

# drumThing

Chris Saunders

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[www.boxel.co.uk/category/sound-practice](http://www.boxel.co.uk/category/sound-practice)

[chris@ohdear.me.uk](mailto:chris@ohdear.me.uk)

## ABSTRACT

This paper describes the process and outcome of the development of the drumThing. Although this was a group project as I worked with Jamie Taylor, this just documents the project from my perspective.

## Keywords

Drum, live sound, experimental music

## 1. INTRODUCTION

Following on from the previous project where I manipulated a live audio feed with a self-constructed instrument called the delayStick in tandem with MAX/MSP, I was keen to continue the idea of using a live feed. With Jamie using her drum kit as an input device, we decided to work together to create a tool that would extend the use of her kit with the delayStick being an integral part of that tool, now referred to as the drumThing.

Although we wanted to manipulate the sounds of the drums and cymbals, we also wanted the drumThing to enable the drummer to play parts of the kit together that they would not normally be able to do. Such as playing the floor tom whilst also playing the hi-hat as well as producing drum-related sounds that a normal drum kit would not normally be able to do, such as playing a cymbal crash backwards. We hoped to achieve this by the drummer playing and looping pre-recorded samples as well as playing samples that would be recorded on the fly by the drummer whilst they were playing. In essence, as well as playing the kit, the drummer would also be able to play the drumThing. From the beginning it was decided that there would be no electronic drumming in order to maintain the organic sound of the kit.



Figure 1. Jamie's drum kit.

## 2. Compositional Process

As the purpose of the project was to extend the drum kit, it was important that the drums not only provided the audio input but also controlled the flow of the audio within the program. To

accomplish that we used the bonk~ object. Although we also initially considered including the fiddle~ object, the figures that came from it fluctuated too much for what we were hoping to achieve. We divided the program into 4 main areas; capture live recording, playback the live recorded audio, playback pre-recorded samples and the manipulation of the output via the delayStick. This made the development and experimental processes easier to manage.

We first experimented with getting values from the bonk~ and fiddle~ objects. Jamie discovered that she had quite a bit of control over the values generated by hitting the drums and cymbals with different forces and in different parts. This was a useful discovery as it meant that she could then “play” the drumThing as if it was a piece of her kit. By doing this, we were able to start and stop the pre-recorded samples. We next experimented with recording and playing samples on the fly. This took quite a while to overcome with a lot of deconstructing of the help patches in MAX/MSP and any examples that we could find. Once this was achieved, we then had MAX patches for each of the 4 main areas which we put into sub patches of our main patch. Due to our experimentation, we already had a fairly strong idea of the sort of drumming that worked best so rehearsing.

In parallel with the above work, I made a second delayStick. This was to act either as backup or as an additional aid with which to distort the samples.



Figure 2. Shot from one of our rehearsals.

## 3. Related works

Rick Allen of Def Leppard uses a mix of samples which he controls by using a custom-built drum kit. Soren Holme Hansen of the University of Copenhagen and Alexander Refsum Jensenius of the University of Oslo made The Drum Pants by putting sensors and control switches into a pair of trousers allowing the wearer to play a virtual drum kit by hitting their thighs and waist with their hands.

### 3.1 Technical Design

As the purpose of the project was to extend the drum kit, it was important that the drums not only provided the audio input but also controlled the flow of the audio within the program. As stated above, we accomplished that by using the bonk~ object having rejected using the fiddle~ object due to the figures from it fluctuating too much. The MAX patch was subdivided into 4 parts; capture live recording, playback the live recorded audio, playback pre-recorded sound and the manipulation of the output via the delayStick. Also as stated above, this made the development and experimental processes much easier to manage. We also decided to go with just the one delayStick because a second one was not adding anything to the overall sound.

The audio was captured directly into a Windows laptop using two drum microphones borrowed from the University of Plymouth. The resultant output was then played back via an amplifier connected to the audio out socket on the laptop.

### 3.2 Sound Design

We recorded some short drum fills and cymbals for the pre-recorded audio. Although it would have been easier and quicker to use samples from online collections, we had already made a conscious decision that any sound we made had to be generated solely from the drum kit. To make it easier to control, we restricted the number of samples we could record on the fly to four and the number of pre-recorded samples to five. However, during our rehearsals it became apparent to us that the pre-recorded samples were not actually adding anything to the piece as a whole. Whilst from a technical point of view it was interesting to play a cymbal backwards or have some 4-4 beat kick in and then slowed down, generally it was out of context and did not seem to fit in so we decided to drop them and just use the on-the-fly recordings. Not only did this improve the quality of the sound, it also made the controlling of the MAX patch easier.

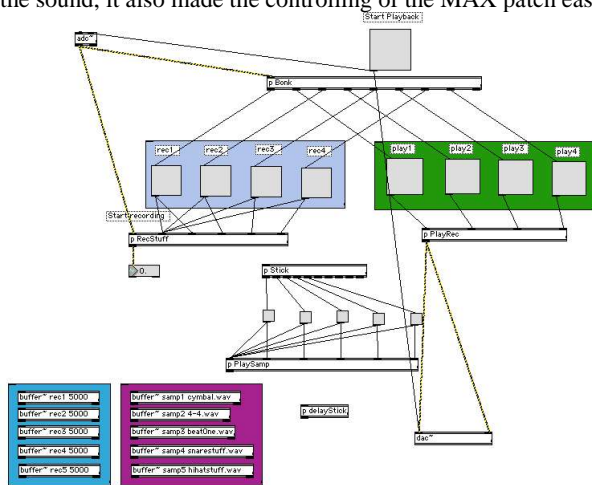


Figure 3. Screen shot of drumThing MAX patch.

### 4. Conclusion

Overall, we are pleased with the drumThing. With the drummer having the ability to play it, the patch has become an extension of the drum kit which is what we were hoping to achieve. Although it now does less than originally intended, the decision to drop the pre-recorded samples was an artistic one instead of one due to technical ability. A short video of a performance is available for viewing at <http://www.boxel.co.uk/sound-practice/drumthing-performance/>.

### 5. ACKNOWLEDGMENTS

Our thanks to Dan Livingstone for suggesting the pairing and to Benji Rogers for all of his help in setting up the amplifier, arranging access to room 212 and for helping with getting the drum kit onto the campus. Bonk~ and fiddle~ were originally developed by Miller Puckette and ported to MSP by Ted Apel and David Zicarelli. The Windows versions we used were ported by Olaf Matthes.

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