

Music for Snare Drum & Computer

by Cort Lippe

2007

**Commissioned by and written for Pedro Carneiro.
Premiered at the *Musica Viva Festival*, Porto, Portugal, 2007.**

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Program Notes

Music for Snare Drum and Computer (2007) was commissioned by the percussionist Pedro Carneiro and premiered by him at the *Music Viva Festival* in Porto, Portugal. The electronic part was created at the Hiller Computer Music Studios of the University at Buffalo, New York, using Max/Msp. Technically, the computer tracks parameters of the snare drum performance and uses this information to continuously influence and manipulate the computer sound output by directly affecting digital synthesis and compositional algorithms in real-time. The digital synthesis algorithms focus on spectral processing in the frequency domain, and include filtering, delay/feedback, spatialization, timbral snapshots, cross-synthesis, noise reduction/enhancement, and component reordering, of individual FFT channels. The instrument/computer relationship moves on a continuum between the poles of an extended solo and a duo. This piece is dedicated to Convolution Brother #0 and Convolution Brother #2 (aka Miller Puckette and Zack Settel).
Duration: 11 minutes.

Performance Notes

L, R, B, S left, right, brush, and stick

The performer is urged to make use of the detailed staff notation for each event as a guide for an improvisation. Sometimes the notation can be thought of as an *out-of-time* guide of techniques and gestures, while at other times, the notation can be used as an *in-time* prompt for techniques and gestures. In other words, the notation can be used literally at times and as a mnemonic at other times. From a rhythmic point of view, the notation can be interpreted proportionally and/or following the specifically notated rhythms. In addition, the location and spacing of the notation can offer an indication of how to interpret the flow of the music and the density of gestures within a given event.

Some snare drums offer more than just once choice of snares. Metal snares are needed only from Events 5 to 12. Otherwise, player can choose other snares.

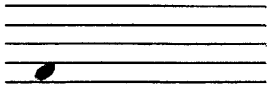
The score only calls for normal drumsticks and brushes, but other sticks/mallets may be used with the performer's discretion.

The Max/MSP patch for this piece offers a very useful timeline interface with event and timing information. The patch should be used on stage by the performer, and is very useful to the computer operator during mixing.

—The easiest set-up requires two computers, one on stage in full view of the performer, which runs the patch without DSP, and a computer in the hall by the mixer, which runs the DSP. The performer can give a signal to the computer operator in the hall, and both performer and operator can advance to event 1 at the same time based on the performers downbeat (making sure to have already initialized Section 1 of the piece). This simple method of synchronization should be accurate enough to keep both computers relatively in-sync.

—Other performance options: the patch can run with the DSP on a computer on stage, so that only one computer is needed for performance, or a second screen can be on stage connected to the main computer in the hall. Finally, using two computers, the stage computer can be connected/synchronized with the primary computer via an Internet connection, if desired.)

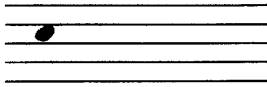
—In any case, the performer is urged to use the patch while learning the piece, in order to make use of the timeline.



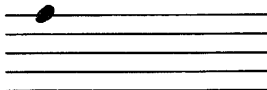
center of drum



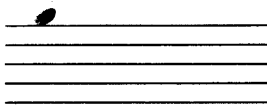
between center and edge



edge of drum



rim of drum



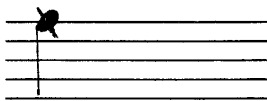
side of drum



move from rim to center



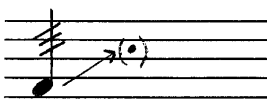
move from center to edge



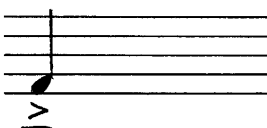
rim-shot



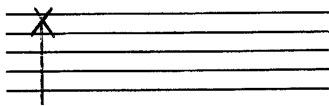
place one stick across drum as in rim-shot but strike the stick repeatedly with the other stick in a one-handed roll (so that a glissando up or down is produced)



smooth glissando from one area of drum to another

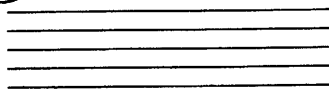


strike with stick and immediately dampen (with the stick) while adding and releasing pressure to produce a slight glissando



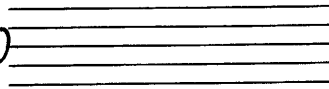
strike two sticks together (near microphone)

12

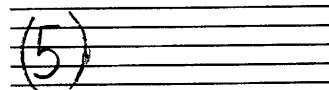


event number

20



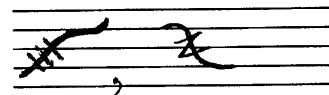
approximate time in seconds for an event



approximate time for a portion of an event



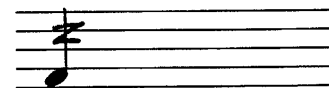
rub drum or sweep (with fingertips, fingernails, palms of hands or sweep with wire brush), end brush strikes with short sweeps



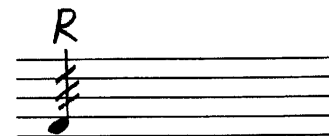
brush sweeps with regular, irregular tremolo



roll evenly as fast as possible, not as fast as possible



roll unevenly, as fast as possible



one hand rebound (roll) with natural acceleration and decrescendo



irregular rhythm, as fast as possible



accelerando, ritardando

① SNARES OFF 2 STICKS NO STICKS, FINGERTIPS ONLY
 sempre stac. (dampen with heels of hands) (Lift heel poco)

② FINGERTIPS (damped and undamped)... add FINGERNAILS ... add RUBBING ...

③ 1 STICK, 1 HAND (tips, nails, palm, heel) poco a poco more active ...

④ 2 STICKS, NO HANDS subito less active allow computer sustains poco a poco less active (let computer fade)

⑤ SNARES ON (with strike) subito more active, poco a poco more active ...

⑥ sempre active (Listen for computer) (simile) (simile)

⑦ 1 STICK, 1 BRUSH (semprè listen for computer) poco a poco less active & longer rests ...

⑧ (semprè listen for computer) poco a poco less active & longer rests ...

EVENT 1 (30 seconds)

SNARES OFF, 2 STICKS. Begin with one very fast, loud roll with sticks. Then put down sticks. **Wait 5 seconds.**

CAUTION: AMPLITUDE BECOMES EXTREMELY HIGH HERE! Make sure to avoid feedback.

FINGERTIPS. (After putting down sticks start playing very softly with fingertips.) Listen closely to computer output and use only the fingertips, while damping the drum with the heels of the hands. This event serves to “tune” the drum, metaphorically. Playing should be very tentative at first, with long rests. Gradually add very short bursts of faster notes. Notes that are struck very softly do NOT change the timbre of computer output, while notes that are struck with more force change the timbre. One hand should be very close to the mic and the other as far away as possible to give maximum variance to the sound. Do not move hand positions, as this will make sound. Make sure that finger strikes stay on the skin for maximum damping because lifting the fingers also makes sound. Gradually add notes without heel damping.

EVENT 2 (30 seconds)

CAUTION: AMPLITUDE STILL EXTREMELY HIGH HERE! Make sure to avoid feedback.

FINTERTIPS. Continue playing softly, with fingertips with damped and undamped notes. The computer begins sustaining timbres longer. Add **FINGERNAILS** for sharper attacks. Continue to vary sound. If the computer sound gets too sustained, just press the heels down on the drum skin to stop resonance. *Pianissimo* rolls, for instance with the fingernails, can be interspersed between louder attacks. Also begin **RUBBING** the fingertips and/or the fingernails and/or the palms of the hands on the drum surface. Keep all activity sparse and varied.

EVENT 3 (30 seconds)

CAUTION: AMPLITUDE STILL HIGH HERE! Make sure to avoid feedback.

1 STICK, 1 HAND (fingertips, nails, palm, and heel). Start using one stick, but dampen the stick strikes like the finger strikes. The computer sounds becomes longer and more sustained. Continue to vary sound. Flurries of *pianissimo* rolls and louder faster notes can be interspersed between shorter rests. Activity should be higher than in previous event. Keep varying timbre with combination of drumstick, fingertip, fingernail, rubbing the surface, and quiet rolls along with louder accented attacks.

EVENT 4 (30 seconds)

2 STICKS, NO HANDS. Computer sounds become very long. Create clouds of computer sound, let fade away, and create more. Use sticks in both hands, and mix damped and sustained strikes. **BUT NOT TOO LOUD!** This event should have many more rests than the previous event. Continue quiet *pianissimo* rolls since they do not affect the computer output. Also add some strikes on the rim and change the color of attacks by varying the location on the drum. **Only advance to event 5 during a very quiet moment.**

EVENT 5 (20 seconds)

SNARES ON. Make switch while striking fairly hard with stick (to mask the change to snares). Computer sounds are not as long or sustained as in event 4. General musical goal is to give the impression that the “introduction” is over. Short rolls and flurries should still be separated by rests, but playing should be extroverted and the control over whether a note is picked up by the microphone becomes very critical, since softer notes (with the snare on) will probably not be picked up. This is fine, just keep in mind that the drum is less sensitive with the snare on. Some very fast short rolls, rim-shots, and strikes on the metal edge of the drum will add to variety here.

EVENT 6 (20 seconds)

Longer virtuoso flurries with full dynamic range can be alternated with quick, abrupt stops. Listen for continuing sounds in the computer after pausing to play. If, when paused, the computer continues, there are three possibilities to create a kind of “dialogue” with the computer sounds: (1) wait for computer to finish, and then start immediately, as if interrupting the computer. Or, (2) wait, but start **BEFORE** the computer stops, which will give even more of an impression of interrupting the computer. Or, (3) wait for the computer to finish, then pause, and then continue, giving the impression of not attempting to interrupt the computer, but rather playing in a “call-response” style.

EVENT 7 (20 seconds)

1 STICK, 1 BRUSH. Begin using a brush in one hand for both striking and sweeping across the drum. Play in similar fashion to previous event, except that durations of the computer sounds get longer. Continue to engage in a “dialogue”. Some computer sounds should be allowed to fade out, while others can be interrupted. Computer sounds can even be **IMITATED** with the drum. Slightly less activity on the drum than in the previous event. Keep varying color playing in varying locations on the drum, including rim and side. Vary accents and louder gestures with quiet rolls.

EVENT 8 (20 seconds)

Keep the same relationship with the computer, while varying the timbre of the drum as much as possible. Clouds of computer sound get longer and more pronounced, so the drum activity should continue to decrease *poco a poco*. Keep a separation between accented/loud playing as compared with quiet rolls.

9 SNARES ON 1 STICK, 1 BRUSH *sempre poco a poco less active & longer rests...*
(sempre listen for computer)

10 *not active...*
(simile)

11 *not active...*
(simile)

12 2 STICKS, NO BRUSH *poco a poco slightly more active...* SNARES OFF

13 SNARES OFF 2 STICKS *sempre poco a poco slightly more active...* *(some regular rhythms)*

14 *(simile)* *sempre poco a poco more active...* *(poco a poco more regular rhythms...)*

15 *(simile)* *sempre poco a poco more and more active...* *(poco a poco more regular rhythms...)*

16 *(simile)* *maximum activity...*

EVENT 9 (20 seconds)

SNARES ON, 1 STICK, 1 BRUSH. Computer sound starts to continue constantly when the drum is not sounding. Try to imitate the computer rhythms. Each loud strike will change the “harmony”, and this relationship between the computer and drum should be heard. Continue to lessen the amount of drum activity *poco a poco*. Quiet rolls do not affect the computer output, so they can be interspersed between louder attacks and flurries.

EVENT 10 (20 seconds)

Computer sound is continuous. Imitate computer rhythms. The drum becomes more and more secondary, and is mainly useful for changing the computer “harmony” and doing short flurries divided by long pauses. Very quiet rolls can end with loud accents. However, activity should be somewhat minimal.

EVENT 11 (20 seconds)

Similar to previous event.

EVENT 12 (20 seconds)

2 STICKS, NO BRUSH. Similar. Trade brush for stick. Play with less silence, *poco a poco*, but avoid playing continuously. Flurries should be short but more regular. **SNARES OFF** later during this event.

EVENT 13 (20 seconds)

SNARES OFF, 2 STICKS. Imitate more and more the rhythms of the computer, including loud accents and syncopations. *Poco a poco* more activity, and more regular rhythms.

EVENT 14 (20 seconds)

Similar, but *poco a poco* increase activity, keeping colors varied, and adding more regular rhythms.

EVENT 15 (20 seconds)

Similar, but *poco a poco* increase activity, keeping colors varied, and adding more regular rhythms.

EVENT 16 (20 seconds)

Play with maximum energy, maximum activity, and maximum rhythmic regularity, with flurries, syncopation, rim-shots, etc., added to interrupt the regular rhythm. Vary colors and techniques. Include drum *glissandi* by varying pressure on skin, etc.

ADD 1 BRUSH

17 SNARES OFF 2 STICKS poco a poco less active ... decrescendo, ritardando ...

Musical notation for exercise 17 on a single staff. It begins with a dynamic of *ff* and a *rit. trem.* marking. The notation includes various rhythmic patterns with accents and slurs, and dynamic markings of *f*, *mf*, and *mp*. There are also markings for *R* (right stick) and *S B S B* (snare brush). The exercise concludes with a *3* (triple) marking.

18 2 STICKS & 1 BRUSH poco a poco less active ...

Musical notation for exercise 18 on a single staff. It starts with a dynamic of *p* and a *rit. trem.* marking. The notation features rhythmic patterns with accents and slurs, and dynamic markings of *f* and *mp*. There are also markings for *R* and *S B S B*. The exercise ends with a *3* (triple) marking.

19 almost no activity ...

Musical notation for exercise 19 on a single staff. It begins with a dynamic of *pp*. The notation shows sparse rhythmic patterns with accents and slurs, and dynamic markings of *p* and *pp*. There are also markings for *R* and *S B S B*.

20 minimum activity ... (some strong accents) poco a poco slightly more active ...

Musical notation for exercise 20 on a single staff. It starts with a dynamic of *pp* and includes markings for *p*, *mp*, *mf*, and *f*. The notation features rhythmic patterns with accents and slurs, and dynamic markings of *pp*, *p*, *mp*, *mf*, and *f*. There are also markings for *R* and *S B S B*.

21 SNARES OFF/ON ... (some strong accents) give time for reverb to fade

Musical notation for exercise 21 on a single staff. It starts with a dynamic of *mp* and includes markings for *ff*, *mf*, and *f*. The notation features rhythmic patterns with accents and slurs, and dynamic markings of *mp*, *ff*, *mf*, and *f*. There are also markings for *R* and *S B S B*.

22 2 STICKS, NO BRUSH less & less SNARES OFF/ON ... poco a poco more active ...

Musical notation for exercise 22 on a single staff. It starts with a dynamic of *ff* and includes markings for *f* and *ff*. The notation features rhythmic patterns with accents and slurs, and dynamic markings of *ff*, *f*, and *ff*. There are also markings for *R* and *R*.

23 SNARES OFF 2 STICKS poco a poco more active ... start regular rhythms ...

Musical notation for exercise 23 on a single staff. It starts with a dynamic of *ff* and includes markings for *f* and *ff*. The notation features rhythmic patterns with accents and slurs, and dynamic markings of *ff*, *f*, and *ff*. There are also markings for *3* (triple) and *simile...*.

24 poco a poco more active ... poco a poco more regular rhythms ...

Musical notation for exercise 24 on a single staff. It starts with a dynamic of *ff* and includes markings for *6/4*, *7/8*, and *3* (triple). The notation features rhythmic patterns with accents and slurs, and dynamic markings of *ff* and *simile...*.

EVENT 17 (20 seconds)

SNARES OFF, 2 STICKS. As the computer part starts to fade and weaken, the drum should also. **ADD BRUSH** later on, using brush in one hand along with stick (hold both in the same hand) during the later part of the event.

EVENT 18 (20 seconds)

2 STICKS and 1 BRUSH. Electronics are very quiet. Be careful not to mask the electronics. Play in very introverted fashion. There are some low sweeps in the electronics that can act as a guide rhythmically. Play *glissandi* across stick lying across drum and rim. Continue to use brush as well.

EVENT 19 (20 seconds)

Much like event 18, but even less activity on drum. Electronics are very quiet. Be careful not to mask the electronics. Play in a very introverted fashion. Play *glissandi* across stick lying across drum and rim. This event should be practically an electronic solo.

EVENT 20 (25 seconds)

Electronics fades out very much. Continue to play in an introverted fashion, but *poco a poco* increase activity and energy just slightly. Reverb starts to increase in duration.

EVENT 21 (35 seconds)

CAUTION: AMPLITUDE IS EXTREMELY HIGH HERE!

SNARES OFF and ON ad libitum. Begin a free cadenza, keeping in mind that the electronics are mainly just very long reverb. Give gestures room to fade away. Use restraint. Start to make unusual sounds (strike the body of the snare, the rim, the sticks together, etc.) mixed with “normale” strikes. **BUT DO NOT PLAY WITH EXCESSIVE FORCE!**

EVENT 22 (20 seconds)

CAUTION: AMPLITUDE STILL EXTREMELY HIGH HERE!

2 STICKS, NO BRUSH. Continue **SNARES OFF and ON ad libitum.** The reverb continues to be very long. Continue to make unusual sounds, but start to make more “normale” drum sounds as the electronics start to fade back in. Activity should increase as the electronics fade in. Turn **SNARES OFF** later in the event.

EVENT 23 (20 seconds)

SNARES OFF, 2 STICKS. Continue to build activity *poco a poco* with more and more regular rhythms and syncopation. Listen closely to the computer sounds, which are triggered by the drum, and try to follow the rhythms and accents of the computer. Keep snares off.

EVENT 24 (20 seconds)

Build activity *poco a poco* and start regular rhythms. Listen closely to the electronics, which are triggered by the drum.

25 SNARES OFF 2 STICKS
*poco a poco more regular rhythms...
 poco a poco more active...*

ff *f < ff* *simile...*

26
*poco a poco more regular rhythms
 poco a poco more active...*

< fff ff *simile...* *fff*

27
maximum activity... (interrupt regular rhythms)

fff *simile...* *ff*

28
poco a poco molto less active... decrescendo, ritardando molto
Let computer fade

ff *simile...* *p*

29 SNARE ON
let computer resonate

f *mf < f*

30
let computer fade completely

31 (NULL)

Buffalo
 2007-08

EVENT 25 (20 seconds)

SNARES OFF, 2 STICKS. Continue to build activity *poco a poco*. Play varied but regular rhythm patterns following computer rhythms. Include flurries, accents and syncopations.

EVENT 26 (25 seconds)

Continue to build activity *poco a poco*. Start playing more and more in virtuoso/solo fashion! Increase number of flurries. Vary playing style and sounds, including rim-shots, etc.

EVENT 27 (35 seconds)

MAXIMUM activity of the piece. Play a high-energy solo with great variety and flurries. Include drum *glissandi* by varying pressure on skin, along with rim-shots, etc.

EVENT 28 (25 seconds)

Reduce energy *molto*, but *poco a poco*, with a few flurries, etc. Follow the electronics, until activity is very low. Do not play while the computer is advancing to the next event.

EVENT 29 (15 seconds)

WAIT 3 seconds before a series of final short flurries, which should be separated by rests, while the computer sound is allowed to fade out. Make sure that final sounds have at least partially faded out before the computer advances to the next event.

EVENT 30 (10 seconds)

Wait 10 seconds of silence, allowing the computer to fade out completely. (END of piece.)

EVENT 31

Does nothing.

Printout of Max window and Timeline Performance window during event advancing:

-----SECTION-----: 1

****EVENT: 0**

- : AUTO_ADVANCE_of_events_is_ON
- : To_turn_off_AUTO_ADVANCE_of_events_click_toggle_NOW

****EVENT: 1**

- : DUR:_5_quick_loud_roll_with_sticks_NO_SNARES
- : Let_resonate_and_put_down_sticks
- : -
- : DUR: 25_Fingertips_only_non-resonant
- : (CAUTION:AMPLITUDE_EXTREMELY_HIGH!!!)

****EVENT: 2**

- : DUR:_30_Fingertips_add_some_resonant_strikes_and_rubbing
- : (CAUTION:AMPLITUDE_STILL_EXTREMELY_HIGH!!!)

****EVENT: 3**

- : DUR:_30_add_some_STICK_and_add_more_resonance
- : (CAUTION:AMPLITUDE_STILL_EXTREMELY_HIGH!!!)

****EVENT: 4**

- : DUR:_30_STICKS_ONLY
- : resonant_letting_long_computer_sounds_sustain

****EVENT: 5**

- : DUR:_20_
- : Set_SNARES_ON_simultaneously_with_1st_strike

****EVENT: 6**

- : DUR:_20_
- : Listen_for_longer_sounds

****EVENT: 7**

- : DUR:_20_
- : Listen_for_longer_sounds

****EVENT: 8**

- : DUR:_20_
- : Clouds_of_sound_get_longer

****EVENT: 9**

- : DUR:_20_
- : Hard_strikes_change_“harmony”

****EVENT: 10**

- : DUR:_20_
- : Less_active_drum_and_more_autonomous_computer

****EVENT: 11**

- : DUR:_20_
- : Continue_less_active_drum

****EVENT: 12**

- : DUR:_20_turn_SNARES_OFF_later_during_event
- : Start_increase_of_activity_poco_a_poco

****EVENT: 13**

- : DUR:_20_SNARES_OFF
- : Continue_increasing_activity

****EVENT: 14**

- : DUR:_20_
- : Continue_increasing_activity

****EVENT: 15**

- : DUR:_20_
- : Continue_increasing_activity_molto

****EVENT: 16**

- : DUR:_20_
- : Maximum_Activity

****EVENT: 17**

- : DUR: 20_
- : Decrease_activity_poco_a_poco

****EVENT: 18**

- : DUR: 20_do_not_mask_computer_part
- : Continue_decreasing_activity_poco_a_poco

****EVENT: 19**

- : DUR: 20_Quasi_computer_solo
- : Continue_decreasing_activity_to_quasi_niente

****EVENT: 20**

- : DUR: 25_Start_drum_reverb_solo
- : Let_resonate_and_play_sparsely

****EVENT: 21**

- : DUR: 35_very_long_reverb!_Play_sparsely
- : (CAUTION:AMPLITUDE_EXTREMELY_HIGH!!!)

****EVENT: 22**

- : DUR: 20_very_long_reverb!_Play_less_sparsely
- : (CAUTION:AMPLITUDE_EXTREMELY_HIGH!!!)
- :
- : Electronics_fade_back_in

****EVENT: 23**

- : DUR: 20_SNARES_OFF
- : Build_poco_a_poco

****EVENT: 24**

- : DUR: 20_
- : Continue_building_poco_a_poco

****EVENT: 25**

-: DUR:_20_
-: Keep_building_up_activity_and_intensity

****EVENT: 26**

-: DUR:_25_
-: Keep_building_up_activity_intensity_and_variety

****EVENT: 27**

-: DUR:_35_
-: Maximum_activity!

****EVENT: 28**

-: DUR:_25_
-: Reduce_activity_poco_a_poco
-: -
-: LET_COMPUTER_FADE_OUT_BEFORE_ADVANCE_TO_EVT29

****EVENT: 29**

-: DUR:_15_
-: WAIT_3_SECONDS_BEFORE_FINAL_SHORT_FLURRIES!!
-: -
-: WAIT_FOR_PARTIAL_FADE_OUT_BEFORE_ADVANCE_TO_EVT30

****EVENT: 30**

-: DUR:_10_LET_COMPUTER_FADE_OUT_COMPLETELY
-: END

****EVENT: 31**

-: -
-: -