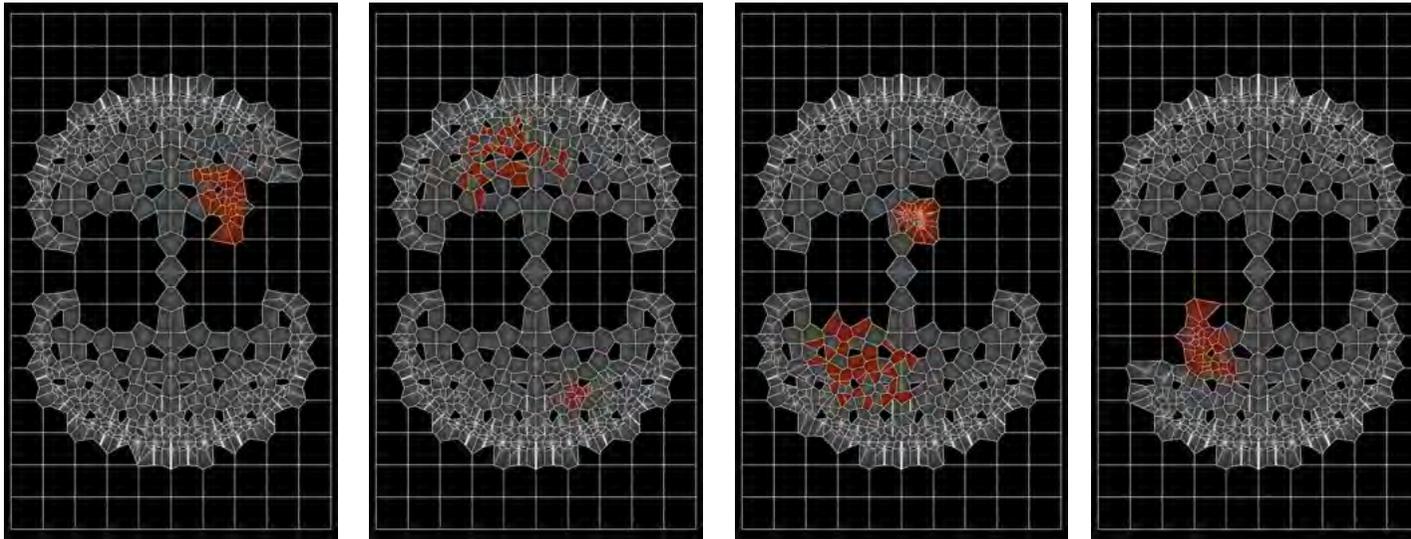


# Anarchy in the Organism – live version

for Eb Clarinet, Live & Algorithmic Sound Projection and Responsive Video



Simeon Nelson – Lead Artist  
Nick Rothwell – Video Coding  
Rob Godman – Music

*For my Dad, who, towards the end of his life, claimed to understand what this was about...*

## Programme Note:

Iteration One – Precursor	- 4'36"
Iteration Two – Fragile	- 2'05"
Iteration Three – Still	- 5'25"
Iteration Four – Redemption	- 2'55"

*Approximate performance duration* - 15'30"

***Anarchy in the Organism*** is part of a Wellcome Trust Artist Residency awarded to Simeon Nelson. The public art version is installed at the University College Hospital Macmillan Cancer Centre, London (April 2012). The work features four simultaneous algorithmic video projections and octophonic 'whispering windows' audio diffusion. Nick Rothwell has created a series of animated Voronoi cell systems with tumours growing amidst the organisms causing systemic collapse. These algorithms are based on venous network geometries supplied by Simon Walker-Samuel, senior research associate at the Centre for Advanced Biomedical Imaging at UCH.

University College Hospital Macmillan Cancer Centre, Capper St, London, WC1E 6AG

<http://www.uclh.org/OurServices/OurHospitals/CC/Pages/Home.aspx>

<http://anarchyintheorganism.tumblr.com/>

[http://www.robgodman.com/RobGodman/Simeon\\_Nelson\\_-\\_Anarchy\\_in\\_the\\_Organism.html](http://www.robgodman.com/RobGodman/Simeon_Nelson_-_Anarchy_in_the_Organism.html)

Simeon Nelson formulated the following research questions:

- Are there underlying patterns that can be discerned in the genesis, growth and metastasis of cancer?
- How does cancer interact with the human organism?
- What properties of growth and development does cancer share with social, cultural and natural properties of growth and development?
- How can these properties patterns be made into comprehensible visual imagery?

The key objectives were:

- Engaging patients, visitors, staff and the general public with the science of cancer and its social, cultural and ethical impact
- producing an art work based on current research into cancer as a complex system
- Contributing to the public understanding of cancer through the art work, public fora, and a publication discussing cancer in a social and cultural context
- Stimulating discussion of cancer as a philosophical, sociological and scientific issue

Central to the concept, is the idea of interruption, interference and disturbance. The music uses a rhythmic technique the composer is naming (somewhat erroneously...) Pulse Time Modulation (PTM) - the idea being that a repeating sound (a pulse) is subject to a constantly changing tempo creating a shifting accelerando/rallentando effect. Where simultaneous multiple PTM's take place, any definitive pulse quickly becomes perceptually complex and/or chaotic.

PTM attempts to mimic the cycles of life - functioning on the macro and microstructure of the work (in a pseudo-fractal fashion). Breathing, tension and relaxation, physical and psychological time all come under the auspices of the technique.

The live version of *Anarchy in the Organism* includes a live clarinettist whose sound is processed and diffused using rhythmic techniques detailed above. The performer provides an additional function of interrupter, interferer and disturber. The audio-feed from the clarinet additionally provides an interaction with the algorithmic video.

## **Anarchy in the Organism - for Eb Clarinet, Live & Algorithmic Sound Projection and Responsive Video**

### **Technical:**

This live version of *Anarchy in the Organism* requires the following equipment:

#### **Audio**

- 8.1 diffusion system (shoebbox formation)
- 8 Channel soundcard with all signals summed to the subwoofer
- Condenser Microphone\*
- Apple Mac Computer running Max5/6 or later with Altiverb convolution reverb (sound projection)\* - Control
- Apple Mac Computer running Max5/6 (clock for the clarinet)\*\* - Slave
- AKAI LPD8 MIDI Controller (other controllers could replace this device if required)

#### **Video**

- Apple Mac Computer with two fast video cards running Field\* - Slave

*\* if the clarinetist is animated with regards their movement during performance, it is recommended that two microphones are used (to the right and left side of the player) with the signals summed to a single channel.*

*\*\* the three computers are networked together over a LAN, with the audio Mac sending control data to the video and clock.*

The microphone is used as a means of capturing sound for live electronics (delays and reverb, including PTM reverb, pitch-changing etc.). It is recommended that a small amount of amplification and room reverberation be used throughout the work in addition to the live treatment (first performance – Altiverb, Gol Stave Wood Chapel, stereo to stereo @ 2m, RT60 1.89"). The will bring the sound of the clarinet into the same space as the other EA material. The nature and amount of amplification and reverberation will vary depending on room and venue.

Reverberation for Iteration 3 – 'Still' is Altiverb, Chartres Notre Dame, stereo omnis @ 19m, RT6012.93"

In addition to the live electronics, some pre-rendered and other (non-live) processed sounds are triggered by the Sound Projectionist (controlled by the AKAI LPD8 and indicated as P1, P2, P3 etc.).

# Anarchy in the Organism – Max Patches



## Notes on Performance

*The clarinet part is transposed (i.e. a written C in the clarinet part will sound an Eb)*

### Timing:

Timings are provided in seconds above the clarinet part. The clock provided for the clarinettist counts the number of seconds only (not minutes/seconds), hence the notation in seconds in the score. The clock will provide a countdown before each Iteration (-4, -3, -2, -1, 0... - with 0 being the start of the Iteration). The Sound Projectionist controls the clock. Pressing the Mac Space Bar starts the Iteration by providing the countdown (-4, -3, -2, -1, 0... - with 0 being the start of the Iteration – this means a 4" delay will be experienced before any audio is heard). Synchronisation points or significant structural moments are shown as dotted bar lines or double bar lines. The Sound Projectionist will follow the Clarinettist, triggering events when required. This means exact synchronisation with the clock is not required by the clarinettist and is provided as a guide. In addition, the Sound Projectionist may change the speed of the clock if required (i.e – pausing the clock or even changing the length of a second...).

### Notation:

♭ - 1/4 tone flat; ♯ - 1/4 tone sharp;  $\sharp\sharp$  - 3/4 tone sharp

Repeated rhythmic cells in Iteration 2 'Fragile' are to be played as fast as possible, without flutter or double/triple tonguing and as quiet as possible whilst maintaining a focused pitch. Each cell (preceded by a comma [,]) is approximately crotchet = 60. Cells notated as smaller notes in Iteration 4 'Redemption' are to be played freely at a tempo 'disturbing' the crotchet = 120 pulse whilst maintaining the approximate note duration.

PTM - *Anarchy in the Organism* uses a rhythmic technique the composer is naming (somewhat erroneously...) Pulse Time Modulation (PTM) - the idea being that a repeating sound (a pulse) is subject to a constantly changing tempo creating a shifting accelerando/rallentando effect. It is most commonly used over a fixed pulse where the slow phased pulsing effects are most clearly heard. The performers should be aware that where PTM is marked in the score, a pulse with changing tempi would occur. Where simultaneous multiple PTM's take place, any definitive pulse will be difficult to ascertain and quickly become perceptually complex and/or chaotic.

'Spastic' – this terminology is taken from Conlon Nancarrow's politically incorrect and rather offensive usage (even at the time Nancarrow adopted it...) in his Player Piano pieces. In simple terms it implies a rhythmic inaccuracy, or to be more pertinent - a rhythmic pattern that disturbs a regular consonant rhythm (a 'limping' rhythm...). In *Anarchy in the Organism* the technique is used regularly and is implied in the clarinet notation where a comma (,) is notated. Spastic rhythms are used extensively in the Sound Projection.

### Notation and control of EA:

The live electronics are notated on the top of the staff with the algorithmic and pre-rendered on the bottom. Changes of patch settings are created with pad presses on the AKAI LPD8 (P4 indicating a single press of Pad 4 etc.). As well as triggering events, audio mixing can also be achieved via the dials of the AKAI LPD8. Dial K1 of the AKAI LPD8 is used to turn the microphone amplification on/off (for live electronics processing). The Return Key of the audio Mac is used to toggle through the different Iteration settings (movements) initialising a restart for each Iteration.

### Video:

The video animation will start automatically from a black screen at the start of each Iteration (the clock providing -4, -3, -2, -1, 0... - with 0 being the start of the Iteration). The conclusion of each Iteration (and corresponding end of video sequence) will result in a black screen. Exact timings are synchronised via the audio laptop (control).

*This live version of Anarchy in the Organism was first performed by Kate Romano, Nick Rothwell and Rob Godman at the John Lill Music Centre, University of Hertfordshire on 15<sup>th</sup> May 2012.*

ANARCHY IN THE ORGANISM - LIVE VERSION

SIMEON NELSON: NICK ROTHWELL: ROB GODMAN

FOR Eb CLARINET, LIVE & ALGORITHMIC SOUND PROJECTION AND RESPONSIVE VIDEO

ITERATION ONE  
'PRECURSOR'  $\bullet = 42$  ( $\bullet = 1.4286''$ ) 23''

Eb CLARINET

[SPACE BAR]

LIVE ELECTRONICS  
EA ALGORITHMIC MATERIALS

MONO DELAY (714ms) - POINT SOURCE (8 SPEAKERS)

VOCAL PULSE (V) (4286ms)

VOCAL PULSE (D) (PTM)

46'' 69''

(69'')

92''

[P2]

DELAY SPEEDS UP (476ms OVER 10'')

CLARINET RANDOM

123'' 138'' 170'' 184'' 215''

$\bullet = 34$

[P3]

DELAY OFF

CLARINET RANDOM 2

PPP DELAY ON

[P4]

DELAY OFF

CT 15 (HARMONIC DRONE ON A)

PPP DELAY ON (714ms)

245'' 26''

DELAY OFF

[P7]

(VIDEO TO BLACK)

ITERATION 1 = 4mins 36''

\* SPACE BAR provides a 4'' countdown before the audio starts. This is shown on the clock as [-4, -3, -2, -1, 0...] with 0 starting the iteration.

21=4-12 GUILDEN MORDEN

ITERATION TWO  
'FRAGILE'

$\bullet = 60$

\*  
pp

EFFECT OFF  
[SPACE BAR]

CLARINET PULSE(D) (190ms & 180ms)  
CLARINET RANDOM 3

[P2]  
PULSE GLISSANDI UP

21" ( $\bullet = 60$ )

mf Sim.

31"

PTM  
[P3]  
PULSES UNISON  
STOCHASTIC CRACKLE

42"  $\bullet = 90$   
legato  
P

[P4]  
RISSET UP  
PULSES OFF  
OFF

63"  $\bullet = 79$  ( $\bullet = 158$ )  
legato  
ppp

(7)  
(16)

(RISSET UP)

(RANDOM 3)

\* As fast as possible, without flutter or double/triple tonguing. As quiet as possible, whilst maintaining a focused pitch. Each cell (preceded by a comma [\*,]) is approximately  $\bullet = 60$ .

76" 83" 97" 111"

[P5] STOCHASTIC CRACKLE 2

[P6] RANDOM 3 FADE OUT

[P7] OFF

CLARINET PULSE (W) PTM

111"  $\bullet = 60$  125"  $\bullet = 42$

[P8] VOCAL PULSE (W) FADE OUT  
RESET FADE OUT

[P1] CLARINET PULSE (D) (130ms & 170ms) GETTING SLOWER

(VIDEO TO BLACK)

BANGOR, N WALES  
23-4-12 GILDEN MORDEN RG

ITERATION 2 = 2mins 05"

ITERATION THREE  
'STILL'

$\text{♩} = 60$        $\text{♩} = 25$        $\text{♩} = 52$        $\text{♩} = 30$        $\text{♩} = 217$

\* LONG REVERB WITH PTM 2 SPEAKER  
 [SPACE BAR]  
 VOCAL PULSE (W) PTM

4 SPEAKER  
 [P2]      [P3]

VOCAL PULSE (D) PTM SPASTIC      Non-SPASTIC  
 (OFF)

$\text{♩} = 217$        $\text{♩} = 271$        $\text{♩} = 325$

(no dim.)  
 LONG REVERB OFF

[P4]      [P5]      [P1]

VOCAL PULSE OFF

CLARINET SAMPLE (KATE 10b)  
 VOCAL SAMPLE (PEROTIN 30)  
 (VIDEO TO BLACK)

ITERATION 3 = 5mins 25"

\* This reverb is in addition to the amplification and reverb used throughout. See technical sheet.

BANGOR, N. WALES  
22-4-12 GILDEN MORDEN

RG

ITERATION FOUR  
'REDEMPTION'

$\text{♩} = 120$

The first system of handwritten musical notation consists of a treble clef staff and a control staff. The treble staff contains a sequence of notes with various accidentals (sharps, naturals, flats) and dynamic markings (f, sf). The control staff includes three horizontal lines: the top line is labeled 'PITCH SHIFT RANDOM (-5th, 3rd)' with a double-headed arrow; the middle line is labeled '[SPACE BAR]'; and the bottom line is labeled 'PULSED BASS CL. (PTM)' with a double-headed arrow. A vertical bar line is present at approximately the 12-second mark, with '12"' written above it.

The second system of handwritten musical notation continues the treble staff and control staff from the first system. The treble staff contains more notes with accidentals and dynamics. The control staff has the same three lines as the first system. A vertical bar line is present at approximately the 23-second mark, with '23"' written above it. Another vertical bar line is present at approximately the 35-second mark, with '35"' written above it.

The third system of handwritten musical notation continues the treble staff and control staff. The treble staff contains notes with accidentals and dynamics, including 'f p', 'f p', and 'Sim'. The control staff has the same three lines as the first system. A vertical bar line is present at approximately the 47-second mark, with '47"' written above it. Below the control staff, the text '[P2] RISE UP' is written with a double-headed arrow pointing to the right.

\* Smaller notes should be played freely at a tempo 'disturbing' the  $\text{♩} = 120$  whilst maintaining an approximate quaver duration.  
\*\* As before but maintaining an approximate semiquaver duration. The comma (?) duration should be slightly longer than before.

58" 87" 107"

$\text{♩} = 34$

PITCH SHIFT (-5TH)

[P3] RISSET DOWN CLARINET RANDOM

CRACKLE (♩=92)

117"  $\text{♩} = 92$  (SYNC. WITH EA)

PITCH SHIFT OFF

[P5]

PULSED BASS CLAR. (NON PTM)

128" MAINTAIN  $\text{♩} = 92$

RISSET FADE TO NOTHING

CRACKLE FADE TO NOTHING

[P6] (♩=104)

146"  $\bullet = 104$

*mf* *mf* *sim.*

[P7]

PULSED BASS CLAR. (SYNC TO  $\bullet = 104$ )

155"

[P8]

CRACKLE FADE TO NOTHING

ALL PULSES NON PTM

175"

[P1]

ALL OFF

(VIDEO TO BLACK)

ITERATION 4 - 2mins 55"

30-4-12 GULDEN MORDEN RG