

## **Fever Dreams**

### **MY AIMS**

“Fever dreams” is an art installation that attempts to sonically represent fever dreaming. Inspired by Refik Anadol who creates artwork such as “Machine Hallucinations”. My aim was to successfully sonify data taken from the “CAP Sleep Database” (physioNet, 2012), that tracks the sleep cycles of 108 participants, by using synthesis techniques and effects such as granular, reverb and chorus. My intention is to make the listener uncomfortable and as if the seed(sample used for the granular synth) is a recent memory that has been manipulated due to the fever. The deeper the sleep, the more overwhelming it sounds.

### **DATA PROCESSING IN JAVASCRIPT**

The data is processed using the Max object “js” that takes an external clock as its input. The participants sleep data is made up from 3 variables: how long the subject has been asleep, stage of sleep and the length of time the subject remains in this stage. These values are placed into arrays and then various functions that iterate through them, using for loops to output the sleep variables in relation to the time on the external clock. Following this, the data is using to automate variables such as grain size, reverb delays and chorus depth. The js object is included in the presentation patch if the user wishes to read.

### **GRANULAR SYNTH**

The granular synth is made in gen~ using the codebox object. It takes multiple external parameters:

Density  
Pitch  
Spray  
Stereo Spread  
Spread  
Position  
Grain Size.

Using the scale object, these values are mapped accordingly with my interpretation of the sound of fever dreams. They are often loud and deafening and often include snippets of conversations and music which I feel is very representative of granular synthesis. A line object is used so that when the sleep cycle is turned off, the values slowly decrease as if the user is waking up.

### **CHORUS**

The chorus contains the parameters:

Feedback  
Time(ms)  
Random Signal Rate  
Depth  
Dry/wet

These parameters are mapped accordingly with my sonic intentions and the dry/wet control is mapped in correlation with the granular synth and not the 2nd dream cycle(explained below)

### **REVERB**

The reverb is a Schroeder reverb that's modifiable parameters are:

Size  
Delay Time 1  
Delay Time 2  
Delay Time 3

The size is mapped so that as the main granular synth becomes denser, the reverb decreases as a really dense reverb would make it harder to identify the grains. The delay times are the

values within the reverb which are hard to hear but make a slight difference and create a delay effect in addition to the reverb

### **FFT**

The FFT is a simple patch that minimises clicks generated from the changing reverb times. If the speed of the main sleep cycle(the synth controller) is too fast, clicks are very loud frequent, so if this happens, the threshold decreases so less clicks can be heard.

### **USER INTERACTION**

Presets are provided, but I strongly suggest loading your own disorder and using the toggle to start the dream cycle. The disorder selector determines which person the data is processed from and will all result in different values that can be interpreted as wave shapes. Dream Speed is a dial that increases and slows down how fast the sleep data is outputted. For instance, if set at the minimum 1000, this is the actual way the person recorded is dreaming and the parameters will slowly rise and fall depending on the disorder. At the maximum, the 10 minute cycle is repeated every second and becomes more like an LFO(this is demonstrated in preset 3 as the insomniac drifts in and out of sleep).

At the top of the patch, the user has a live gain to adjust the volume and an EZDAC~ to stop/start audio processing. The user can also select replace and load their own "dream seed". This is the sample that is processed by the granular synth and it represents the content the user has consumed on the day of the dream. Snippets of this sample are what the user will hear(wav and aif are preferred).

The user has 3 dream cycles they can start. They are all mapped to the synthesis technique on the right hand side(other than size of reverb and dry/wet of the chorus). These can be independently sped up and slowed down and are on their own clock. The user cannot reset the sleep cycle from the beginning as I want the full cycle to run. If the user wants to reach a certain time in the clock, they can increase the speed and slow it down where they wish to continue the dream cycle.

### **TO DO**

1. Select presentation mode
2. Turn on EZDAC at the top of the patch
3. Load a sample or use the sample provided that preferably has a short silence at the beginning
4. Set the output volume at the bottom of the patch
5. Select a sleep disorder and turn on each sleep cycle with the large toggles.
6. Experiment with other presets and your own samples.

### **Notes:**

1. The sample loaded is a ukelele. The other sample included in the zip file has talking at the beginning which is effective for creating the fever dream effect(Red hot mama - funkadelic).
2. Bruxism(teeth-grinding) and REM behavioural disorder were the only participants to reach REM sleep between 00.17 - 00.27am so do not be alarmed if time spent in DEEP/REM sleep is not changing if these disorders are not selected
3. The user can manipulate values within the effects if no disorder is selected.
4. (Wave one) means that the first disorder is affecting these parameters(as stated in the documentation above)

**References:** physioNet (2012). *CAP Sleep Database v1.0.0*. [online] [physionet.org](https://physionet.org/content/capslpdb/1.0.0/). Available at: <https://physionet.org/content/capslpdb/1.0.0/>.

