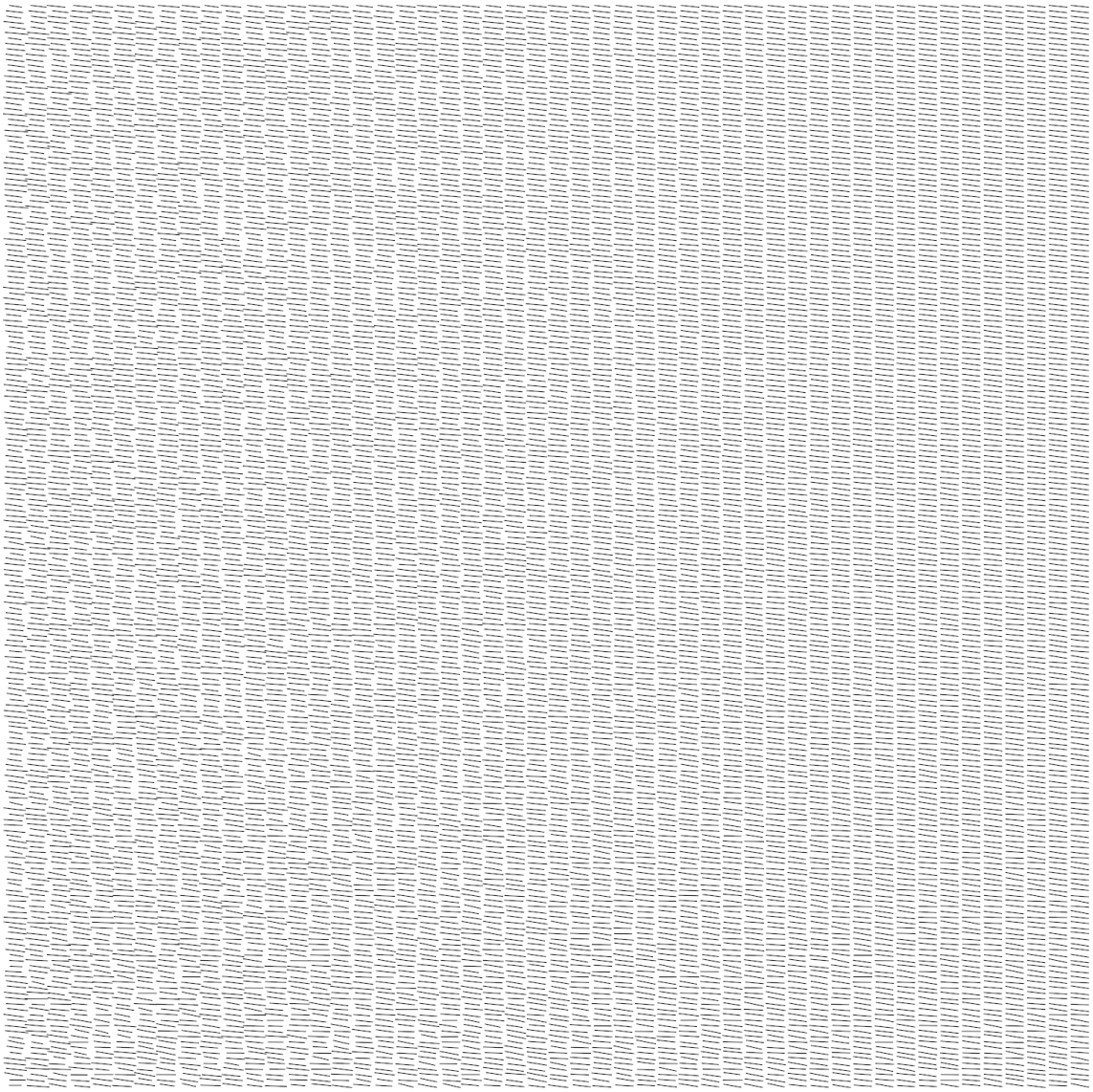

Waves

On exploring diversity of complexity over time.

The aim of the Wave-project is to explore boundaries of a musically interpretable sounding space that is both entertaining as well as resistant against boredom and irritation.

This text might be more difficult to digest than the work itself, so maybe you listen first before reading on.

TL;DR

Five similar layers of interfering waves, overlapping in registers for time, dynamic and pitch. Chopped into pieces and served into audible chunks to create a pleasant listening experience.

Background

Starting with a single note, any note, on any musical instrument at hand. How will it take the listener to feel the need to listen to another of the same event. After repeating that same note, how long will it take before you'd like to hear a different version of that note. How different should it be? This leads to the question as to what makes a note a note. What criteria are necessary for a note to become a note.
As Albert Einstein apparently said, one has to describe things as simple as possible, but not simpler.
Being lazy by default, my aim is to create a (simple) algorithm that could generate instructions for a machine that can push the keys of a real sounding piano. This setup reduces the amount of variables to a great extent. Only discrete pitches within the given range of a piano. The dynamics and articulation are also restricted to the properties of that instrument. When replacing a human piano player by a machine, there is no longer a need to practice and explain a score. A machine does exactly what you tell it to do. What you tell however, might not necessarily be what you mean. So one has to be very precise as to when, how hard and which keys need to be pressed. Unlike a human player the machine has no implicit knowledge of how to play a piano. It reduces the challenge to formulate what you mean into what is needed for it to get played.

While trying to do as little as possible and therefore focussing on the essential only, My goal is refinement of simplicity. That takes a lot of effort, unfortunately.
As composer Kjell Samkopf says: "It takes time to listen."
It takes time to pay attention. It is time well spent however.

As usual there are some issues that can unfold in various ways.
As human beings we tend towards recognizing structures in the information we perceive. For example we hear what we think we see. This could be an advantage. Giving a hint into a suggestion of possible meaning will help the listener just enough to fill in missing pieces.
Providing just enough complexity and ambiguity will allow for multiple views from different perspectives. The algorithm should at least generate output that I like to listen to. I'm the intended audience of one myself.
The one question I ask myself is: "*where is the point in time that boredom and irritation take over from listening?*"
That point in time might be different for different people, given their different point of view. There might be similarities too though.
When digging more and more into details of properties of certain aspects of structures, the more and more interesting things might become. The longer and longer one can listen to smaller and smaller variations.

The ability to predict an outcome to a greater extent, makes it to me more prone to boredom. However, if no prediction can be made as what to expect next, similar boredom will occur.
Therefore I need a context that will sound familiar and still leaves room for surprise. A sufficiently suitable method is to look back in time. Given enough correlation you get a sense of familiarity, if it fits the context. Even though one can not predict the next note, one can instantly tell that the note just played fits well enough into the structure that was audible so far.

Layering is another aspect contributing to doubt and ambiguity. More of the same, yet different. To keep it simple, merely stacking five similar lines will in someway add complexity. Five layers seem to be a threshold. From that number onwards it becomes more difficult to tell each line apart.

By definition, a property of periodicity will definitively help predicting what will come next. Having multiple layers of a different but fixed tempo, gives complexity, but they might still be easy to unravel. The kind of moire patterns that will occur, can be seen and classified instantly. If nothing else happens, it will eventually lead to boredom.
Therefore I use non-fixed, fluid or gradient timing. Pulses that speed up and slow down within overlapping domains. The result will sound familiar (every pulse is close enough to its predecessor) yet it is difficult to keep track of more than three layers at the time. Each event in a layer has its own delay in expectancy to the next event based on the previous occurrence. That way no repeating moire patterns will occur anytime soon.
It turns out to be that the same holds for both dynamics as well as pitch. Each layer has its own sense of direction due to its underlying periodicity. As those waves themselves are modulated, the fluid timing will also provide enough uncertainty to allow for accurate prediction as to what will happen next.

Diversity in changes, both small and large, further enhances the ability to combine results in a more fluid way. Some layers can be rather active, while other are more slow. Some can focus on a higher pitch register, while other remain low.
We tend to interpret impressions on the fly, the listener will combine events at hand into suitable chunks to digest.
Differences and similarities set things apart, but at the same time unite them.
As the time base is fluid, these properties will vary constantly. To paraphrase visual artist Peter Struycken: “Nature is beautiful, but a painting after nature is always more beautiful, because it combines concept and image.”
A rich and diverse pool of ambiguity provides space for multiple points of view and a nutritious source for reflection.

Keeping the flow

To avoid monotony it is important to variate. There are two basic states in the structure: one where you do hear sound and one where you don’t.
To me music is mostly about perceiving silent moments. In this context silence doesn’t mean absence of sound. Much like a fence turning a field into a meadow, I need sound to surround silence. I don’t create silence, it will reveil itself by placing sounds at a remote distance. No silence without sound. Silence to me is perceived distance towards the sounds around it. The greater the distance and the longer time span observed, the more silent it becomes. One silence is worth a thousand sounds.

The most challenging aspect of the project appears to be the balancing of silent moments over time. In short and long pauses. They make the structure breath.
Short pauses make the space more transparent. Longer pauses open up the space, but making them too long, the work will fall apart.

My main focus is on getting a pattern of silent spaces. A pattern that itself also follows rules to avoid boredom. Similar events in different contexts help to experience a sense of diversity. Fluid timing helps to both raise and reduce tension, towards and away from 'the silent islands'.

Malcolm Goldstein describes his listening experience: "The music unfolds like an improviser engaged in the process of discovery. The music doesn't 'go' anywhere. It just is, as it is. No intention other than to be in process unfolding for the listener. I would wish all improvisers to play like this."

Easy does it

In the end, the algorithm behind the Wave-project is little more than fifteen sine waves, sampled and chopped into chunks that are fed into the five monophonic layers of pitch, dynamics and duration.
Tweaking the parameters as to make the listening going, is left as an exercise...

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