

# *Whitewater*

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Solo Woodwind + live electronics(Max/MSP)  
(any woodwind capable of producing sustained multiphonics)

Duration 6 min + (indeterminate)

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## Programme Note

*Whitewater* is an open-form piece for improvising saxophonist and Max/MSP. The performer is limited to playing only multiphonics (and whichever of each multiphonic's individual pitches are playable) as well as having a set of guiding principles on style and how to interact with the computer part. Max/MSP analyses the multiphonics and plays back representations of them, while using cellular automata to both modify the existing multiphonics and to 'breed' new ones; the computer part is constantly modifying its sounds in a subtle manner. The player and computer thus participate in a limited feedback loop with no top-down form, the form is an emergent property of the moment-to-moment interactions between computer and player. The piece has a recommended minimum duration of 6 minutes and no maximum duration.

## Technical Requirements

- Computer running MAX/Msp 4.5 or higher.
- Microphone for instrument: preferably clip-on or contact microphone.
  - Microphone is for analysis only, not reproduction of the instrumental sound, high-quality/high-sensitivity condenser mics are best avoided in favour of dynamic mics.
- Amplifier and two speakers. The volume level of the patch needs to be high enough for both computer and instrument to sound as one: though at times the player will use sharply attacked notes to stand out from the computer sound.

## Performance Instructions

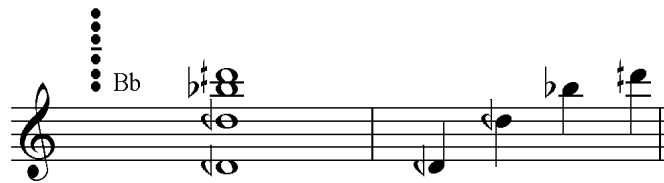
A repertoire of multiphonics (six at least but the more the merrier) is required. Each of these multiphonics should be as stable and as manipulable as possible: unstable ones should be avoided, less manipulable ones can be included but should be in the minority. Aim for the following qualities in a multiphonic:

- I. That it can be confidently attacked both suddenly/*forte* or *niente* (not simultaneously of course)

- II. That individual pitches within the multiphonic (or subsets of the whole, consisting of more than one pitch but perceptually distinct from the whole) can be isolated and played alone.
- III. That it's possible to move smoothly from a single pitch to the whole and/or vice versa within the same fingering: or where there is no perceptual 'break' in the multiphonic's continuance.

There is no score for *Whitewater*, the player is expected to improvise within these given principles and limitations of style: an example score is provided here as an appendix.

- I. The player may only use long sustained multiphonics and whatever single pitches can be isolated from the multiphonic. In this alto sax example these four pitches can all be played singly or together (with this fingering).



- i. Player may begin an event with a single pitch and extend to the full multiphonic or vice versa.
- ii. The computer will play back slightly altered versions of what you play into it. Play with the tension generated by the slight mistunings between player and computer.
- II. Multiphonics may be attacked sharply or faded into. Try to avoid the middle ground: strong attacks or gentle fades (the computer needs to differentiate between them to know how to respond).
  - i. Most of the time, try to blend with the computer part. Occasionally the performer may play more to the foreground and deliberately unblend by using sharp attacks, a louder dynamic and more gestural playing.
  - ii. *Whitewater's* overall structure is created from the tension alternating of long sections where the computer and performer are one, with short sections where they separate.
- III. Each multiphonic played by the performer will be stored by the computer and played back (with slight alterations). The player should then attempt to create beating patterns between single pitches (or thinned out versions of the multiphonic) and the computer representations. The performer may also use slow (the slower the

better) pitch-bends and *portamenti* to achieve this – see the example score below.

- i. The performer is not obliged to do this for every multiphonic but it is an important part of the soundworld.
- IV. The computer will note the performer's attack (sharp or faded-in), average volume and rate of harmonic change, all these are used in a primitive manner to inform the computer's own performance. Don't expect the computer to change it's behaviour quickly, but the more a particular behaviour occurs, the more likely the computer will adapt to it.
- i. The default soundworld of the piece is slow and meditative but also dense and rich, the performer can alter this and the computer will follow. The computer may also initiate a loud or 'faster' section itself, the player may choose to go with this or not.
- V. *Whitewater* has no set duration. A minimum of 6-mins is recommended but the piece may go on for as long as the performer sees fit: note that the computer may also stop the performance if it 'decides' that the possibilities are exhausted.

## Appendix – Example Score

This is an example section from a score showing the multiphonics used and the different attacks. Time indications have been largely left to the player, multiphonics are held as long as is comfortable and pauses between them as generous as the player sees fit to pace. The dynamic 'B' indicates a volume where the player and the computer blend together as one sound object.

### Whitewater

The musical score for 'Whitewater' is presented in five systems of a single treble clef staff. The notation includes various multiphonic symbols, dynamic markings, and performance instructions.

- System 1 (Measures 1-4):** Measure 1 starts with a dynamic *f* and a multiphonic symbol (2 dots, C). A 2" time bracket follows. Measure 2 has a dynamic *f* and a multiphonic symbol (3 dots, C), with a 3" time bracket. Measure 3 features a dynamic *B\** and a multiphonic symbol (4 dots, C). Measure 4 has a dynamic *B* and a multiphonic symbol (5 dots, C). A note: "\*Dynamic which blends with tape part".
- System 2 (Measures 5-8):** Measure 5 has a dynamic *f* and a multiphonic symbol (6 dots, C). Measure 6 has a dynamic *B* and a multiphonic symbol (7 dots, C). Measure 7 has a dynamic *f* and a multiphonic symbol (8 dots, C). Measure 8 has a dynamic *B* and a multiphonic symbol (9 dots, C). A note: "8" above the staff.
- System 3 (Measures 9-12):** Measure 9 has a dynamic *f* and a multiphonic symbol (10 dots, C). Measure 10 has a dynamic *B* and a multiphonic symbol (11 dots, C). Measure 11 has a dynamic *B* and a multiphonic symbol (12 dots, C). Measure 12 has a dynamic *B* and a multiphonic symbol (13 dots, Bb). A note: "8" above the staff.
- System 4 (Measures 13-16):** Measure 13 has a dynamic *B* and a multiphonic symbol (14 dots, C). Measure 14 has a dynamic *f* and a multiphonic symbol (15 dots, C), with a 3" time bracket. Measure 15 has a dynamic *f* and a multiphonic symbol (16 dots, C), with a 3" time bracket. Measure 16 has a dynamic *p* and a multiphonic symbol (17 dots, Bb). A note: "1" above the staff and "[sudden stop]" below.
- System 5 (Measures 17-20):** Measure 17 has a dynamic *B* and a multiphonic symbol (18 dots, C). Measure 18 has a dynamic *B* and a multiphonic symbol (19 dots, C). Measure 19 has a dynamic *f* and a multiphonic symbol (20 dots, bis Eb). Measure 20 has a dynamic *f* and a multiphonic symbol (21 dots, Eb). A note: "6" above the staff.