Marc Estibeiro

Displaced Light

For Six Instruments and Live Electronics

Duration: 13’26”

Score at Concert Pitch
Guide to Notation

General marks

s.v. Senza vibrato

ord. Ordinary articulation (cancels previous articulation)

Move gradually from one mode of articulation to another

Tremolo, always played as fast as possible

Trill, always to the indicated note

Crescendo dal niente

Diminuendo al niente

Flute

Harmonic

Whistle tone

Tongue ram

flz. Flutter-tongue

Move gradually from ordinary articulation to flutter-tongue

Unpitched air notes

Move gradually from unpitched air note to ordinary articulation

Unpitched pizzicato

Bass Clarinet in B♭

Slap tongue

Flutter-tongue

Move gradually from ordinary articulation to flutter-tongue

Multiphonic with indicated fingering

Unpitched air notes
**Vibraphone**

- Bowed harmonic
- Bowed note with pedal. Let ring
- The use of the pedal is at the discretion of the performer, except where indicated. The pedal should be used continuously where markings are shown.
- The motor is never used

**Piano**

- Play the indicated note with the left hand and touch the appropriate node on the string with the right hand to produce a harmonic at the indicated pitch
- Gradually mute the string with the right hand
- Hold down a silent chord with the left hand. Glissando over the strings within the indicated range with the right hand
- Hit the strings with the palm of the hand around the indicated pitch
- Pizzicato on string
- Scratch the string with the fingernail, becoming gradually slower
- Rapid glissandi (up and down) over strings with the indicated range

**Violoncello and Double Bass**

- Sul tasto
- Sul ponticello
- Sul tasto, as much as possible
- Sul ponticello, as much as possible
- Normal bow position
- Increase bow pressure to produce noise, then decrease
Stopped harmonic

Gradually touch node to produce harmonic

Trill between stopped note and harmonic node.
Start glissando immediately.
Play last note for full value with no tremolo.

Tremolo between stopped note and harmonic node

Start glissando immediately

Very rapid glissandi. As high as possible

Repeat the gesture until the next event

Col legno battuto. As close to the bridge as possible

Very slow glissando (with tremolo) between indicated pitches. Start glissando immediately
Guide to the Electronics

The electronic part consists of a three-channel granular synthesiser. A broad overview of the software performance environment is shown below.

The level of the electronic part should bebalanced to match the level of the acoustic part as indicated by the dynamics in the score.

A small mixing desk is necessary in order to make minor adjustments to the levels during the performance.

The acoustic instruments should only be amplified only if necessitated by the size of the performance space.

The electronic part requires a computer running Max v. 6 or above (www.cycling74.com), a suitable digital to analogue convertor, a mixing desk and amplification appropriate for the room. The Max patch is available from the composer on request.

Each of the three channels is followed by identical signal processing chains consisting of a delay modulation effect, a pitch shifter and a spectral delay. Each channel carries out real-time granulation of a soundfile. The soundfile is a pre-recorded gesture taken from the acoustic part. These gestures should be recorded before the performance and edited to eliminate silence and discontinuities at the beginning and end of the recording. The recordings should match, as far as possible, the ambience of the room in which the performance will take place.

An example of acoustic gestures used in the electronic part is shown below:

Pre-composed events are triggered manually from the software environment using numbered cues. These are indicated on the score as shown in the example above.

Although the events are pre-composed, all processing takes place in real time and there will be subtle but significant differences between performances.
Guide to Notation (Electronic Part)

A system of graphic notation has been used to indicate both performance parameters and the resulting textures. Examples from system are described below, together with an explanation of abbreviations used.

| GS 8  | GS  | Grain size in milliseconds (small) |
| GS 250 | GS  | Grain size in milliseconds (large) |
| GD 8  | GD  | Grain density. Dense – many grains per second (One grain every 8 milliseconds in example) |
| GD 1000 | GD  | Grain density. Sparse – few grains per second (One grain every 1000 milliseconds in example) |
| PBS 1  | PBS  | Play back speed – time stretching effect. 1 – Normal playback speed 0.5 – Half speed -0.5 – Reverse half speed -1 – Reverse normal playback speed |
| PBS -0.5 | PBS - |  |
| DMod  | Delay Modulation (comb filtering) effect |
| Fq  |  |
| P  | Phase components |
| Win  | Window size |
| Fb  | Feedback |
| Bl  | Balance |
| Pitch -1000 (sempre)  | Constant pitch (Hz) |
| Pitch 0  | Pitch shift (Hz) |
| Pitch 0  | Pitch shift down (Hz) |
| SD 0.2  | Spectral delay effect – small (Balance 0.2 in example) |
| SD 0.6  | Spectral delay effect – large (Balance 0.6 in example) |
| Interpolate between parameters sempre  | No interpolation. Parameter remains constant until next event |
**Instruments**

Flute in C

Bass Clarinet in B♭

Vibraphone (with bow)

Piano

Violoncello

Double bass

Live Electronics

(Computer running Max 6 or higher, audio interface, mixing desk and amplification)
In 1956, the composer Györgi Ligeti was one of 200,000 refugees fleeing from the violent suppression of the Hungarian revolution.

In 2015, large numbers of displaced people are travelling to and through Hungary and other European countries.
Elec. 1

Elec. 2

Elec. 3

Fl.

B. Cl.

Vib.

Pno.

Vc.

Db.
tongue ram (sempre)

whistle tone

norm.
molto s.p.

molto s.p.

pizz.
Bass Clarinet in Bb

Vibraphone

Piano (ord.)

Flute

Bass Clarinet

Vibraphone

Piano

Violin

Double Bass