OLATUNJI ENTPACKT

for four midi wind controllers and midi percussionist

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programme note

Absence. Erasure. Fidelity. Presence.

Many specialists, myself included, place great emphasis on sound quality at the instrumental performance, acoustic, synthesis, recording, processing, mixing, and mastering level. A well-recorded live performance is a thing of beauty in itself. But the fragility of audio, especially in the context of complex sound textures and timbres, foregrounds signal-to-noise ratio as an aesthetic criterion rather than a mere electro-technical challenge. Another way of looking at this is to ask how dependent the musical experience is upon achieving exactly the right playing technique, the right balance, the right tempo, etc., etc.?

Some types of music are fragile whereas others are extremely robust. A Sciarrino *Capriccio* is delicate. Without the requisite virtuosity and musical experience the work will simply not sound; the structures will remain unheard. A Bach *Invention*, on the other hand, is extremely robust: you can hardly destroy these no matter which instrument(s) you play them on and in what tempo or dynamic; even beginners can realise the musical structures to a degree convincing enough for recognition at least, if not exactly enjoyment. But this ultimately says nothing about the aesthetic importance of one piece versus another, of course.

John Coltrane's music is in one particular way similar to Bach's: even the appalling recording quality of his last release, *The Olatunji Concert*, from April 23rd, 1967, cannot diminish the crushing power of this music. To hear it is to be mown down by the assault of thousands of distorted notes—distorted by recording technology as well as by the performance techniques, as saxophone multiphonics, in the hands of Coltrane or Pharoah Saunders, are a form of distortion: they make spectral hyperbole out of an already muscular, often strident instrument.

olatunji entpackt proposes a different form of distortion. With the extreme panning of the recording's percussion and saxophone it is possible to isolate the different sound qualities of the blistering attacks and play them on digital instruments. The Coltrane recording is thus dismantled via digital editing techniques then re-presented in the form of short samples mapped in various ways to four wind controllers and electronic drum pads. Just as the saxophonists of the EW-4 quartet will set aside their saxophones, turning instead to the sonically void MIDI Wind Controller, the percussionist will abandon striking sounding objects for equally and arbitrarily mappable MIDI Drum Pads. Each musician will explore the recording of the *Olatunji Concert*, as well as other samples and a new, very noisy synthesis technique of mine based on translating photographs of the players into sounding waveforms. The robustness, even inadequacy of MIDI will be juxtaposed against the fragility of recorded and performed musical gesture, nuanced digital synthesis and sound processing.

olatunji entpackt was written for EW-4 und João Carlos Pacheco.

programmtext

Abwesenheit. Auslöschung. Treue. Präsenz.

Viele Fachleute, mich eingeschlossen, legen großen Wert auf die Klangqualität auf der Ebene der Instrumentalaufführung, der Akustik, der Synthese, der Aufnahme, der Bearbeitung, des Mixens und des Masterings. Eine gut aufgenommene Live-Performance ist an sich schon eine schöne Sache. Aber die Fragilität von Audio, insbesondere im Kontext komplexer Klangtexturen und Klangfarben, stellt das Signal-Rausch-Verhältnis als ästhetisches Kriterium in den Vordergrund und nicht als rein elektrotechnische Herausforderung. Eine andere Sichtweise ist die Frage, wie sehr das musikalische Erlebnis von der richtigen Spieltechnik, der richtigen Balance, dem richtigen Tempo usw. abhängt.

Einige Arten von Musik sind zerbrechlich, während andere extrem robust sind. Ein *Capriccio* von Sciarrino ist zerbrechlich. Ohne die nötige Virtuosität und musikalische Erfahrung wird das Werk einfach nicht klingen; die Strukturen werden ungehört bleiben. Eine Bach-Invention hingegen ist äußerst robust: Man kann sie kaum zerstören, egal auf welchem Instrument und in welchem Tempo oder welcher Dynamik man sie spielt; selbst Anfänger können die musikalischen Strukturen so überzeugend umsetzen, dass man sie zumindest wiedererkennt, wenn auch nicht gerade genießt. Aber das sagt natürlich letztlich nichts über die ästhetische Bedeutung des einen Stücks gegenüber dem anderen aus.

John Coltranes Musik ähnelt in einer Hinsicht der von Bach: Selbst die miserable Aufnahmequalität seiner letzten Veröffentlichung, *The Olatunji Concert* vom 23. April 1967, kann die erdrückende Kraft dieser Musik nicht schmälern. Sie zu hören bedeutet, von Tausenden verzerrter Noten niedergemäht zu werden - verzerrt durch die Aufnahmetechnik ebenso wie durch die Aufführungspraxis, denn Saxophon-Multiphonics in den Händen von Coltrane oder Pharoah Saunders sind eine Form der Verzerrung: Sie machen aus einem ohnehin schon muskulösen, oft kreischenden Instrument eine spektrale Hyperbel.

olatunji entpackt schlägt eine andere Form der Verzerrung vor. Durch das extreme Panning des Schlagzeugs und des Saxophons in der Aufnahme ist es möglich, die verschiedenen Klangqualitäten der glühenden Attacken zu isolieren und sie auf digitale Instrumente zu übertragen. Die Coltrane-Aufnahme wird auf diese Weise durch digitale Bearbeitungs- und Notensplitting-Erkennungs- und Zerteilungstechniken zerlegt und dann in Form von kurzen Samples, die auf verschiedene Weise auf vier Bläser und elektronische Drum-Pads gemappt werden, neu präsentiert. So wie die Saxophonisten des EW-4-Quartetts ihre Saxophone beiseite legen und sich stattdessen den stattdessen den klanglich leeren MIDI Wind Controllern zuwenden, werden die Schlagzeuger ihre markanten Klangobjekte für ebenso willkürlich zuzuordnende MIDI Drum Pads aufgeben. Jeder Musiker wird die Aufnahme des *Olatunji-Konzerts* sowie andere Samples und eine neue, sehr geräuschhafte Synthesetechnik von mir - die auf der Übersetzung von Fotos der Spieler in Wellenformen basiert ist - erkunden. Die Robustheit, ja sogar die Unzulänglichkeit von MIDI wird der Fragilität der aufgenommenen und gespielten musikalischen Gesten, der nuancierten digitalen Synthese und der Klangverarbeitung gegenübergestellt.

olatunji entpackt wurde für EW-4 und João Carlos Pacheco geschrieben.

1 performance notes
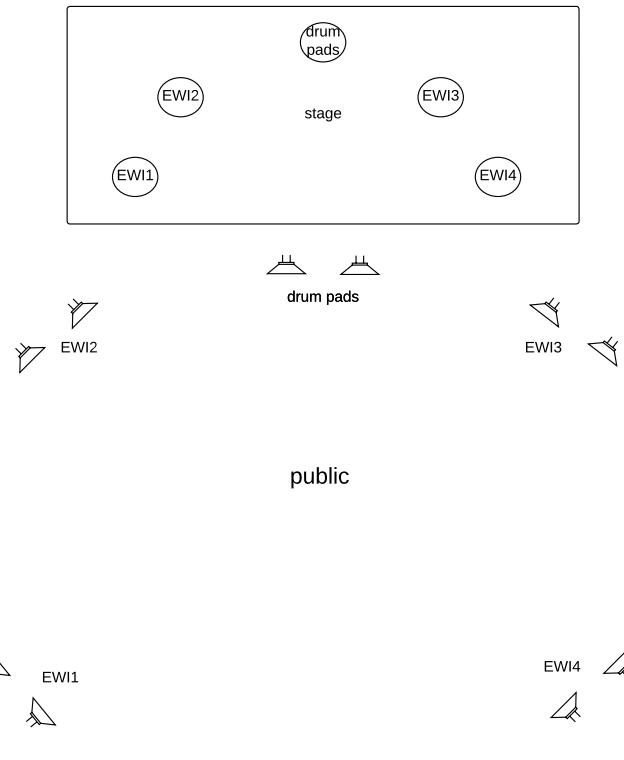
1.1 instrumentation

- Four EWI 5000 MIDI wind controllers
- MIDI percussion:
    - 6 main MIDI pads (e.g. Alesis Sample Pad Pro)
    - 4 secondary MIDI pads(e.g. Alesis Sample Pad)
    - MIDI kick pedal
    - note that these should be daisy-chained and received by MaxMSP as one MIDI device
    - note also that although the kick pedal is indeed used to trigger kick/bass drum samples, these change and vary in software on each attack
- see also **Max/MSP** below for further details, particular with regards to MIDI pad note mapping

1.2 stage setting and audio routing

- the players should stand as indicated in the image above
- each instrument generates stereo sound output
- as such one loudspeaker setup would involve 5 stereo pairs, as the image above shows
- however an immersive speaker environment is preferred, with speakers overhead as well as around the audience

- this would use the ambisonics mapping in the ew4main Max/MSP patch
- all signals would be placed a little higher than ground level, with perhaps the MC's introductory words (sound file) from above only (see *Max/MSP* notes below for more details)
- EWI1 and 4 could be placed higher than the others and move from the rear towards the middle.

- quadrophonic, octophonic in a circle, or 5.0 (as quad plus a speaker front centre) are also possible, in which case the signals should be mapped as close as possible to the positions in the image

- in each case a subwoofer is essential

1.3   mockup / simulation

- scores such as this are much more a form of *tablature* than a representation of how the piece will *sound*
  - e.g. see the note below with regards to microtones and chromatic scales
- it is therefore initially very important to listen to the mockup sound file in order to get a feel for the piece
- this was created by playback from *Dorico* (notation software) sending MIDI data to the MaxMSP performance patches
- as such it is fairly lifeless and rigid, even if it does convey the sonic essence of the piece at the expense of rhythmic and expressive potential, amongst other things
- please note that:
  - no slur data is captured/rendered
  - some notes go missing (especially fast notes)
  - the amplitude data may be more or less extreme than desired, and breath/bite data, which the human players will use extensively, is entirely missing
  - *Dorico* sends no pitch bend information so the whole score is rendered without quarter tones
    * though the *auto-microtones* are rendered
    * see section on microtones below
  - the mockup may become a little out-of-date as the software synthesis or score is refined
- nevertheless, I trust it will be useful as an approach

1.4   beginning

- the room is silent, the gain is down to zero on the percussion
- percussion secondary pad 3 (notated on A5) is used to map speed of repetition to the *freq offset* parameter of the img2snd synthesis
  - so the percussion strikes control a continuous but varying noisy synthesis rather than something percussive
  - and the faster he hits, the higher the frequency becomes
- the percussionist starts hitting the secondary pad as indicated in bar 1
  - using the indicated rhythms (approximately) to achieve the indicated *freq offset* value in Hertz indicated in the score (again, approximately),
    * the current frequency is displayed in the *img2snd aux* part of the max patch
  - there is usually a short hold of the *freq offset* value (created by continuing to strike at the same speed) in order to establish a pitch and let it wobble around a little before then accelerating to the next value
  - when the striking is interrupted to e.g. strike the sticks together above the head, then the *freq offset* will drop again but this will only be audible once striking resumes: try to reestablish the previous offset before continuing with the acceleration/increase
- at first only the quiet acoustic noise of stick hitting pad is audible
- then the fader slowly brings up the img2snd synthesis

- this becomes quite loud before the MC's introductory words are triggered
- this is also quite loud and should be clearly audible over the synthesis
  - drop the level of the synthesis if necessary; this can be quite sudden and extreme, like with a ducking compressor on the radio
  - or raise the outputs of *MaxMSP* channels 33&34 (see *Max/MSP* notes below)
  - note that the overall amplitude of the synthesis is controlled by the (averaged) velocity of the strikes, so some balance can be struck by the percussionist too

1.5   score notes

- the rehearsal numbers should be useful in the normal way but they also indicate the preset number required for the given section
  - rehearsal numbers such as **5A** are merely for rehearsal/orientation purposes and do not imply a preset change
- presets are changed either in the software or, in the peformance, by ascending through them by playing special notes as indicated:
  - triangle up noteheads indicate the note to play to implement a preset change (increment)
  - on the EWIs this is always B0 (lowest B)
    * the *interval* button accomplishes this also
    * this is the lowest of the two clear plastic small buttons for the right hand
  - to decrement the preset, play B-flat 0
    * the *hold* button accomplishes this also
  - if any MIDI notes get *stuck*, play D1 (lowest D) or hit the 'panic' button on the Max/MSP patch
- the current preset is always visible on the max patch and should of course reflect the current rehearsal number
- tempi vary considerably in the piece and most often suddenly, even mid-phrase
  - this is an essential characteristic of the piece and should be highlighted
  - even if there are deviations from the indicated tempi, the *difference* when they change should always be clear (often sudden, even incongruous)
- the tempo of the last section, from 19C (but also 8 and 8A), makes the 16th notes pretty much impossible—it's MIDI madness, but hopefully fun
  - just do your best to keep speed (at the expense of pitch accuracy) and focus particularly on the voice exchanges
- the letter H followed by a horizontal line shows the extent of a *Hauptstimme*, i.e. this is the main line and should be clearly audible for the extent of the line

1.6   microtones

- quarter tones are notated in the score and can be realised by touching the upper and lower EWI pitch-bend plates with the thumb
  - this will raise or lower, respectively, the fingered pitch by 50 cents
  - i.e. the actual pitch-bend value sent by the plate is ignored
- you can always see the cent transposition applied to the last note, as long as the img2snd module is in use
- in certain sections, the preset will toggle on *auto-microtones*
- in this case fixed microtonal tuning based on the date of the *Olatunji Concert* (23 04 19 67 plus multiples of these) are applied to the 12 notes of the chromatic scale
  - note that B naturals will be raised by 201 cents so these sound as a C#
- so although you read and play lots of chromatic scales, these are not what you hear
- note that the pitch bend plates override the *auto-microtones*

1.7 Max/MSP

1.7.1 required software

- Max/MSP version 8 or higher

- please install via Max's Package Manager:

  - HISS Tools Impulse Response Toolkit

  - if using *ew4main.maxpat* (see below), you'll need ICST Ambisonics

- needed from elsewhere

  - the free sforzando sampler

1.8 hardware

- you can perform this piece either

  1. from one central computer, with all midi devices connecting to it and ambisonics handling the diffusion for an arbitrary number of loudspeakers (4+)

  2. or each player can run the software on a separate computer by loading their patch only and not running the diffusion patch *ew4main*

1. routing

   - the patches are set up so that they run in one of two scenarios:

     (a) central computer mode: this diffuses audio via 3rd order ambisonics to as many loudspeakers as are available.
         - in this case open *ew4-all.maxpat*

     (b) individual player mode: this sends stereo out to a mixing desk, where routing is done and levels are controlled
         - in this case, each player will open their named patch (e.g. *ewi4-sascha.maxpat*) and make sure to click the toggle at the bottom right to send signal to the dac~, saving the patch thereafter
         - of course it's possible to change the players (so Sascha plays Andrea's voice, for example) but the naming is retained as it reflects the person's photograph that is used in the img2snd synthesis module.

   - at the beginning of the piece, the percussionst triggers the *MC's speech* sound file

     - if this needs to be louder, the engineer can raise the gain of *Max/MSP's* output channels 33&34
     - these are output in addition to the percussionist's main outputs, so the *MC's speech* is on two stereo pairs simultaneously
       * and they pass directly out, i.e. not through the sound file gain object
     - of course *Max/MSP* channels 33&34 can simply be turned off if this is not necessary
     - conversely, if only 33&34 should be used for the *MC's speech* then the sound file gain can be turned down completely in the patch

   - similarly, if desired in section 1, the synthesis signal can be routed to *Max/MSP* outputs 35&36, so that the levels of the kick can be controlled separately from the synth.

     - note that this signal is pre-reverb so might need reverb from the mixing desk, if available and desirable, given the performance acoustic

2. EWIs

   - bite is used for expressive purposes

     - it controls a form of phase modulation that brightens the sound and allows it to cut through the mix
     - its use is not indicated in the score, rather it is up to the player to choose when this is necessary and/or musically useful/expressive

   - breath is mapped to amplitude in much the same way that velocity sets initial amplitude

- stopping blowing stops audio output
- NB the EWI must therefore send breath data on controller number 2
  * volume data is not used
- pitch bend plates are used to play quarter tones, as described in the *score notes*
  - note that for safety, pressing a pitch bend plate while holding a note will not change the held pitch

1.8.1 Max/MSP settings

- sampling rate: 48k
- set the 5 MIDI input devices a,b,c,d,e to EWIs 1-4 (a-d) and percussion (e)
  - in *Max/MSP's* Options menu under MIDI Setup, set the letter from the dropdown menu under the *Abbrev* column
  - please do this even if using individual player mode
- NB the sampler files will almost certainly need to be reloaded
  - open the *Max/MSP* patches *drums, tddc, ogunde-slices, bari-clicks*, and *loop-samples-by-centroid*
    * all to be found in the folder max/patches/samplers/
  - in each patch, double click the vst~ object and reload the similarly named .sfz file in the *sforzando* sampler
    * NB there is one .sfz file in each of the sample folders under snd/samples/
    * e.g. for drums.maxpat load into *sforzando* snd/samples/drums/drums.sfz
    * by clicking *instrument* (top left of *sforzando*), then import
  - save the max patch
  - this is a one-time thing: the next time you load the patches, all the samples should be found

1.8.2 MIDI percussion pad notes

- the midi notes arriving from the EWIs will directly trigger the correct samples/synthesis but the notes for the MIDI pads given in the score are of course arbitrary and thus will need to be mapped
  - this is accomplished via a 'coll' (text) file found in data/perc-ntrans.txt
  - the incoming midi note is followed by a comma and then the note which should replace this
  - so e.g. notated pitches F5 (77) and G5 (79) are used to decrement and increment the current preset
  - as this is accomplished on the EWIs using the lowest midi notes 22 and 23, the percussion notes map to these
  - D4 (62) is used to notate the kick so if this arrives from the MIDI pads on a different MIDI note, an entry will need to be made for this, i.e. whatever comes in from the kick needs to map to 62
  - the six main pads are notated from F4-D5 (65, 67, 69, 71, 72, and 74) so whatever notes the pads actually send will need to map to these notes also
  - note also that further MIDI note processing is done with the Javascript file code/perc.js
    * here is where the kicks are varied (samples changed) and the main pads use different *banks* of samples depending on the *ntrans 'switch'* value in the ew4voice.maxpat
    * it's also where the notes F4-D5 are translated to MIDI notes 42-47 + a bank offset
  - the four secondary pads are notated on F5-B5
    * F5 = preset down
    * G5 = preset up
    * A5 = *freq offset* controller, via repetition speed
    * B5 = sound file trigger on/off

1.8.3 using the software

- before the performance, press reset either on the main patch or in each of the voice patches

- if in central computer mode, keep an eye on the Max Console as sometimes ambimonitor warns that speakers.xml has no readable data

  - if this happens, click the 'reload speakers' button until only the filename is printed, without warning

- note that although most interface objects such as sampler gates and levels or whether *breath–>lowpass* is engaged are stored in separate presets, the *breath* and *lowpass curves* along with convolution settings and *post gain* are global and stored when the patch is saved

olatunji entpackt

michael edwards 2023

...accel. to 3050...

♩ = 150 **meno mosso** 1B

≈
accelerate to maximum (5587Hz)
up until tempo change

12B

(ben marcato
e staccato)

19A

falling apart