Event Horizon

2014

violin, violoncello, piano, audio signal processing

Laurie Radford

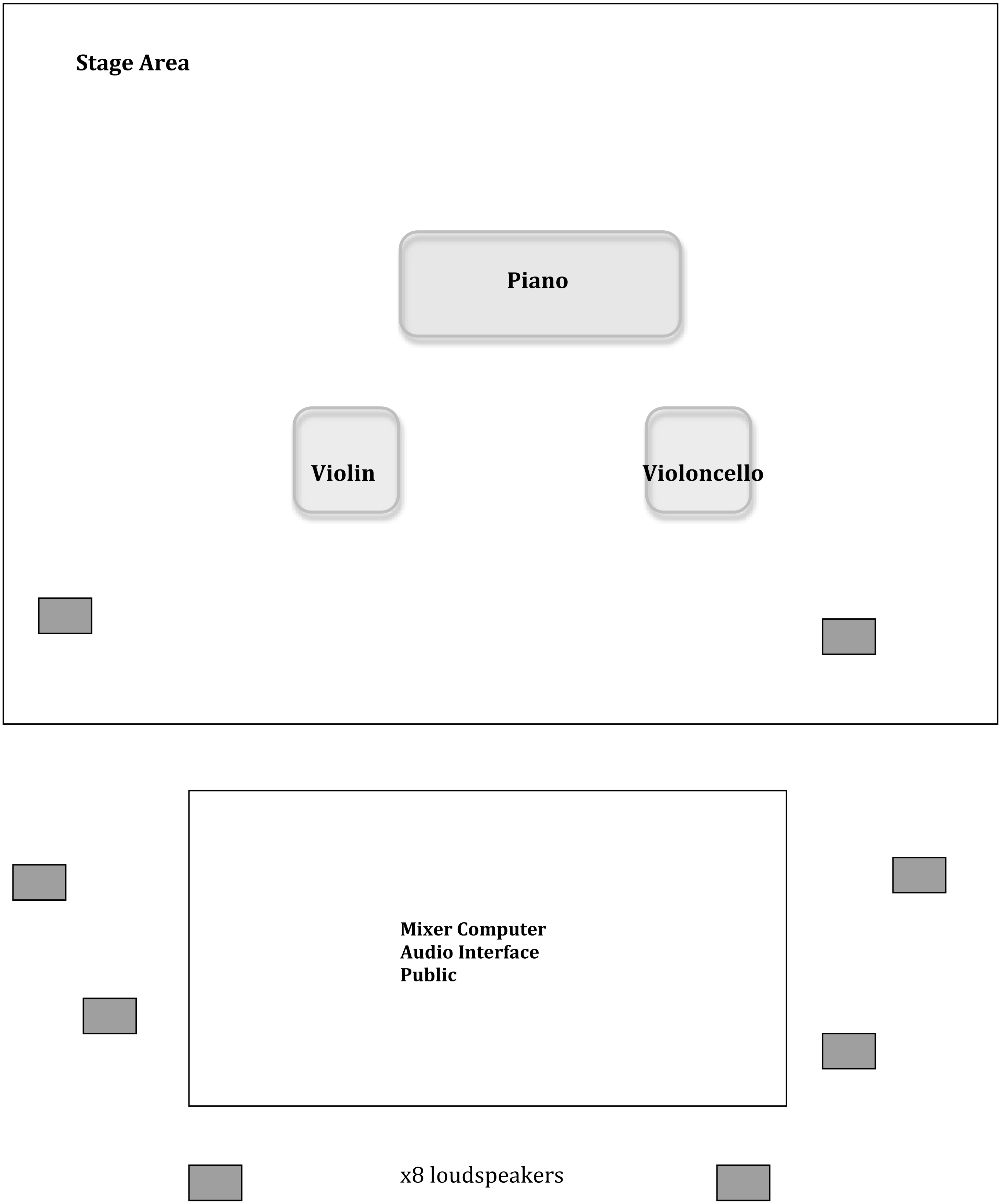
Performance Notes

A performance of *Event Horizon* combines violin, violoncello and piano with real-time audio capture/recording and digital signal processing of the instruments' signals. The audio signal processing requires a computer running Cycling74's application MaxMSP (version 6.0 or later). A quality audio interface is required for the capture of the instrument signals (via a mixing console) and subsequent playback in the concert area on a quality 8-channel sound system. Triggering of different modules in the MaxMSP patch is controlled during performance by a sound operator as per indications in the score. The sound operator is also required to ensure an appropriate balance in the concert area between the instruments and the MaxMSP-generated audio. (The MaxMSP patch includes information regarding its operation. Click on the INFO button.) Most functions, such as start DSP, record, granulate, initiate and adjust effects, are automated within the patch so that minimal intervention (aside from initializing each Cue) is required during performance. An efficient system of choosing Cue #s is available for rehearsal purposes. For a copy of the required MaxMSP patch, please contact the composer at lradford@ucalgary.ca.

An eight-loudspeaker (octophonic) system, arranged as indicated in the diagram below, is required for a performance of *Event Horizon*. (Note: A stereo version is also available.) The loudspeakers should be situated as equidistantly as possible <u>around</u> the audience area with loudspeakers 1 and 2 flanking the instrumental ensemble on stage. Audio levels should be verified to ensure that the gain of the eight loudspeakers is as balanced as possible when auditioned from a central point in the concert venue and that the audio system sound compliments but does not mask the instrumentalists.

Equipment Requirements:

- 8 quality loudspeakers on stands or hung from the ceiling at audience ear level (size and power should be adequate for the venue size and character)
- mixing console (minimum 12 channel console with 3 microphone preamps, 3 auxiliary sends or direct outs, 8 discreet audio outputs)
- 3-4 quality microphones and boom stands
- central mixing station with table to accommodate the mixing console as well as an audio interface and computer; mixing station should have good sight-lines to stage area and be as central in the venue as possible to facilitate proper audio mixing and balance
- small lamp at mixing station for score reading
- 8-channel digital audio interface (8 inputs, 8 outputs)
- computer with MaxMSP 6.0 or later installed


Stage Area
Piano
Violin
Violoncello
Mixer Computer
Audio Interface
Public
x8 loudspeakers

Notation

Piano

\+ — mute string with finger while striking key

Strings

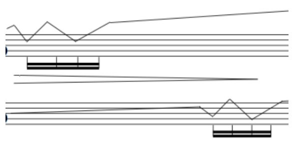
s.p. — sul ponticello

s.t. — sul tasto


play highest note(s) possible

s.p. ord. — change from one mode of execution to the next as indicated

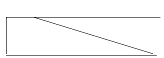

extreme bow pressure


these passages (mm. 51-66) are played “slurred” with the rhythms indicating the place at which to change the direction of the glissando. They do not indicate bow changes. Changes of bow will of course need to be made somewhere (ad lib.) to ensure that the glissandi continue as unbroken as possible (eg bow changes as imperceptible as possible).


mm. 78-84 are similar to the above except that bowing needs to be broken for the arpeggios from time to time and then the rising glissando resumed as smoothly as possible

indication of MaxMSP cues to be triggered by a sound operator


continuation of digital signal processing or audio capture/transformation


DSP gain control (automated within MaxMSP patch—should be monitored and adjusted for timing and level by operator)

All trills are a semitone.

Duration 12:00

Event Horizon was commissioned by the Land’s End Ensemble.

Program Notes

Event Horizon

2014

violin, violoncello, piano, audio signal processing

Laurie Radford

pulling the light *escape velocity* *redshifted* *proper time* *singularity*

An “event horizon” is a boundary in spacetime beyond which events cannot affect an outside observer…a “point of no return”… the point at which the gravitational pull becomes so great as to make escape impossible…a phenomenon usually associated with black holes. The concept of energy at the horizon or the edge of our immediate grasp of time has been a motivating interest in a number of my compositional projects in recent years. It continues to provide impetus to explore movement, speed, transformation and process in many aspects of my music. In *Event Horizon*, various components of the phenomenon provide conceptual points of departure for each of the sections of the piece. The audio signal processing of the violin, violoncello and piano extends the exploration of both sound and time to the spatial and spectral attributes of the listening experience.

Event Horizon was written for the Land’s End Ensemble of Calgary.

lr

for the Land's End Ensemble

Event Horizon

Laurie Radford


9
Vln.
Vlc.
pizz.
arco
p
(8va)
pp
Pno.
DSP
11
mf
pizz.
arco
8va
p
Vln.
Vlc.
Pno.
DSP


13
Vln.
Vlc.
pp
Pno.
p
mf
Ped.
Ped.
DSP
15
Vln.
8va
pp
Vlc.
p
pp
pp
Pno.
p
pp
DSP


17
(8va)
1
Vln.
ppp
pp
pizz.
arco
Vlc.
f
sfz
p
Pno.
pp
f
sfz
DSP
FlgRM (vln)
TrgDly
3
20
Vln.
Vlc.
p
Pno.
p
p
DSP


22
Vln.
Vlc.
Pno.
DSP
s.p.
molto vib.
ord.
fast gliss.
pizz.
molto
8va
gliss.
FlgRM (vln)
TrgDly
4
24
arco
pizz.


26
Vln.
Vlc.
arco
p
8va
mf
Pno.
Ped.
DSP
28
2
pizz.
arco
III
pp
f
sfz
molto s.p.
ord.
p sub.
FlgRM (vlc)
TrgDly (vln, pno)
5
InRouteCue_2