Limoj de Mia Kialo
limits of my reason / limites de mi razon / grenzen meiner vernunft
for orchestra & live electronics

a Pascal Pons
&Sinfonieorchester der Jugendmusikschule
St. Georgen/Furtwangen

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I declare that this thesis has been composed solely by myself and that it has not been submitted, in whole or in part, in any previous application for a degree. Except where states otherwise by reference or acknowledgment, the work presented is entirely my own.

Jose Rafael Subia Valdez.
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Limoj de Mia Kialo

Score Indications and performance remarks.

Dynamics are always relative and must be levelled by the conductor. Some textures are PPP but require more effort to produce or emphasize the sound. The loudnesses of these textures are achieved by a collective effort. The rhythms in section B, must be accentuated as if it was morse code and a dialogue between instruments occurs.

FLUTES

**Covered Embouchure Noise**
produced by covering completely the embouchure and blowing. The result has a PPP quality even if there is a lot of air flowing, this means that the conductor might ask you to blow louder. You can hear an example of this sound here (https://youtu.be/l6enUmyRYmI?t=16)

**Highest Note Possible**

**Fast Loop (Aeolian Noise see below)**

A sequence of notes that are to be played as fast as the player can in the amount of time given. This is unmeasured and can also be complemented with other techniques. In the example below the player must repeat that sequence of notes during that time. It must also be played with noise, rather than tone and a loud layer of keyclicks (heavy fingers).

Open Embouchure Noise /

**Aeolian Sounds / Wind Tones**
Blow through the embouchure but do not produce tone, only air noise. A video tutorial here (https://www.youtube.com/watch?v=pXiZrqLCpAc)

Jet Whistle
produced by covering the embouchure and blowing fast and strongly so it produces a “turbine” type noise. It is a common technique used to warm up the instrument before playing. here (https://youtu.be/vPMV5XSiLwQ4?t=129)

Complemented with other techniques. In the example below the player must repeat that sequence of notes but transforming the sound from tone to noise by loosening his/her mouth. This will make the tone component in the sound disappear while becoming noisier.

BASSONS

**Tone to Noise and vice versa**
play the note and start loosening the embouchure until the pitch is lost and you have only noise

**Fast Loop (Aeolian Noise)**
A sequence of notes that are to be played as fast as the player can in the amount of time given. This is unmeasured and can also be complemented with other techniques. In the example below the player must repeat that sequence of notes with a loose embouchure air noise and heavy fingers to produce key click noises.

**Lowest Note Possible**
If possible slap
SAXOPHONES

Open embouchure air noise
Refer to Clarinet

Tone to Noise and vice versa
play the note and start loosening the embouchure until the pitch is lost and you have only noise

Fast Loop
A sequence of notes that are to be played as fast as the player can in the amount of time given. This is unmeasured and can also be complemented with other techniques. In the example below the player must repeat that sequence of notes with a loose embouchure air noise and heavy fingers to produce key click noises.

HORNS

Air noise (Aeolian Noise)
loosen the mouth and blow into the instrument without producing any tone, only noise

Palm Slap
strike your palm against the embouchure producing a very distinctive percussive sound

TRUMPETS AND TROMBONE

Air noise (Aeolian Noise)
loosen the mouth and blow into the instrument without producing any tone, only noise

Palm Slap
strike your palm against the embouchure producing a very distinctive percussive sound

HARP

Strike with Palm
Use the palm of your hands to strike the strings in the written area in order to create a percussive, resonating effect colored by the strings vibrations.

Scrape with Plectrum
use a plectrum (best if its a plastic card) to scrape the strings from the bottom upward.

GLISSANDO between tuning pins and bridge pins

Flutter Glissando
http://sites.siba.fi/web/harpnotation/flutter-glissando

Scraping the strings
play that rhythm with string scrapping sounds. (tempo libre)

http://sites.siba.fi/web/harpnotation/manual/sliding-sounds/scraping-strings

STRINGS

SUL PONT / SUL TASTO
the position in which the bow has to be relative to the bridge. the arrow indicates the moving position

Constant Hand Glissando
move the hand the interval distance established by the 2 tips of the line while playing when marked with a headless note with the gettato notation. change from “legno” to “crini” and move the bow towards the bridge.

Glissando on the same string towards the highest pitch available

Bow Tremolo

Legno Battuto on Highest Pitch Possible

Legno Tratto Flauttato
fast, light, bowing
Glissando moving the hand and transforming the sound from tone to noise

Longest legno batutto ricochet possible

Vertical Bowing

Fast Noisy Harmonics

Circular Bowing
Technical Specifications for Live – Electronic Processing

The live – electronics system is intended to work with a minimal set-up available to the player/s. A minimum amount of microphones and their placement is recommended, but the computer will work with what is given. Practising with the computer is encouraged as it will provide the electronic feedback that intends to affect the music playing itself. The live response in the electronics is always similar but rarely the same which makes the piece work with a degree of unpredictability and room for interaction.

The computer software was developed using the Pure Data programming environment version 0.49 which can be freely downloaded and installed from this link:

https://puredata.info/downloads/pure-data

Available Platforms

The patches provided for this projects are programmed in a Linux environment and tested on Linux and macOS systems. Theoretically, they can be run on Windows machines with some minor modifications and/or object replacements. The reason for this is that there was no access to a Windows system during the development. Furthermore, the changes happening during these past 5 years regarding 32 and 64 bit technology have produced a number of libraries to become incompatible. Many of these have stopped being updated or changed for a significant number of years without compromising their functionality, however with the recent update to 64 bit systems, many have stopped working under Windows 64 systems. This makes a true multiplatform development difficult. If you have the desire to use a Windows 32 or 64 system for the performance, please send an email (provided below) to receive support by the author. Refer also to the “dependencies_state” provided with the patch to know what dependencies are still an issue, and where one can find more information about those libraries and objects in particular.

A Linux solution

The current state of professional audio on the Linux platforms is very encouraging. With the existence of “class compliance” USB cards, hardware is no longer an issue. Old professional USB cards, as well as the latest professional options which take advantage of “class compliance” work very well on modern Linux platforms. In order to run the patches provided for this project, the user can also create a partition on your hard drive and install a Linux OS, old hard drives are cheap and many times free from old machines that get discarded with them and can be used for this purpose too. The partition or hard drive used does not have to be big, (a 20GB hard drive/partition) is enough to begin with, and enough for the user who only intends to run the files that come with this project. Once the OS is installed, install Pure Data and run the patches provided. (help for this on request via email)

Preparing the Patch

When preparing the patches, it is crucial to copy the files to a directory in your computer. Make sure that the path and directory where the patch is going to sit contain no “white spaces” in their names. (eg. C://user/My Documents/Dianoia) in this case, the patch will stop searching for directories at “My ” as it will ignore anything after the whitespace. To fix this, please use a path in which that directory is named “My_Documents” or “MyDocuments”. This way the objects inside the patch that need to look for information inside directories can access all the files used.

Updating the Patch via “Deken”

Before updating, please send me an email to check if there is an updated version of the patches used for the piece. Because technology is constantly changing, and the framework used to develop these patches is programmed and used by myself, updates might be available for download on request. The user might want to consult my website and/or git repository

www.jrsv.net

The patch can be updated through the “Deken” Package manager. Make sure to do this only if you know what you are doing, or are in contact with the author. All dependencies used are located inside the “dependencies” folder in the root directory of the patch. 3rd Party libraries are located in their own directories. These are the dependencies that can be updated.

1. After installing Pure Data and copying the patch to a proper directory considering what was explained before, navigate to the “help” menu and click on “Find externals”. Once the window named “Find externals” opens, click on the “Preference” button on the lower right corner.
2. In the preference window, make sure to select the directory where the dependencies for the patch are. Once this is done, you can go back to “Find externals” and search for the libraries used in the patch to update them if needed.

Further Support
For additional support installing a Linux OS, Pure Data and/or running the patches, please send me an email and I will respond as soon as possible.
jsubiavaldez@gmail.com

About the Electronic Part:
The electronic part was composed as a continuous extension of the acoustic world. It intends to expand the concert space into a virtual one, with an ambiance strictly influenced by the instrumental part, where instrumental gestures produce electronic responses inside the virtual space. The balance between the two spaces, the real and the virtual, should on average be symmetrical. The individual in charge of controlling volumes during the performance, should ensure that both of these worlds have the correct acoustic projection. This does not mean that places where one takes over the other do not exist, but rather that both should be audible throughout the piece. Go through the piece a number of times to become familiar with what is going on. If comfortable, project the electronic response to a surround system using delays, or by inverting the stereo image and placing it in the back, and/or exaggerate the electronic responses by adjusting the output volumes.

Technical Set-up:
Use at least 4 microphones, if more, create groups and send 1 group per input to the audio card. Place the microphones where they can capture most of the orchestra.

Run Pure Data v. 0.49 in an Linux/macOS system with at least 8 gb of RAM and an i3 or similar processor

Use a full range stereo output in front of the orchestra and in the widest disposition possible.
Running the Patch
patch for Limoj de Mia Kialo for orchestra is the same as the percussion solo, the presets are different

In the folder provided containing the files of the piece, open the pd file named LMK.Master.pd this will open the control window as seen in the image.

1. Sound Card inputs:
   turn microphones ON/OFF add the direct signal as part of the electronics, play a wav or aiff audio file to test the system.

2. Main Volumes:
   control the main volume of the electronic processing and the amplification of the instrument/s

3. Master Volume:
   turn audio processing ON/OFF, record a performance and control the master volume.

4. CUE system:
   turn on the MIDI pedal to change “patches” in each cue, when indicated in the score, open a window with a large indicator of the current cue, and reset the system to the beginning of the piece

5. Preset Manager:*
   store and recall presets, edit them in their text file, and control their interpolation time.

6. Live Electronics:*
   open the live processing window, open a visible instance of Pure Data and record up to 3 setting of a sound check

7. Master Reverb:
   If needed, add a reverb to the output

* 5 and 6 should not require any type of manipulation from the player or technician. Only change if absolutely sure what is being done.

To run the system, turn the Audio ON (module 3). This will produce a message of connection in the pd window (ctrl + R). Activate the microphones (module 1) and check that signal is coming into the computer. Turn the MIDI pedal on (module 4) to change “Preset”, using either a midi pedal or the letter “P” of the computer keyboard, and press the “RESET” button to set all values to start the piece. Finally turn the master volume up (module 3).

When performing, change presets at every rehearsal letter in the score. The volume of the electronics and the instruments must be balanced. The technician can change their outputs (module 2) during the piece as s/he sees fit. Master Volume (module 3) is recommended to be left untouched while performing.
For this kind of “classical” structure “barnished” by noise.

When loud and fast, “constraining” not as tightly “feel”

The violins might have some groups that will be slightly “staccato” sound.ucci use the same sound "thread". Please make the same sound "thread".

This number will have a “ Tender" type of dialogue that will

The clear fast beat is more important than the rhythmic "figures"

Rhythm is important but not as "constraining" as it might "feel".

The violins might have some groups that will be slightly “staccato” sound.ucci use the same sound "thread". Please make the same sound "thread".

If you “miss” a note, DO NOT worry, just enter with confidence.

The clear fast beat is more important than the rhythmic "figures".
*play and repeat the sequence of notes, the fast as you can.*

*noise*

**gliss.**

**[Diagam]**
Don't produce a tone, only air noise.
NO HORIZONTAL MOVEMENT OF THE BOW.

*Mute the strings and bounce the bow like a gettato, but maintain the bounce as long as you can. Re-Attack when needed, but without notice.*