### Anemoi - Experiences & Practices [31 Jan 2020]

This file contains additional information for the performance of *Anemoi*. The text score contains the essential information to perform this work. Feel free to ignore, re-use or get inspired by this additional information.

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# General clarifications

a) Technically you need a portable mixing panel at the performance place to ensure that the microphone inputs are balanced (have phantom power) and both performers hear each other through their headphones. Practically, this also means that both performers are attached to each other through cables! I have used the following material successfully in performances: Behringer XENYX 1002B as portable mixing panel, (very sensitive) DPA 4060 microphones in the tube instrument, 2 AKG C1000 microphones as stereo instrument (unscrew the metal wind capsule if there isn't a lot of wind.

b) Concerning the audio equipment at the audience locations, there are two solutions: 1) The audience is indoor, behind windows, looking at the outdoor performers. In this case a good PA system with speakers and two extra long XLR cables (50m at least) are necessary, leading from the performes to the audience location. I don't advice to use a wireless connection because the original windy, noisy sound from the performers will be degraded by these wireless senders/receivers. 2) The audience is also outdoors (for example, at 50 or 100 meters distance from the performers). Based on my experience, a normal PA system at the audience location will result in serious feedback problems because of the sensitive microphones in the long tube. The performers also hear the feedback arise too late, because they are at such a large distance from the speakers and audience location. A nice solution is to look for a 'silent disco' system (one-toall wireless sender & multiple wireless headphones with receivers for the audience). Optionally, the audience can walk around at the audience location. Two extra long XLR cables (50m at least) are also needed, leading from the performers to the wireless ('silent disco') sender at the audience location.

c) I have made the tube instrument from standard material for rain drainage systems (pipes and accessoires). To avoid residual noises from the plastic tube instrument – with the sensitive microphone –, I wrap rubber (from bicycle tires) around the tube. See Illustrations 1, 2 & 3.

d) Choose a performance method - probably also depending on the architectural characteristics of the windy performance place - to distribute the tube and stereo instrument among the two performers. Optionally, you can double the tube instrument, i.e. make and use two tube instruments. This makes the performance visually richer but it risks to flatten the sound and make it more uniform: doubling the noisy wind and the tube drone masks small, rich, individual details. Therefor, I adapt the panning and filtering in the portable mixing panel at the performance place to ensure that there is one 'master' tube instrument (louder and with a central panning) and one 'shadow' instrument (softer, with less bass and ground notes). With the FX send of the mixer, I pan this shadow tube to the left and right extremes of the stereo panning.

e) These are some simple ideas to use the tube and stereo instrument as a percussion or wind instruments. Use them sparsely:

- make one sound hole in the tube and blow, suck, click, speak near to this hole
- tap or beat on different parts of the tube instrument

- open and close one side of the tube with your hand (wearing gloves is a good idea...)
- etc.

Perhaps you can also slightly re-arrange the performance place to ensure that more wind noises become audible (through trees, plants, objects, etc.).



Illustration 1: Tube instrument



Illustration 2: Tube Instrument



Illustration 3: Materials for Tube Instrument f) At this moment (November 2019) I consider the first two performances as 'early versions' of Anemoi: in the first performance in Antwerp we only used the tube instrument, I hadn't come up with the idea of the stereo instrument yet. In the second performance (in Ghent) both the tube and stereo instruments were used but there was a serious feedback problem. Therefore, I now choose the solution of the 'silent disco

#### Live electronics in the stereo instrument

system' if the audience is located outdoors.

The Pure Data patch exploits the stereophonic character of the wind: the air flows in 'waves' from one place to another and the flowing speed is usually - in moderate weather conditions - a lot slower than the speed of sound. As the score says, the sound from both microphones (of the stereo instrument) goes to a Pd patch which simply detects the amplitude of the wind in each microphone. In fact, the microphones are mainly used as kind of anemometer. Next, the amplitude of each microphone is mapped to amplitude and frequency ranges of a sine wave. This results in two sine waves, reflecting the strength of the original wind at two places (where the two microphones are located). To add some more variation to the two sine waves, I add a bit of filtered noise and a small amount of the pitch-shifted microphone wind noise, only present at peaks of the wind strength.

The Pd patch can be downloaded on my site: www.hansroels.be/pd-patch-anemoicopy-2019.zip The main patch is anemoi-wind-amp-to-pitch-1.pd, the other files are abstractions and part of my library Abunch.

### Description and concept

The following text is copied from a document to promote the *Anemoi* performance with concert organizers. First, it gives a short description of the performance and next, it explains the concept and motivation.

"Standing at a windy location two performers carry two kind of microphone instruments: long tubes with a very sensitive microphone in each tube and a stereo couple of microphones, connected to a laptop with a live electronics patch. By changing the direction of the long tubes, these tubes catch the sound of the wind and environmental sounds. They also create filter effects by picking up the reflection of wind and environmental sounds against walls, buildings and objects. The stereo microphone instrument maps the strength of the wind to sine waves in the laptop patch. This reveals the highly 'stereophonic' character of the wind when it hits our outer ears (for example, when we walk into a headwind); the wind needs more time – compared to the faster sound waves – to go from one ear to another, resulting in a stereophonic, noisy sound in our ears.

Additionally, the performers sparsely play the tube and stereo instrument as a music instrument or flute (by blowing, breathing, beating, speaking, etc.).

Because of the required windy (i.e. high or open) location, the performance is also very visual: the audience sees the performers searching and catching the wind.

The performance points at the omnipresence of **a natural force** – the wind – in our human activities and experiences. Even in between streets and buildings, there are micro-streams of air and micro-climates. Moreover, above the human houses and buildings, at higher altitudes, the wind goes on blowing. As an often unnoticed layer, it forms and shapes our daily life.

The Anemoi performance reveals the changing, living wind as it flows and hits against ears, tubes, trees and buildings. The tube and stereo instruments capture the wind as it moves through daily activities and influences our hearing, sounding and living. The wind is an invisible percussionist, beating, blowing and playing on ears, bodies and objects. For a short period of time Anemoi tries to capture this ghostly musician..."

### Performance in de Singel (Antwerp, Belgium) – 17 December 2018

This performance was part of the *Experiments are More Refreshing than New Socks* Research Festival of the Conservatory in Antwerp. The two performers were Ruben Orio and myself. We stood on the roof of the Singel, the audience was watching through the windows of another building of the Singel. The picture in Illustration 4 was taken from the indoor location where the audience and PA with speakers were located (the indoor lights are reflecting in the sky and clouds at the right of the photo).



Illustration 4: Performance in de Singel, Antwerp This is a promotion video clip about this performance and location:

www.hansroels.be/Anemoi-clip3.mp4

This is a live video recording of the performance, combined with audio recordings of rehearsals in the Singel and at my own place.

The audio at this performance was not of sufficient quality because of problems with the wireless system. Although a professional wireless (Sennheiser) system with an extra antenna and booster on the receiver was used, it added lots of noises and cracks, probably because the distance (100 meters) was too large and the glass of the window was too thick. This experience – plus previous and later tests with other wireless systems – convinced me to use a simple, long XLR cable in future performances.

## Performance in DOK (Ghent, Belgium) - 23 August 2019

This performance took place in the old harbour of Ghent (Handelsdok). Ruben Orio and myself played standing on an old harbour crane while the audience was watching and listening in DOK (DOK was also the concert organizer). Next to the crane was a canal (the docks), thus it was an open space with chance to capture the wind. The picture in Illustration 5 was taken about 10 meters closer to the crane, compared to the location of the audience.



*Illustration 5: performance in Ghent (old harbour, Handelsdok)* 

There are two promotion video clips about this performance on my site:

www.hansroels.be/Anemoi-clip1.mp4

www.hansroels.be/Anemoi-clip2.mp4

They combine the live video recording (with a Samsung tablet) and a live audio recording (the tape out from the mixing panel at the audience location, leading to a

Roland R-26 recorder). There was a serious feedback problem between the DAP 4060 microphones in the tube instrument and the speakers at the audience location. I hadn't expected this beforehand: I thought that the distance of approx. 80 meters and an audience location very close to the speakers (and thus putting the speakers softer) would prevent feedback from rising, but I was wrong. Moreover, because of our headphones and large distance, we as performers heard the feedback crescendo with a delay. The only – not ideal – solution was to perform very carefully (not point the tube at the audience) and use the equalizer on the audience mixer. Sadly the mid frequency range had to be softened heavily through this equalizing, which is audible in the video clips.

After the performance, I started to think about a solution for this feedback problem (when the audience is located outdoors). And therefor – at the beginning of this document – I advice to use a 'silent disco' system.

There wasn't much wind on the day of the performance: the wind speed was between 5 an 10 km/hour (2 Beaufort). To make sure that the stereo instrument could pickup this soft wind, we unscrewed the microphone heads of the AKG C1000 microphones. The microphone itself was thus open, 'naked' (as on the right side in Illustration 6) and more sensitive to wind noises.



*Illustration 6: open C1000 microphone* 

## Exploration and rehearsals

a) The phenomena that we exploited in the performance and improvisation were quite different, depending on location, situation and weather conditions. At the first performance on the roof of de Singel, we were surrounded (at one side) by concrete walls and buildings, the wind was blowing against the walls, flowing around corners of the building, creating micro-streams of air in several directions. By slowly moving the tube instrument along these walls and over a passage or alley, we discovered the different noises ('ruis'), filtering and reflection effects of the wind and environmental sounds bouncing against the wall. The environmental sounds mainly consisted of cars and traffic drones (because the building is surrounded by busy roads). There were almost no 'natural' sounds (except for the wind), people passing by or talking. The car sounds were clearly coming from two sides/directions (where the roads are). While the first performance took place in winter, the second one was in summer, which also meant that you could feel the wind against your arms and body. As a performer, you could rely on other senses than listening. For example, there were nearby boat flags, which gave us a good indication of the rising and falling wind speed. As the crane is (architecturally) an open structure, it was much more difficult to find and hear reflecting wind and other sounds against this metal 'building'. But compared to the first performance, we had more freedom to move in all directions to find the wind. Moreover, the environmental sounds – the soundscape – were more diverse and coming from different directions. By pointing at bicycles moving under the crane or at construction workers on another side of the crane, you could pick up these sounds, filtered by the tube.

b) Selecting the exact performance spot and creating a set-up there, requires preparation. In the first performance, this meant finding an indoor space from which the audience could clearly see the roof. Next, we limited the performance space and did not use all the visible, roof space because the wireless system did not function on the full roof space. That's why we ended up using a small space of 10 by 2 meter on the roof. The two performers could not move far away from each other, they were tied to each other: Hans carried a portable mixer in a rucksack and thus there were cables from the microphones (in the tubes), to the headphones (one for each) and to the two wireless senders. Thus, we explored all the wind sounds and acoustic phenomena on this small roof space of 10 by 2 meter.

At the performance in the old harbour of Ghent, we needed more time to design a performance space on the crane. Initially we tested playing while standing on two different levels/platforms of the crane, which would be visually nicer but this turned out to be a bad idea: 1) to hear each other we needed to connect the headphones from one level to another (which limited our possible movements and visual communication with each other) 2) on one level there was less wind (behind a cabin) 3) some stairs were too risky to climb during a performance. Thus, we ended up playing on the lowest level, which was also the largest platform and the most open to the wind. The (battery-powered) mixer, laptop, soundcard, etc. were fixed on this level, we didn't carry them. Compared to the first performance, we could move more easily.

In general, the criteria to select and design a performance place are: wind availability, safety, ensemble playing (the two performers hearing each other), visibility for the audience and available space (to move and perform).

c) Performers create a simple (improvisation) structure based on the performance location, strength of the wind, personal choices, etc. For example, these were the agreements for the performance in de Singel (Antwerp):

- Both performers start with one end of the tube pressed against a cushion or blanket on the ground (this creates a muted, filtered effect) and slowly move the tubes upwards.
- 2. The performance develops through a gradual movement from one side of the roof to the other side, ten meters further (both performers are attached to each other with many cables, they more or less move together; one performer carries the mixing panel & two wireless senders in a rucksack). At the start location there are more possibilities to play with walls, corners and alleys against which the wind was bouncing, bending, reflecting.
- The end of the performance returned to pressing the tubes against cushions, now at the opposite side (behind a wall, protected from the wind).

These were the performance agreements that we made for the second performance of Anemoi, in Ghent (DOK):

- One performer starts with one end of the tube pressed against a cushion, he slowly lifts the tube instrument and searches for the wind; this performer plays the tube instrument throughout the whole performance (except at the end, see further).
- 2. Performer two plays different instruments and also controls the mixing panel. He starts by playing the stereo instrument while performer 1 continues with the tube instrument.
- 3. Performer two now uses the tube instrument. First, as a music instrument by blowing, tapping, etc. Next, by catching the wind together with performer 1.
- 4. In the end both performers leave the tube and stereo instruments at a fixed position as a kind of installation –, disappear and let the wind & sounds continue autonomously.