. harmonics continuously*

30'' *f* *ad lib. nat. harmonics* *c. l. batt.* *simile...* *ff*

30''

17

arco

ad lib. nat. harmonics *stop nat. harmonics., ad lib. et rall. gliss.* *gliss. molto lento*

ff *decrecendo poco a poc* **ppp**

30''

18

arco *sempre molto s.p.* *arco* *molto vib.* *poco vib.*

p *simile...* *simile...* *simile...*

20''

19

sempre arco et molto s.p.

tr *tr* *pp* *mp* *pp* *mp*

simile...

20''

20

c. l. batt. *mp (poco ad lib. irregular rhythm)* *sempre arco et molto s.p.*

tr *pp* *mp* *pp*

21

pizz.
mp

arco molto s.p.

20''

mp

batt.

*natural harmonics at approximate locations
rapidly changing pitch, glissing continuously*

rall.....

22

*sempre arco
et molto s.p.*

mp rapidly alternate
bowing between II-I

*ad lib natural harm.
gliss continuously*

batt.

mp

23

pizz.
mp

sempre arco et molto s.p

rall. tremolo

20''

rapidly alternate bowing
between III-IV, non legato

mp

24

sempre arco et molto s.p

rapidly alternate bowing
between strings, non legato

*continuous
small gliss.*

mp *mf*

25 *batt.*

mf (*poco ad lib. irregular rhythm*)

molto s.p. arco

repeat ad lib.

mf

molto vib.

rapidly alternate bowing between strings

c.l. batt.

f

30"

26 *simile...*

mf

molto s.p. arco

sempre molto vib.

batt.

no alternating bowing

mf senza vib.

25"

27 *sempre non batt.*

f

normale

legato

ff

25"

28 *normale*

legato

molto s.p.

normale

legato

rapid gliss., ad lib. endings molto s.p.

c.l. batt.

ff

rapid nat. harm. gliss.,

30"

29 *ff* *poco ad lib...rall....accel...rall...*

30''

30 *ff* *f* *poco rall tremolando*

20''

31 *mp* *pizz.* *arco, molto sul pont.* *mf* *mp* *(senza tremolando)* *c.l. batt.*

20''

32 *mp* *sempre molto sul pont.* *battuto* *(poco ad lib., irregular rhythm)* *continuous gliss...* *mp*

30''

33 *mp* *pizz.* *p* *arco* *rall. poco at poco...* *rapidly changing pitch, glissing continuously* *natural harmonics at approximate locations* *rapid glisses* *sempre molto sul pont. et senza vib.*

33 *sempre molto sul pont. et senza vib.*

30"

p

p

34

15"

pp

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