
Metal & Air (2022)
for flute + electronics
Cárthach Ó Nuanáin

General Remarks

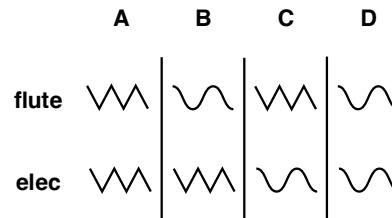
A conversation is formed between the performer and the computer through machine listening and organisation of timbre. Timbre plays a central role in this work, serving as a structural device and as a way of generating material.

Collections of sound samples are loaded into a Max/MSP device that segment the samples by onset times then analyse their spectral, timbral and perceptual characteristics. The device can then listen to live input and select and play the closest matched samples using those timbral fingerprints.

Two instances of the device are loaded with contrasting collections of sounds. The first instance contains percussive, noisy or glitchy sounds. The second instance employs more pitched and sustained material like bowed fiddle and bouzouki.

The piece is divided into 4 sections indicated by the rehearsal marks, each taking roughly 1 minute to perform. The sections themselves are further divided by two with the resulting subsections mirroring each other in some way.

Sections A and C explore the extended technique palette of the flute extensively, while sections B and D use more conventional pitched material. These are combined with the electronics in different combinations indicated in this diagram.



Technical Rider

Computer Hardware:

Mac computer
Sound card 1 in / 2 out

Software:

Ableton Live Suite (open only/trial is fine)
Max for Live with the *cage* and *MuBu* packages installed

Sound:

Microphone/line feed of flute to soundcard.

Flute should have a rich reverberant sound but with clarity and definition.

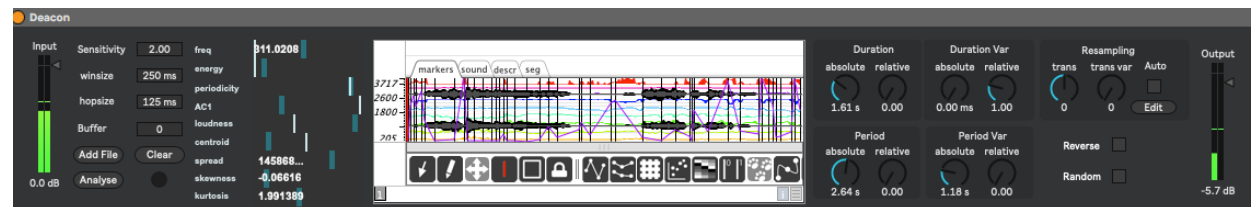
Stage Layout

Not so strict, as long as the performers can see each other.

Electronics Setup and Performance

Open the Ableton Session and load the corpus audio files to the respective Max for Live device (pictured below).

Test with some audio to tweak the gain on the envelope follower so that the devices trigger audio correctly in sync with the input..



Notation Instructions

Use your favourite stopwatch to keep track of time. Timings are not precise but try to indicate somehow to the electronics operator that you are proceeding to the next rehearsal mark.

Anything with a single staff line is very open to interpretation. The electronics are interactive, so if you discover something that works well go with it! Anything with five staff lines should be performed as is in terms of pitch.

Notation Key



Anything sustained or breathy like whistle tones, wind tones etc.



Anything percussive like key noises, slap tongues, tongue rams



Percussive vocalisations using consonant sounds



Singing vocalisations using vowel sounds



Any multiphonics



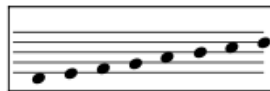
Jet whistle



Anything glissy



Exaggerated vibrato of pitch



Use notes from this pitch set until indicated otherwise

Metal & Air

for flute and electronics

Cárthach Ó Nuanáin

ca. 30"

A1

Flute

Electronics

p *f*

♫ Enable inst 1

ca. 30"

A2

Fl.

Elec.

14

Percussive consonant vocalisations (tak etc.)

Vowel singing (oohs, aahs)

ca. 30"

B1

Fl.

Elec.

28

Use these pitches

rit. trill to single note

oscillate pitch around note

ca. 30"

2

B2

Fl. 40

Elec.

ca. 30"

C1

Fl. 51

Elec.

enable inst 2
 duration = < 100ms
 period = < 10ms
 trans = -1200
 trans var = 0

ca. 30"

C2

Fl. 65

Elec.

ca. 30"

D1

softly and subdued

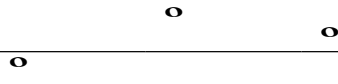
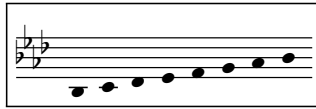
quiet ethereal whistle tones or harmonics

oscillate pitch around note

3

79

Fl.



duration = 2.44s
period = 2.88s
trans var = 1200

Elec.

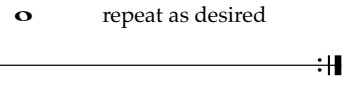
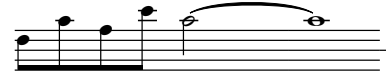
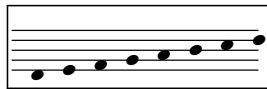
D2

quiet ethereal whistle tones or harmonics

repeat as desired

90

Fl.



Elec.