Title
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Distill for orchestra and electric guitar

By

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Doctor of Philosophy

in
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University of California, Berkeley

Committee in charge:

Professor Edmund Campion, Chair
Professor Ken Ueno
Professor Cindy Cox

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Abstract

Distill for orchestra and electric guitar

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Distill is a musical composition for orchestra and electric guitar. The work marshals the power of the electric guitar to create a huge variety of tone color and texture ranging from intense noise to the purest harmony, a power that is also shared by the symphony orchestra. These two sonic forces interact with each other in a slowly evolving soundscape based on an underlying chord progression. Over the course of the piece this chord progression becomes progressively simpler until eventually it is distilled to its barest essence, that of a single note and its overtones.
DISTILL
for orchestra and electric guitar

Instrumentation

Piccolo
Flute
2 Oboes
Clarinet in B-flat
Bass Clarinet in B-flat (doubling on Clarinet in B-flat)
Bassoon
Contrabassoon (doubling on Bassoon)
4 Horns in F
2 Trumpets in C
2 Trombones
Tuba
Timpani (+ 2 large suspended cymbals)
Percussion 1 (large tam-tam)
Percussion 2 (medium and small suspended cymbals)
Percussion 3 (vibraphone, large tam-tam, bass drum)
Harp
Piano
Electric Guitar
Strings
DISTILL for orchestra and electric guitar
by Dan VanHassel

Guitar Tuning
The low E string is to be tuned down to E-flat. The guitar is notated at pitch in the score.

Guitar Effects
The guitar effects in this piece can be produced in two ways. The first (and preferred) method is through a combination of pedals and the computer program Max/MSP, in which different sound processing has been pre-programmed. This Max patch is available for download from the composer. The guitarist would need to provide: an e-bow, volume pedal, Digitech “Whammy Pedal”, expression pedal (for wah-wah effect), distortion pedal (or amp with distortion), and a computer with audio interface.

The second method is to reproduce the effects of the Max patch through the use of hardware effects and pedals. To this end I have documented as accurately as possible the parameters of the guitar processing. (See diagram on last page)

In the guitar part, each change in the processing is notated with a cue number that corresponds to the appropriate setting in the Max patch. Each setting is documented below.

Signal Chain: Guitar \rightarrow Volume Pedal \rightarrow Digitech "Whammy Pedal" \rightarrow Distortion 1 \rightarrow Distortion 2 \rightarrow Wah-Wah \rightarrow Delay 1 \rightarrow Delay 2 \rightarrow Amp

Diffusion & Mixing
At least two large full-range speakers should be set up on the stage for diffusion of the guitar. Mix should be set so that the guitar and orchestra are roughly equivalent in terms of volume.

Equipment/Settings
Guitar Tone: Use bridge pickup. Tone should be bright but not overly harsh.

E-bow: A handheld electronic bow for guitar. Uses a magnet to allow for infinite sustain without a sharp attack.

Volume Pedal: \[ \text{use volume pedal to crescendo and decrescendo from nothing to maximum level and back to nothing. Level should be set to balance with orchestra with volume pedal at maximum level (in order to maximize distortion effect).} \]

Digitech "Whammy Pedal": This pedal is used for transposition, as well as a specific color of noise that it produces when overloaded. For this reason, all efforts should be made to use this specific brand of pedal. The guitarist switches settings between transposing “up two octaves” and “down one octave” as indicated in the score. If this pedal is not available, a
different transposition effect can be substituted either through a different hardware device or Max/MSP.

**Distortion 1&2:** Distortion 1 should be *very* heavy and fuzzy. Distortion 2 should be heavy as well, but not as extreme as the first. It should have a clearer, less saturated sound.

**Wah-Wah:** A dynamic low pass filter used for slow frequency sweeps. This effect is programmed in the Max patch and can be implemented with an expression pedal. A commercial wah-wah pedal could also be substituted.

+ = closed  o = open

**Delay 1&2:** Echo effect. Two delays are used to create a thick cloud of sound without a clear pulse. This effect is programmed in the Max patch, but could also be reproduced using hardware delay units.

**Max/MSP Cue Settings**

**Cue 1 (m. 1-181)**

- **Wah-Wah:** Frequency range: 500-5000 Hz. Q: 1.8
- **Delays:** Delay 1 is a variable speed delay, continuously looping a ramp from 80-3000 ms in 1 sec. and back to 80 ms in 1 sec. Feedback: 80%
- Delay 2 is a simple delay set at: 360 ms and 70% feedback.
- **Distortion:** Distortion 1 is ON. Distortion 2 OFF

**Cue 2 (m. 203-243)**

- **Wah-Wah:** Frequency range: 500-3500 Hz. Q: 1.8
- **Delays:** Delay 1 is OFF
- Delay 2: 360 ms and 75% feedback.
- **Distortion:** Distortion 1 is OFF. Distortion 2 is ON

**Cue 3 (m. 248-283)**

Same as Cue 1

**Cue 4 (m. 288-364)**

- **Wah-Wah:** Frequency range: 500-3500 Hz. Q: 1.8,
- **Delays:** Delay 1 ON (same settings as Cue 1)
- Delay 2: 360 ms and 89% feedback.
- **Distortion:** Distortion 1 & 2 are OFF.

**Cue 5 (m. 407-467)**

Same as Cue 1
*repeat pattern as fast as possible for the duration indicated, all on one breath.
percussion swallows up the orchestra...

wooden/chi (up 2 oct.)
221

\begin{align*}
\text{Tbn. 1&2} & \\
\text{Tpt. 1&2} & \\
\text{Hn. 3&4} & \\
\text{Perc. 2} & \\
\text{Vln. 2} & \\
\text{Vln. 1} & \\
\text{Timp.} & \\
\text{B. Cl.} & \\
\text{Cbsn.} & \\
\text{Ob. 1} & \\
\text{Pno.} & \\
\text{Tba.} & \\
\text{Vla.} & \\
\text{Hp.} & \\
\text{Vc.} & \\
\end{align*}
like a faint resonance behind percussion & guitar

Like a faint resonance behind percussion & guitar
like a faint echo of a melody, struggling to be heard
very short and even, light

very short and even, light

51
Tbn. 1&2
Tpt. 1&2
Hn. 3&4
Hn. 1&2
Ob. 1
Picc.
Cl. 2
Cl. 1
Vc.

56
417

W

417

W
...becoming very noisy and scratchy, and then back again.

Touch different harmonics on string, allowing them to be activated by the cello point in A.55.
Max/MSP Guitar Processing Diagrams
Delay 1

Input from Wah-Wah

p gate

tapin~ 2000

tapout~ 0 0

matrix~ 2 1 0.

~ 0.5 Feedback (80%)

Output to Delay 2

Delay 2

Input from Delay 1

p gate

tapin~ 2000

tapout~ 360

~ 0.7 Feedback (70%)

Delay Time (360 ms)

Output to Amp