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Etu{d,b}e

Passerelle Art-Science Montréal-Toulouse
7 juin 2024



UQÀM



Centre for Interdisciplinary Research
in Music Media and Technology

Project Context

Designing a Physical Interface to Facilitate Interaction with an Autonomous Musical Agent in an Improvisation Context

- Improvised performances with semi-autonomous agents and live musician
- Usage of existing frameworks:
 - DYCI2 by Jérôme Nika (IRCAM)
 - _derivations by Ben Carey (Sydney Conservatorium of Music, University of Sydney)
 - Construction III by Sergio Kafejian (Faculdade Santa Marcelina, Brazil)
- Human-computer musical interaction and collaboration

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eTube

The augmented instrument; an electronic controller attached on the acoustic tube

études

A series of improvised performances exploring interaction with musical agents



(Cusson & Davis, 2022)

Agents Musicaux Semi-Autonomes

(Memory navigator 1) (Memory navigator 2) (Memory navigator 3)

Analyzer Progression...
analysis Audio file loaded
Analysis Set. descriptors
Training Clustering
Memory model Ready!

Restart

Memory learnt on
1_Lim.wav

Renderer Crossfade (ms) > 50 more
X automute

B - Live input analyzer (Live input 1) (Live input 2) (Live input 3)

mic/line Play audio file monitor input

Gate input RMS: > -15. threshold: > -45. X

Listening
Off
Fixed window param > 1000 ms X
Event mode param > 1000 ms X
last event > 4241 ms, thresh: > 100 ms X
Instant mode > 400 ms X

C - Queries free > 5 free > 9 free > 20

X Listen Probe send query > 100

Last label received from listening: > 5

Build handle...
Nothing Length query > 10
Repeat Last Label
Last Label as Starting Point 25 % filled with the label
Last Label as Target Point 25 % filled with the label
Last L Labels
Last Labels since last query (send) and send query...
Immediately
when silence > 1000 ms (sending)

38 secs. 568 ms. 0 secs. 0 ms. 10 secs. 828 ms.

End session 00:00:32

AGENT drop the agent folder here!
Folder: guitar_acoustic_solo

STATE More Streaming
Current song training the FO
00_BN1-129-Eb_solo_mic

INFLUENCES
Rhythmic Spectral Melodic Harmonic

NEGOTIATION Go back Pause Change

FEEDBACK Thumbs up

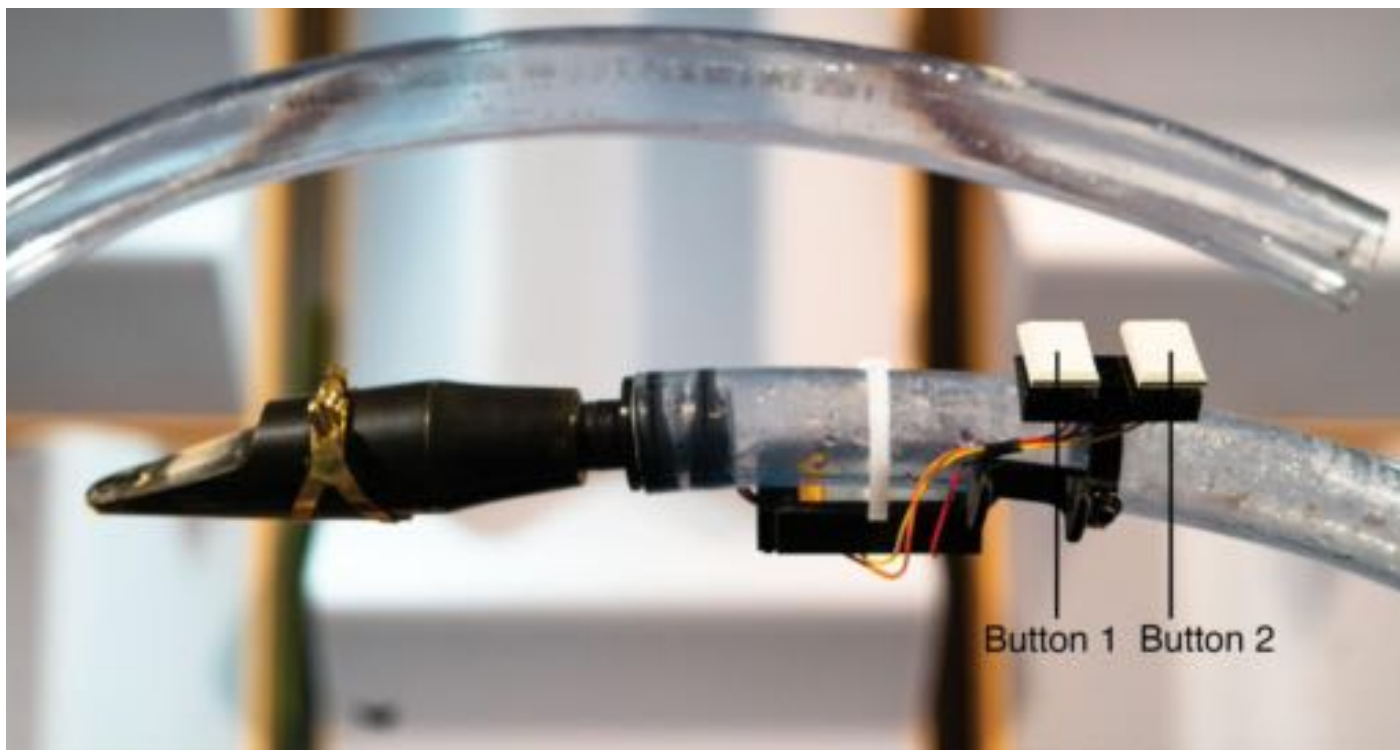
IN OUT

Segmentation and Training

1. Segmentation based on loudness
2. Analysis with audio descriptors
3. Labelling and clustering process



eTube Controller



(Davis et al., 2023)

Mapping Table

Controller Input	Agent Reaction
Long press both buttons	Start/stop looper recording
Single click both buttons	Start/stop looper playback
Double click button 2	Turn off agent listening function
Single click button 1	Launch agent output

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