AIrgots

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ABSTRACT

We present a hybrid live coding musical performance using the latest version of Sema, the live coding language design and performance playground for the Web, with a custom Web Audio API signal engine. We explore machine learning, bespoke languages and interfaces as creative material in musical performance. Bernardo, Kiefer and Magnusson will collaborate as an ensemble of three, with networked and synchronized instances of Sema, in a performance which combines elements of improvisation and machine agency.

1. PROPOSAL

In the 2019 edition of the Web Audio Conference, in Trondheim, we introduced Sema [?], our playground for live coding music and machine learning, and language design (Figure 1). We used it to perform with three new live coding languages [3]. Sema was in its first design iteration at the time and still a very experimental system. Meanwhile, Sema has evolved over a few user studies and design iterations [2], and has been used in several performances, both by its authors and by a small but growing community of live coders.

AIrgots is a 10-minute performance that combines elements of improvisation and machine agency, through hybrid live coding with the latest version of Sema and its collection of languages and interfaces. This performance will attempt to subvert the traditionally excluding effect of AI-related argots (i.e. technical jargon), with a new subset of languages which integrates sonic, musical and machine learning semantics, more intuitive metaphors, and real-time and interactive affordances, to make live coding machine learning processes, more inclusive and understandable.

In this performance and in the live coding style, the code and screens will be projected onto the wall, enabling the audience to follow the performance as it is played with the airgot languages. Magnusson, Kiefer and Bernardo are experienced improvisers who have been be performing as a trio with Sema. Magnusson and Kiefer are veterans of the live coding and algorave movement and have both previously developed their own live coding performance systems.

Bernardo is a multi-instrumentalist and improviser, experienced in different audiovisual media languages.

2. DOCUMENTATION

AIrgots will be publicly performed for the first time at the Web Audio Conference 2021. There is no documentation of this performance. There is, however, video-documentation of the performances at the Web Audio Conference 2019[1] and at the International Live Coding Conference 2020[2] and demonstrations of the languages on our Youtube channel [5, 6, 7].

3. TECHNICAL REQUIREMENTS

Fig. 1 shows the stage design for AIrgots. The technical rider consists of:

- 5 stereo DIs or an onstage mixer with 10 channels

- Ideally 3 projectors and screens or walls to be projected on – the cables need to reach the stage. If this is not possible, we'll find a workaround with one or two.

- 3 individual standing desks preferably, or 3 tables and chairs on stage

Fig. 2 shows a contingency setup for remote performance that considers the COVID19 pandemic mobility constrains. It consists of a custom video and audio routing setup using Jamulus [4], Blackhole [1] and Zoom [8].

4. PERFORMER BIOGRAPHIES

Francisco Bernardo is a research scientist, an interactive media artist and a multi-instrumentalist. His research is focused on human-centered design to broaden and accelerate creativity and user innovation with computational toolkits. Francisco has been working in applied research in projects at the intersection of art and innovation, interactive machine learning, front-end software engineering, interaction design and greenfield product management. In his artistic practice, Francisco has been performing with his latest solo project, 'MNISTREL'.

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[1]"Three Pidgins" by Bernardo, Kiefer and Magnusson, https://www.youtube.com/watch?v=DRxBCabqsqA

[2]"Three Ravens" by Bernardo, Kiefer and Magnusson, https://youtu.be/hH0KZ2rSLRA?t=2162
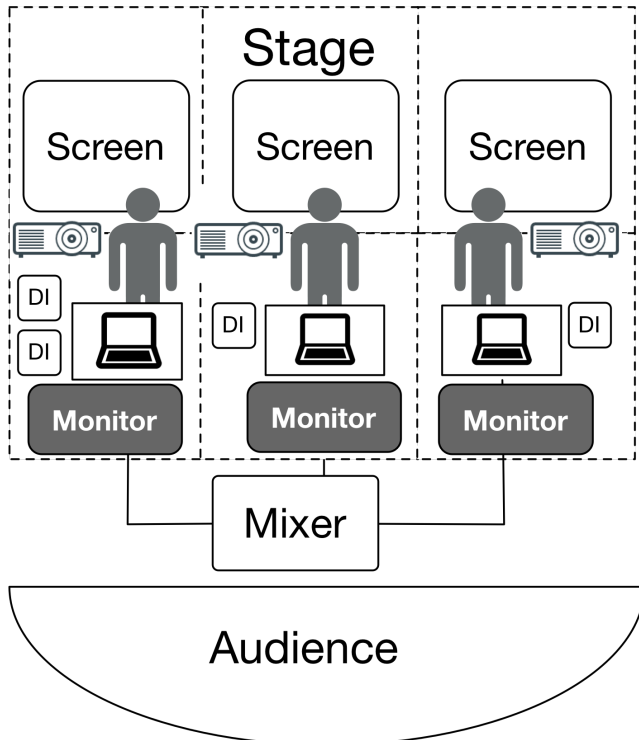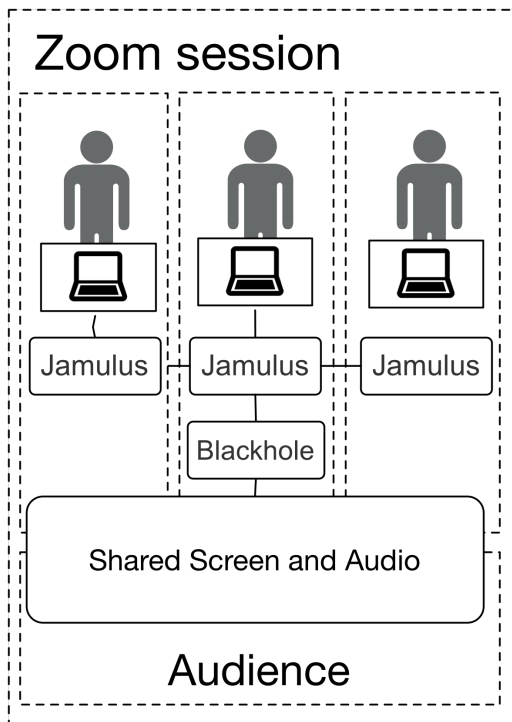
Figure 1: Stage design for AIrgots

Figure 2: Remote setup for AIrgots

Figure 3: Francisco Bernardo

Chris Kiefer is a computer-musician and musical instrument designer, specialising in musician-computer interaction, physical computing, and machine learning. He performs with custom-made instruments including malleable interfaces, touch screen software, interactive sculptures and a modified self-resonating cello. Chris is an experienced livecoder, performing under the name 'Luuma'. He performs with Feedback Cell and Brain Dead Ensemble, and has released music with ChordPunch, Confront Recordings and Emute.
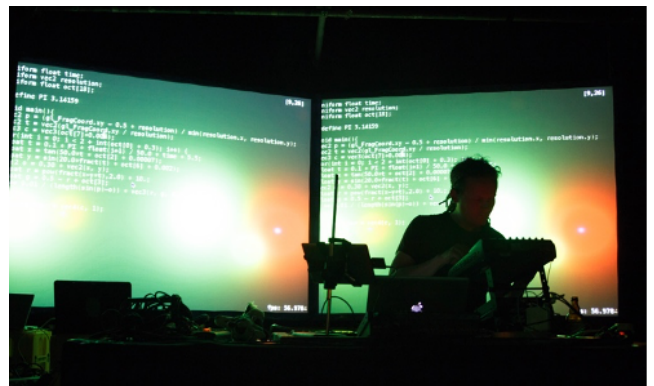

Figure 4: Chris Kiefer

Thor Magnusson is a worker in rhythm, frequencies and intensities. His research interests include musical improvisation, new technologies for musical expression, live coding, musical notation and digital scores, artificial intelligence and computational creativity, programming education, and the philosophy of technology. These topics have come together in the ixiQuarks, ixi lang, and the Threnoscope live coding systems he has developed.

5. ACKNOWLEDGMENTS

Figure 5: Thor Magnusson

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