T/ensor/~ 0.3

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1. PROGRAM NOTES

T/ensor/~ (version 0.3) is a prototype of a dynamic performance system developed in MAX that involves adaptive digital signal processing modules and generative processes towards exploring the field and performance-practice of human-machine improvisation. The system is the result of a pilot, artistic research study entitled ████████████████████████████████████ (ITCM) funded by ████████████████████████ ████████████ – PI: ████████████

The artistic research methodology of the ITCM project and the framework that led to the development of T/ensor/~ involved the tracing of relevant theoretical and practical understandings that explore the technicity and performance-practice of musical improvisation while building upon the author's prior research on the fields of free improvisation, contemporary music notation, and electro-instrumental music. The project also invited internationally renowned performers/improvisers — ██████████████████████ ██████████████████████—to test and to play with the developed system and explored via its practice-led research methodology whether the HCI performance setting promotes a dialogic and co-produced improvisational musical space [1].
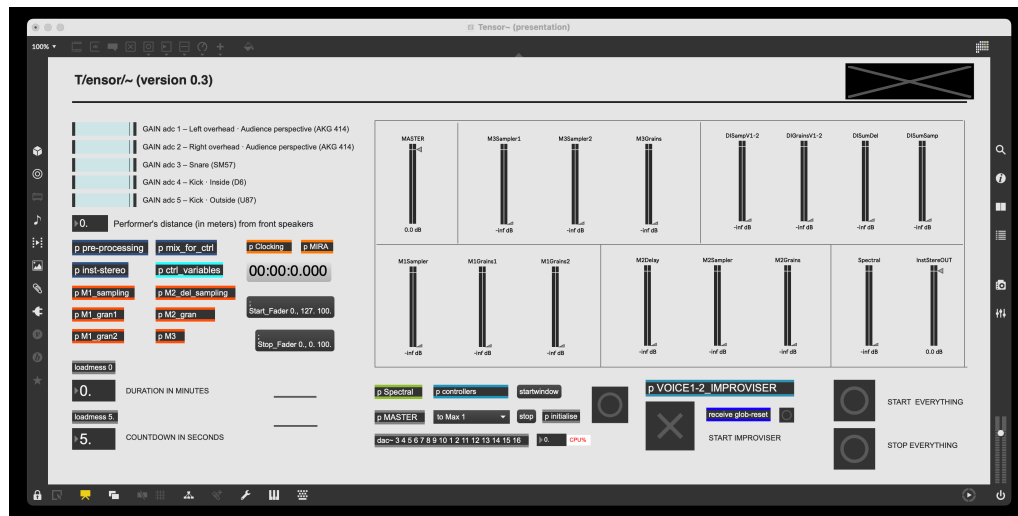

Fig. 1. T/ensor/~ MAX patch

2. PROJECT DESCRIPTION

At the core of the ITCM project that led to the development of the T/ensor/~ system was the epistemological tracing of, what George Lewis calls, "creative machines" [2] [3] [4] as well as the encoding of relevant free improvisation technologies — with the word 'techno-logy' understood here as the rhetorical accounts (logos) that harbour the techne and technique of its praxis. In this regard, the design methodology involved:

- The developing of adaptive digital signal processing modules [5] [6] towards exploring the notions of 'instrumentality' and 'liveness' [7] [8] [9]. (fig. 2)
- The translating of the principles of the notational environments I have been developing the last ten years [10] [11] [12] into generative, closed-feedback processes and prototypes (fig. 3) in an attempt to simulate the performer-instrument relational feedback loop of 'interaction, resonance, and resistance' [13] as traced in free improvisers' accounts — see, for example, the notion of *biofeedback* discussed by Evan Parker [14].

The key artistic research, open-ended question of this work-in-progress is the encoding of the concept of 'syn-schediasmos' [11] [12] towards an envisaging of 'composition' and 'improvisation' as componential and dialogic settings, and as "critically imbued aesthetic spaces" [2]. At the same time, the word *tensor* aims in functioning as a metonym for the "in-between" [15] in an attempt to direct one's attention to the "abstract machine" [16] that diagrammatises the relational milieu of correspondences between people, instruments, and 'techno-logies' – the ensorcelled *bodies* and *muscles* that "make music together" [2].
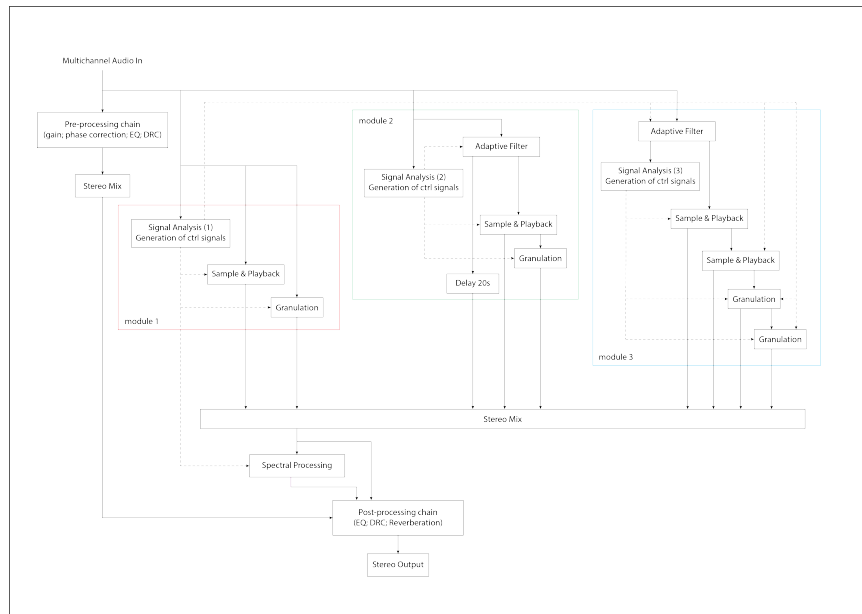

Fig. 2. Sketch of the adaptive DSP processes in T/ensor/~
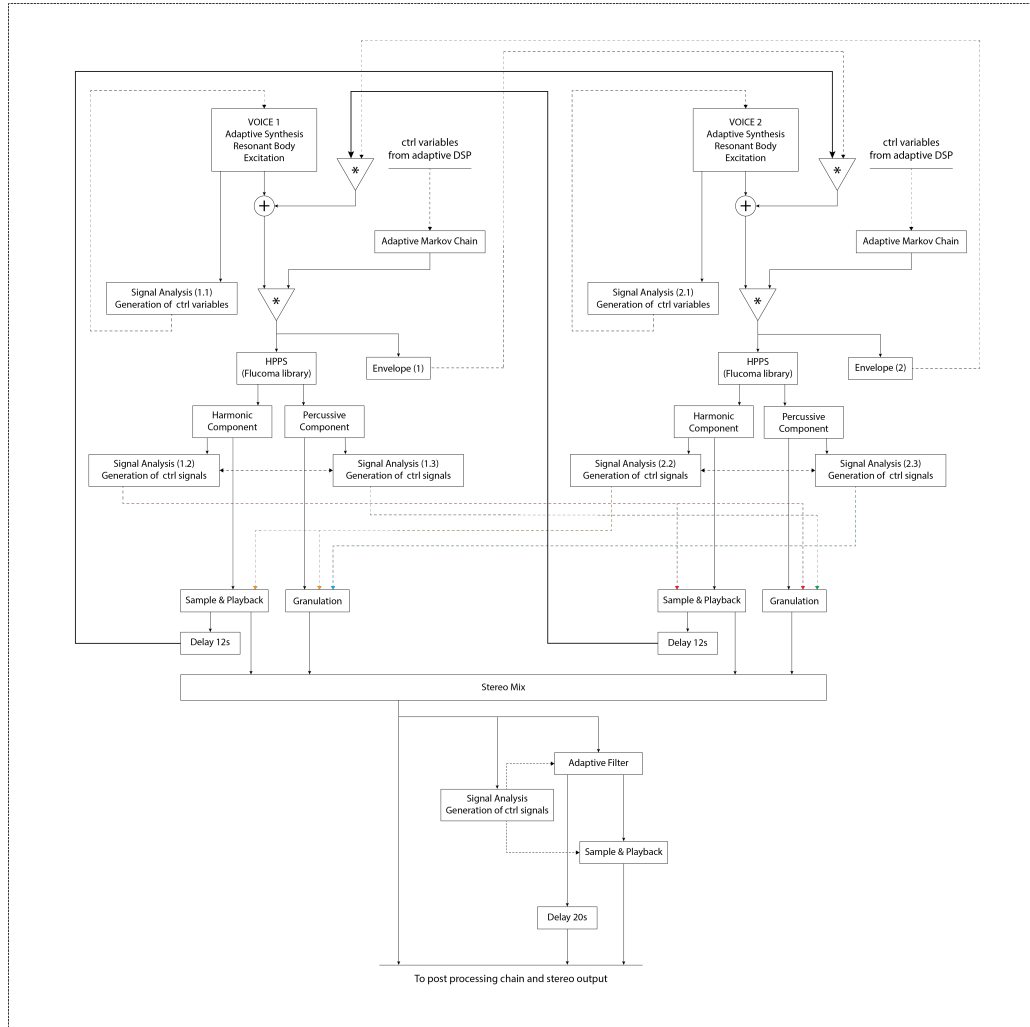(Emboldened lines: audio signals; Dashed lines: control signals)

Fig. 3. Sketch of the generative processes in T/ensor/~
(Emboldened lines: audio signals; Dashed lines: control signals)

3. PERFORMANCE NOTES

For the NIME 2023 Call for Music we would like to propose a c. 10–15 minutes improvised performance (drum-kit performer and T/ensor/~ 0.3). Depending on author's and performer's ability to travel to Mexico the presentation format can take the form either of a live performance, or of a pre-recorded video/live stream in accordance with NIME 2023 guidelines. In case of a pre-recorded video/live stream format, then the author will proceed to all necessary technical arrangements. Technical requirements in case of a live performance can be found in the table below.

Table I. Technical Requirements for Live Performance

Equipment provided by the author	Equipment required
· Laptop with T/ensor/~ 0.3 · Audio Interface (RME UCX) · MIDI controller for on-stage level monitoring	· Drum Kit · Two large diaphragm condenser microphones (example: AKG 414) – Overheads · One dynamic microphone (example: SM57) – Snare · One dynamic microphone (example: Audix D6) – Inside kick drum · One condenser microphone (example: Neumann U87) – Floor, facing kick drum · Mic pre-amplifier with ADAT connectivity (example: Scarlett OctoPre; ADAT to the audio interface provided by the author) · Powered stereo monitors (example: Genelecs 8040, 8050 or similar) · Two pairs of headphones (on-stage monitoring; performer & author) · Headphone amplifier/splitter · Cabling infrastructure

4. MEDIA LINK(S)

The AV media links below are edited excerpts from the test & play sessions with drummer/improviser ▨▨▨▨▨▨▨▨▨ (T/ensor/~ system versions 0.1 and 0.2). In case the proposal is accepted, then the media links listed here will be replaced by one/two AV links to an improvised performance with T/ensor/~ version 0.3.

T/ensor/~ (version 0.1) | ITCM session 12 December 2022
- Improvisation no.1 (video): https://tinyurl.com/32ccazck
- Improvisation no.5 (video): https://tinyurl.com/mv4zyfn3

T/ensor/~ (version 0.2) | ITCM session 11 January 2023
- Improvisation no.2 (video): https://tinyurl.com/3tz7dujc
- Improvisation no.3 (video): https://tinyurl.com/bdzj66x2
- Improvisation no.4 (video): https://tinyurl.com/2p9ae2fv
- Improvisation no.5 (video): https://tinyurl.com/bdhpy29f

ETHICAL STANDARDS

The AV media links accompanying this proposal are edited excerpts from the ITCM test & play sessions with performer/improviser ████████████ and are shared here with performer's consent.

REFERENCES

[1]   The ITCM project website: ████████████████████

[2]   G. Lewis, "Improvising Tomorrow's Bodies: The Politics of Transduction." *Emisférica 4.2 Body Matters*, 2007, https://hemisphericinstitute.org/en/emisferica-42.html.

[3]   G. Lewis, "5. Rainbow Family." *Technosphere Magazine*. December 23, 2018, https://www.technosphere-magazine.hkw.de/p/5-Rainbow-Family-5Aj9nAxzG6zFRAAd9icEvH.

[4]   G. Lewis, "'Is Our Machines Learning Yet?' Machine Learning's Challenge to Improvisation and the Aesthetic." In *Machinic Assemblages of Desire: Deleuze and Artistic Research* 3, edited by Paulo de Assis and Paolo Giudici, 115–128. Leuven: Leuven University Press, 2021.

[5]   A. Di Scipio, "Due di Uno: A composition dedicated to Horacio Vaggione." *Contemporary Music Review*, 24 (4–5): 383–397, 2005.

[6]   O. Green, "User Serviceable Parts : Practice, Technology, Sociality and Method in Live Electronic Musicking." PhD diss., City University London, 2013.

[7]   J. Croft, "Theses on liveness." *Organised Sound* 12 (1): 59–66., 2007.

[8]   F. Schroeder and P. Rebelo, "Wearable Music in Engaging Technologies." *AI & Society* 22 (1): 85–91, 2007.

[9]   P. Sanden, *Liveness in Modern Music; Musicians, Technology, and the Perception of Performance*. New York: Routledge, 2013.

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[13]   M. Cobussen. *The Field of Musical Improvisation*. Leiden: Leiden University Press, 2017.

[14]   P. Hopkins, "Amplified Gesture. An Introduction to Free Improvisation: Practitioners and their Philosophy," 2009, video, 56:15, https://www.youtube.com/watch?v=4AnDs1-QcxI.

[15]   B. Massumi, *Parables for the Virtual: Movement, Affect, Sensation*. Durham; London: Duke University Press, 2002.

[16]   G. Deleuze and F. Guattari, *A Thousand Plateaus Capitalism and Schizophrenia*. Translation and foreword by Brian Massumi. London: Continuum, 1988.