

shreds

Gerard Roma
School of Computer Science
Leeds Trinity University
g.roma@leedstrinity.ac.uk

Anna Xambó
Music, Technology and Innovation – Institute for
Sonic Creativity (MTI²)
De Montfort University
anna.xambo@dmu.ac.uk

ABSTRACT

shreds is a collaborative live coding performance by electronic music duo Pulso (Gerard Roma and Anna Xambó). In this performance, the duo will use a self-built live-coding environment in JavaScript that shows two code editors, one for each performer. The two performers will manipulate short sound samples in sync using a highly constrained live coding language. The language maps to different parameters of the sample player, resulting in generative industrial patterns.

1. DESCRIPTION

This project is a follow-up of 2^n , a project started in 2012 by the electronic music duo Pulso (Gerard Roma and Anna Xambó). The project used a highly constrained environment written in SuperCollider by the first author and was inspired by the *ixi lang* [1] SuperCollider environment. The software has been recreated by the two authors using the Web Audio API and the CodeMirror text editor.¹

The music is based on a small collection of samples, which are mapped to letters of the alphabet. The samples were obtained by recording a paper shredder. Letters are combined to form patterns, enclosed in square brackets. Each pattern is produced by one line in the editor (Figure 1). Like paper shreds, patterns seem to contain traces of a known language, but the new combinations do not seem to make sense.

The language explores the use of diacritics and letter case to produce different variations of the same sound through envelopes and amplitude. For example, the letter ‘à’ is mapped to the same sound as ‘a’ but with a decaying envelope. Global modifiers (outside the brackets) allow control of tempo (relative to the global tempo), sample rate, and volume for each pattern.

The setup consists of two laptops, each running the same web application showing the two code editors (one per performer). Each performer works in one editor and gets the code of the other performer in the second editor. Each line in the editor corresponds to a pattern that is played by a sequencer and a sampler. The sequencers are started and

¹<https://codemirror.net>



Licensed under a Creative Commons Attribution 4.0 International License (CC BY 4.0). **Attribution:** owner/author(s).

Web Audio Conference WAC-2022, December 6–8, 2022, Cannes, France.

© 2022 Copyright held by the owner/author(s).

stopped using keyboard shortcuts. All sequencers are synchronised using a global scheduler based on the ‘tale of two clocks’ method [2]. Both the contents of the editors and the playing commands are synchronised among performers using Socket.IO,² so that both laptops are playing the same patterns at any given time. In the performance, one of the laptops is projected and connected to the PA.

2. DOCUMENTATION

The piece and software are under development. An initial performance has been presented online at the International Conference on Live Interfaces 2022.³ Original material from the earlier 2^n can be found at <https://soundcloud.com/pulso-2-n>.

3. TECHNICAL REQUIREMENTS

This performance is conceived to be delivered on-site, although it can also be delivered online.

The following are the tech requirements for the on-site performance:

- One stereo output line, balanced jacks or XLR.
- Table space (ideally two small tables of approx. 70x100 cm for a face to face setup) for equipment with two chairs.
- At least three power sockets.
- Wi-Fi Internet access for the two performers.
- Projector (with HDMI or VGA connection) and screen.

4. AUTHOR BIOS

Gerard Roma releases and performs experimental electronic and computer music under different aliases. His work includes live coding, corpus-based music and participatory performance, often chasing some fragile balance between minimalism and chaos.

<https://g-roma.github.io>

Anna Xambó is a Senior Lecturer in Music and Audio Technology at De Montfort University and an experimental electronic music producer. Her research and practice

²<https://socket.io>

³<https://liveinterfaces.ulusofona.pt/installations-and-performances/#GR-AX>

```

1 [Sss dDé fF GgG Hh]@4 *4 0.5x
2 [ A eeé iii ou uo]@0.5 *2 1x
3 [áa é í ó ú ]@8 *0.5 1x
4 [Id DÁi hhh]@4 *2 1x
5 [Ddd Èee dDD DAA]@4 0.5x *3

1 [À è Íi ] @0.5 0.2x *1
2 [d ôó do]ssd ] @0.5 4x *2
3 [Ù eiÚ adad ] @0.25 2x *1
4 [ÀD D ] @0.5 1x *1
5 [GG gg ] @1 1x *3

```

Figure 1: Example screenshot of the interface and language.

concentrate on creating sound and music computing systems looking at novel approaches to collaborative, participatory, and live coding experiences. To date, she has released three solo recordings: *init* (2010, Carpal Tunnel), *On the Go* (2013, Carpal Tunnel) and *H2RI* (2018, pan y rosas). Her solo and group performances have been presented internationally, including *WAC* (2017–2021). <https://annaxambo.me>

5. REFERENCES

- [1] T. Magnusson. The *ixi lang*: A SuperCollider Parasite for Live Coding. In *Proceedings of the 2011 International Computer Music Conference*, pages 503–506, 2011.
- [2] C. Wilson. A Tale of Two Clocks - Scheduling Web Audio With Precision. <https://web.dev/audio-scheduling/>, 2013.