Kontakt

Michael Lukaszuk
_The University of Western Ontario_

Supervisor
Dr. Omar Daniel
_The University of Western Ontario_

Graduate Program in Music

A thesis submitted in partial fulfillment of the requirements for the degree in Master of Music

© Michael Lukaszuk 2013

Follow this and additional works at: [http://ir.lib.uwo.ca/etd](http://ir.lib.uwo.ca/etd)

Part of the [Composition Commons](http://ir.lib.uwo.ca/etd)

**Recommended Citation**

[http://ir.lib.uwo.ca/etd/1253](http://ir.lib.uwo.ca/etd/1253)

This Dissertation/Thesis is brought to you for free and open access by Scholarship@Western. It has been accepted for inclusion in Electronic Thesis and Dissertation Repository by an authorized administrator of Scholarship@Western. For more information, please contact tadam@uwo.ca.
KONTAKT

(Thesis format: Score)

by

Michael Lukaszuk

Graduate Program in Music

A thesis submitted in partial fulfillment of the requirements for the degree of Master in Music Composition

The School of Graduate and Postdoctoral Studies
The University of Western Ontario
London, Ontario, Canada

© Michael Lukaszuk 2013
Abstract

*Kontakt* is a c. 14-minute composition for string orchestra and audio signal processing that deals with imitation and ensemble communication. The first and third section of the piece are comprised of a series of sound objects. The second section uses one of these objects to create a collection of palindromic motives, phrases and subsections. The pitch material in my thesis composition consists of a slowly evolving cell containing three intervals at a time. The piece uses Max/MSP software to create delay networks, live recording and playback of audio material, harmonization of live material, and quadraphonic sound diffusion. In *Kontakt*, imitation is explored using canonic, spatial, textural, and timbral effects. A three-part interplay consisting of 1) performing acoustic material, 2) digital processing and 3) interpretation of the processed material creates a deep connection between the acoustic and electroacoustic elements in the piece.

Keywords

Kontakt, electroacoustic music, divided string orchestra, Canadian music
Acknowledgments

Thank you to Dr. Omar Daniel for acting as my thesis advisor and for his invaluable guidance and support throughout my program of study. Thanks also to Dr. David Myska for his many helpful recommendations in acting as my second reader.
Table of Contents

Abstract.........................................................................................................................................ii

Acknowledgements..................................................................................................................iii

Table of Contents....................................................................................................................iv

Cover Page....................................................................................................................................v

Instrumentation..........................................................................................................................vi

Notation Guide............................................................................................................................vii

Electronicians Guide..................................................................................................................viii

Score...............................................................................................................................................1

Curriculum Vitae...........................................................................................................................67
Kontakt

(2013)

String Orchestra and audio signal processing

Michael Lukaszuk
**Kontakt**

**Instrumentation**

8 violins, 3 violas, 2 cellos, 1 double bass
Divided in two groups

<table>
<thead>
<tr>
<th>Group 1</th>
<th>Group 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>6 violins</td>
<td>2 violins</td>
</tr>
<tr>
<td>1 viola</td>
<td>2 violas</td>
</tr>
<tr>
<td>1 cello</td>
<td>1 cello</td>
</tr>
<tr>
<td></td>
<td>1 double bass</td>
</tr>
<tr>
<td></td>
<td>2 electronicians</td>
</tr>
</tbody>
</table>

Two electronicians will process audio from group 2.

**Suggested Seating Arrangement**

Groups are arranged in two semicircles. Instruments belonging to Group 2 appear in italics in the above diagram.
Notation

Accidentals carry through the measure.

The note heads in parentheses indicate how long the gliss. should last. This gliss. should last as long as the combination of a sixteenth, quarter and half note. Do not rearticulate unless a change of bow direction is necessary, or the following notation is used:

Rearticulate this note as fast as possible until the line ends.

Excessive/Extreme bow pressure to create a scratchy sound.

Start playing this note at a random point in the measure.

Gradually change from one mode of execution to the next.

A beam that thickens over time into three beams indicates an unmeasured accelerando. During such passages the performer should not concern themselves with playing the exact number of notes on the page.
The Electroacoustic Component

Electronician 1 is given a variety of cues throughout the piece. All of these are to be executed using a Behringer BCF2000 MIDI control surface (or a controller with similar features). Electronician 1 manipulates a Max/MSP patch to affect the delay times, reverb decay time, computer generated transpositions of audio material, live recording, playback and sound diffusion. All cues list information in the following order:

Cue 1 – all channels
Record buffer A until---------------------
Delay Times – 1 = __ ms , 2 = __ ms , 3 = __ ms
Feedback = _
Reverb Decay time = _ ms
Transposition - Major 2\textsuperscript{nd} above
Spatio = 1 + 2

The first line in a cue indicates which of the six input channels will be active during the processing.

The input channels should be assigned as follows:

Group 2

Violin 1 = Channel 1
Violin 2 = Channel 2
Viola 1 = Channel 3
Viola 2 = Channel 4
Cello = Channel 5
Double Bass = Channel 6

The last line in a cue indicates which of the four loudspeakers will be used.

Electronician 2 controls the loudspeaker output levels using a mixing console or similar audio interface. Levels are notated using standard dynamic markings (i.e. mp, ff) and crescendo/decrescendo hairpin signs. All output gains are equal unless a specific number appears above a hairpin.

\[
\text{e.g.:}
\]

\[
\text{I.}
\]

Raise and lower the output gain for speaker 1. Gains for other output channels that may be active are not to be altered.
Please refer to the Max/MSP patch for more information on setup and performing cues. Contact Michael Lukaszuk to obtain a copy of the Max/MSP patch.

Duration approximately 14:00
Channels 1-6
Delay 1 = 500ms, 2 = 1000ms
Reverb decay = 1000ms
Transpositions = Maj 2. above
Spatio = alt. ping-pong 3+4, 1+2

D.B.
all channels
delay times: 1=1150ms, 2=2300ms, 3=3450ms
feedback = 1.2
Reverb decay = 1000ms
transpose with each delay: Maj 2, Min 3 and Min 6
spatio=1+2
Cue 8

- all channels
- add 1 dly time per. bar - 1= 1500ms, 2= 750ms, 3= 375ms, 4 = 187ms
- feedback = 1.5
- rvb decay 2000
- staggered transpositions up: Maj 2, Maj 3 and dim.5
- spano = 1+2
rit. until m. 115
Delay time - 1 = 600ms, 2 = 1200ms
Staggered transposition up = Maj. 9th, 8ve + dim. 5
Spatio= 1+2
cue 10
add 3+4
Vln. I
Vln. II
Vln. III
Vln. IV
Vln. V
Vln. VI
Vla.
Vc.
D.B.

168

sul tasto

ord.

f

p

$p$
rit. until m. 178
Play half C (-1x speed)
Reverb decay time = 3500ms
Spatio = 1.3
Channel 2
Continuous loop 1 at 1.25x speed
transposition below = 8ve + P4
Channel 4
Continuous loop at 1.75x speed
transposition above = 8ve + P5
Delay time - 1 = 1000ms
Spatio = 1
Vln. I

Vln. II

Vln. III

G R P.

1

Vln. IV

Vln. V

Vln. VI

Vla.

Vc.

Vln. I

Vln. II

Vla. I

G R P.

2

Vla. II

Vc.

p

fp

D.B.

Elec. 1

Elec. 2

Cue 21

Play buffD (0.5 x speed)

Delay times - 1 = 250ms, 500ms

Rch Decay time = 1500ms

Spatio = alternate 1+3, 2+4 every measure

mp
channel 2

Delay times: 1= 500ms, 2= 550ms, 3= 750ms, 4= 1500ms

Feedback = 1

Rvb decay time = 1500ms

Spatio = rapidly alternate 3, 4, 2

Cue 24
**Curriculum Vitae**

<table>
<thead>
<tr>
<th>Name:</th>
<th>Michael Lukaszuk</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Post-secondary Education and Degrees:</strong></td>
<td></td>
</tr>
<tr>
<td>University of Western Ontario London, Ontario, Canada</td>
<td></td>
</tr>
<tr>
<td>2007-2011 B.Mus.</td>
<td></td>
</tr>
<tr>
<td>The University of Western Ontario London, Ontario, Canada</td>
<td></td>
</tr>
<tr>
<td>2011-2013 M.Mus.</td>
<td></td>
</tr>
<tr>
<td><strong>Honours and Awards:</strong></td>
<td>Paul Akira Ohashi Summit Award 2011</td>
</tr>
<tr>
<td>Western Graduate Research Scholarship 2011-2013</td>
<td></td>
</tr>
<tr>
<td>The University of Western Ontario Dean’s List 2009-2011</td>
<td></td>
</tr>
<tr>
<td><strong>Related Work Experience:</strong></td>
<td>Teaching Assistant The University of Western Ontario 2011-2013</td>
</tr>
<tr>
<td>Research Assistant The University of Western Ontario 2010-2011</td>
<td></td>
</tr>
</tbody>
</table>