



ADC²⁴ Bristol

KEYNOTE:

FOUNDATION MODELS DON'T UNDERSTAND ME

LESSONS FROM AI LUTHERIE FOR LIVE PERFORMANCES

MANASWI MISHRA

FOUNDATION MODELS DON'T UNDERSTAND ME

LESSONS FROM AI LUTHERIE FOR LIVE PERFORMANCES

ME



Hi! 🖐️ I am Manaswi

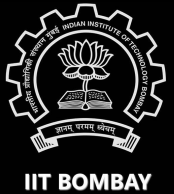


Audio Example:
"My childhood voice clone
saying hello to ADC"

PhD student
Opera of the Future,
MIT Media Lab



manaswim@media.mit.edu
@eardrummerman

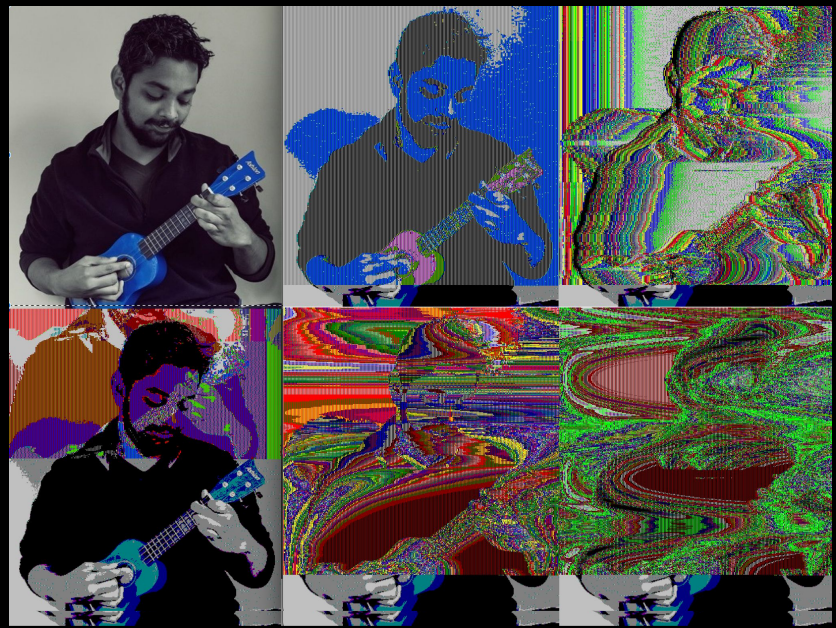




“making sound into soap clouds”



“Adding reverb and flanger to the image”



“Adding echoes and delays”



LiveCode performances

```
setcps 0.25
samples 'github:yaxu/spicule/master'

$: n"2 - 4 - 6 8 9"
  .s"claus"
  .s_expand
    "4 3 2 1 1 1",
    "2 2 2".div(3)
  .clip 1, speed 2, color("blue")
  .jux x => x.rev(), speed 0.75, color("green")
  .steps 14
  .pianoroll()

17 $: s"hhhh ~ hh:3 ~ hh:3 ~", steps 7
  .s: 2, speed 2
  .pianoroll()
%
```



ADCxIndia

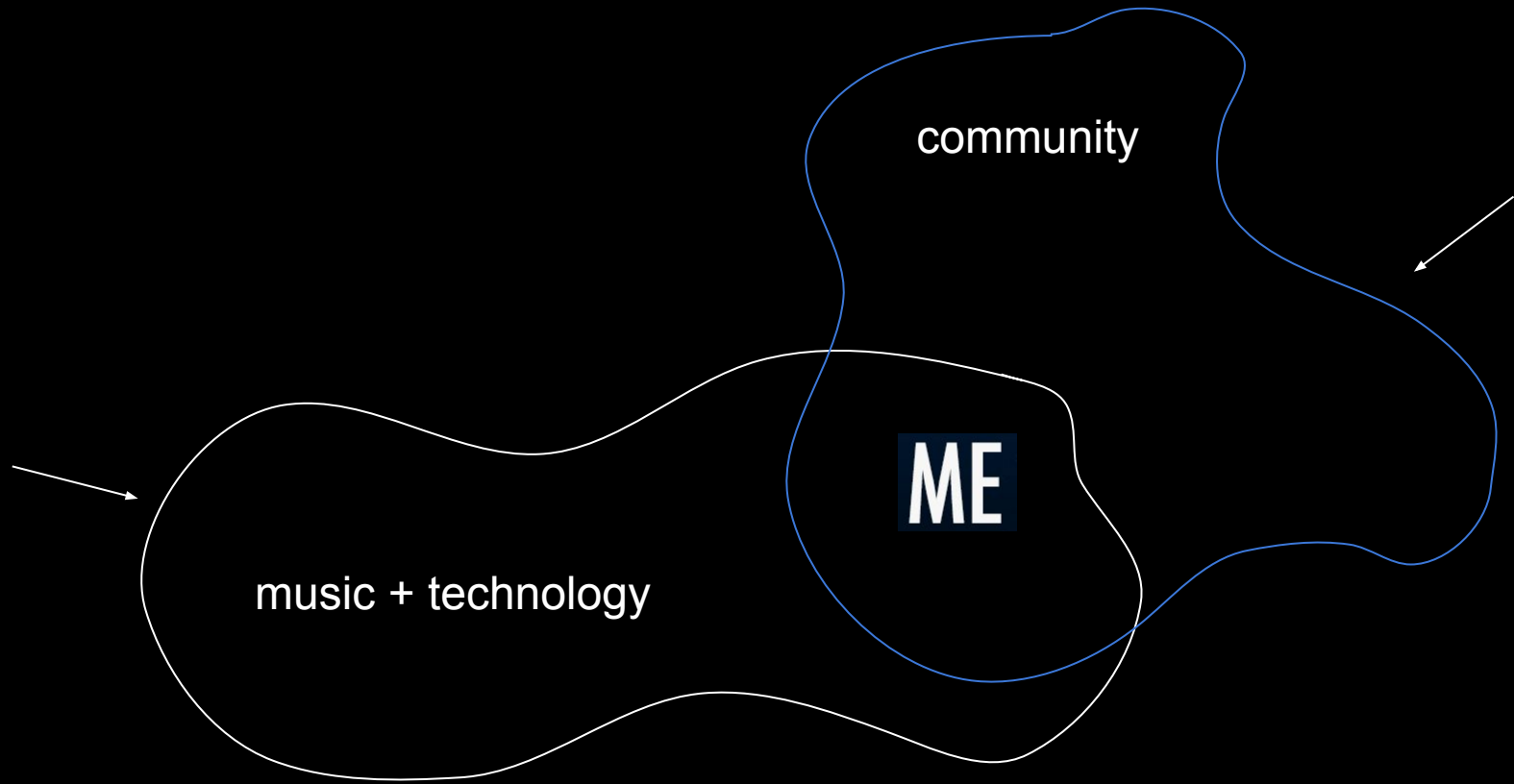


Dec 15, 2024	AIMG 2024	IEEE Big Data 2024 Workshop on AI for Music Generation	Washington DC, USA
Dec 14, 2024	Audio Imagination 2024	Audio Imagination - NeurIPS 2024 Workshop on AI-Driven Speech Music and Sound Generation	Vancouver, Canada
Dec 10, 2024	aimusicstudies 2024	International Conference in AI Music Studies	Stockholm, Sweden
Dec 9, 2024	LAMIR 2024	1st Latin American Music Information Retrieval Workshop	Rio de Janeiro, Brazil
Nov 22, 2024	WoRMS 2024	6th International Workshop on Reading Music Systems	Online
Nov 11, 2024	ADC 2024	10th Audio Developer Conference	Bristol, UK
Nov 10, 2024	ISMIR 2024	25th International Society for Music Information Retrieval Conference	San Francisco, USA
Oct 23, 2024	DCASE 2024	9th Workshop on Detection and Classification of Acoustic Scenes and Events	Tokyo, Japan
Oct 14, 2024	MuRS 2024	Music Recommender Systems Workshop (colocated with RecSys)	Bari, Italy
Oct 3, 2024	ELM2	Second Biennial Conference on Expression, Language, and Music	Storrs, Connecticut, USA



We are here now





music + technology

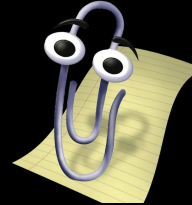
community

ME

Use my data for training content creation On
AI models



ME



I'm trying to help you!



Model

Input

Output

FOUNDATION MODELS DON'T UNDERSTAND ME

LESSONS FROM AI LUTHERIE FOR LIVE PERFORMANCES

*Musical
Instruments*

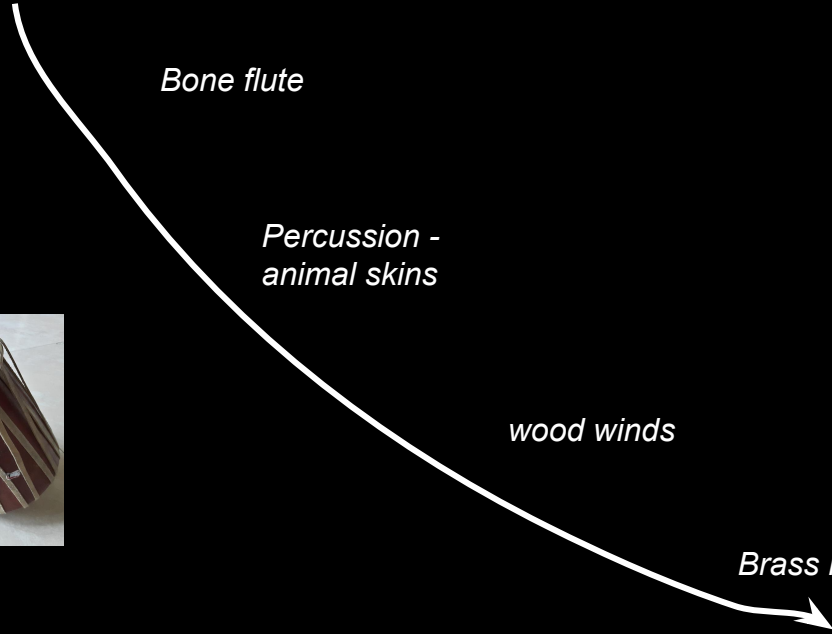


Bone flute

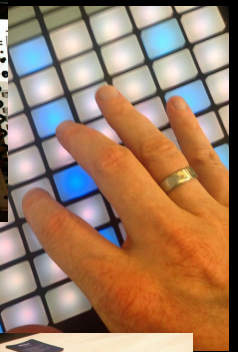
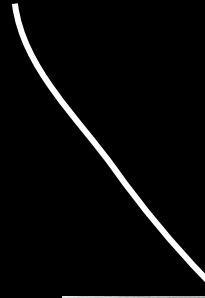
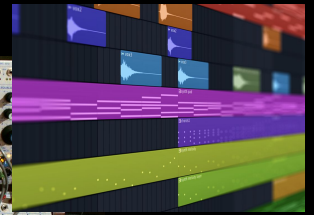
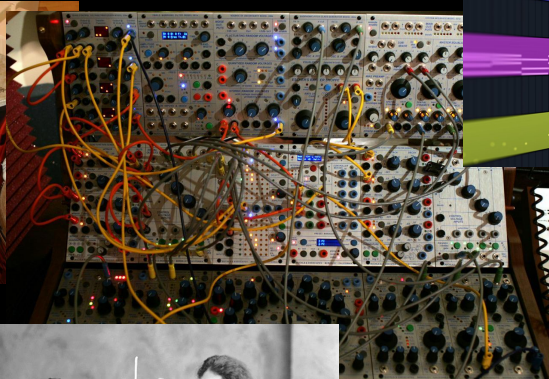
*Percussion -
animal skins*

wood winds

Brass horns



Musical Instruments





So What's Next?

AI Musical Instrument?

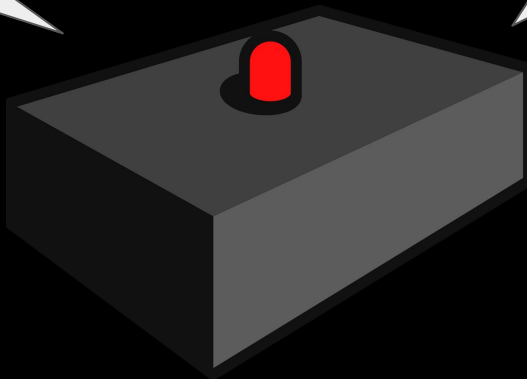


“With the aid of electronic computers, the composer becomes a sort of pilot: He presses buttons, introduces coordinates and supervises the controls of a cosmic vessel sailing in the space of sound, across sonic constellations and galaxies that he could formerly glimpse only in a distant dream”

- Iannis Xenakis, *Formalized Music* (1992)

AI Musical Instrument?

"How may I help you?"

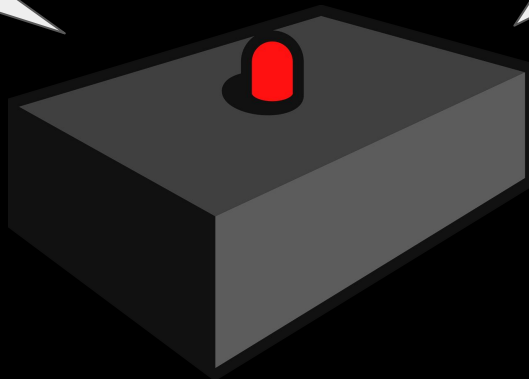


Enter text prompt here:
"Rock song with an epic guitar solo"

Can you make something like
this in the style of that artist?



AI Musical Instrument?

“How may I help you?”



Enter text prompt here:
“Rock song with an epic guitar solo”

Can you make something like
this in the style of that artist?

 **Artist Replaced** We do not generate artist likeness without permission 

 Replacing “Herbie Hancock” with:

jazz fusion

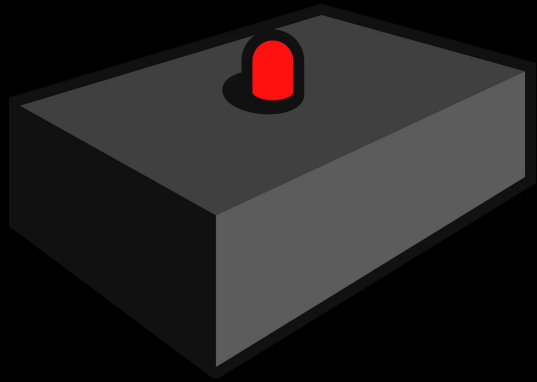
avant-garde jazz

jazz

jazz-funk

progressive electronic

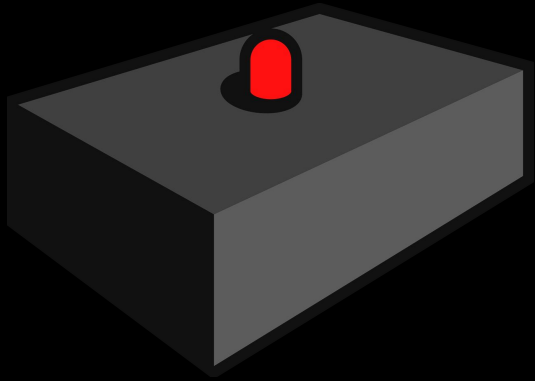
futuristic



“...to accelerate our abilities to produce deviations from the norm” - Max Bense (1965)

outlining the goal of generative art, first ever computer art exhibition

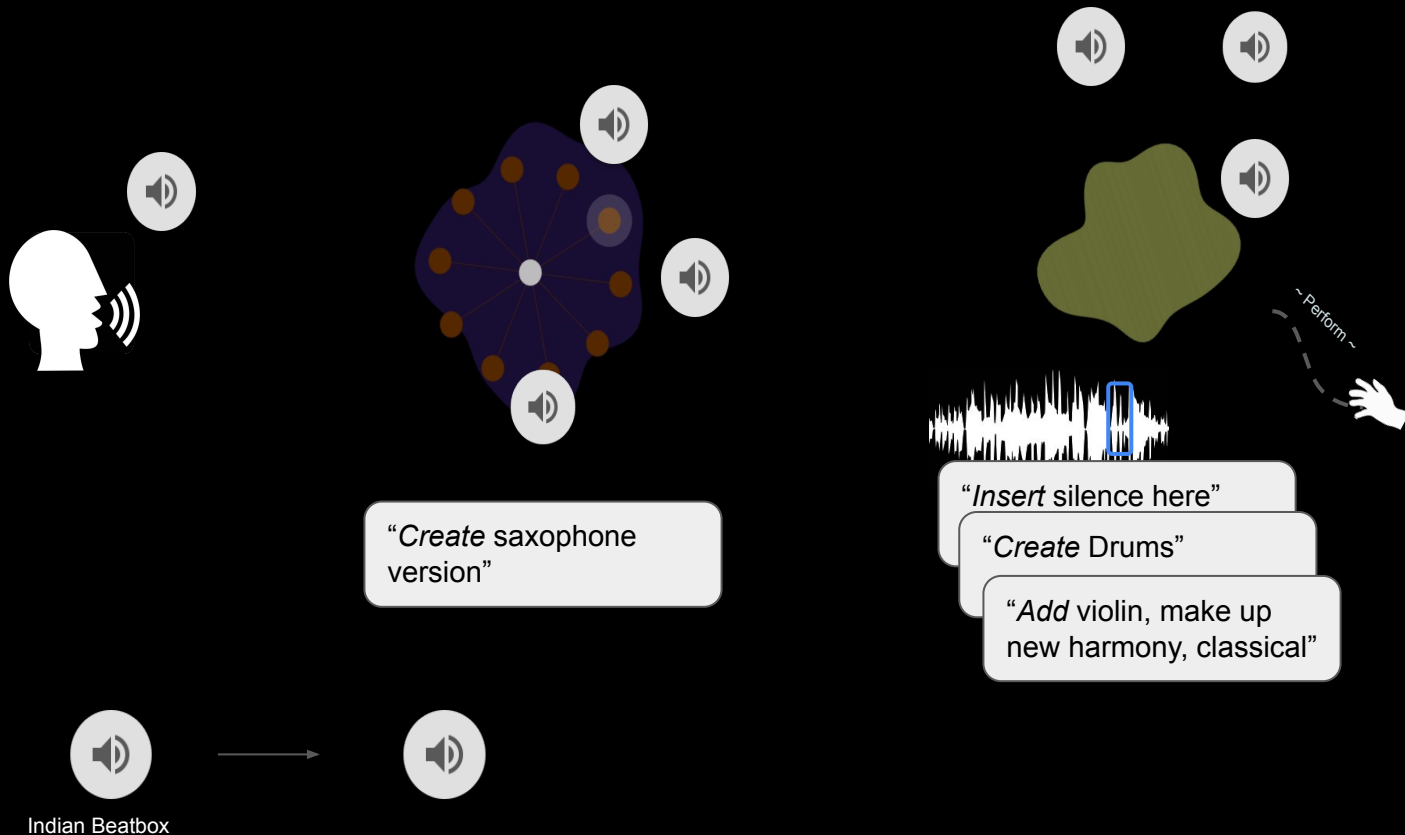
now...



- Generating statistically likely 'art'
- Flattening aesthetic
- Shifting value with low effort infinite synthesis

Input:

Query by
Voice



Input:

Query by
Voice

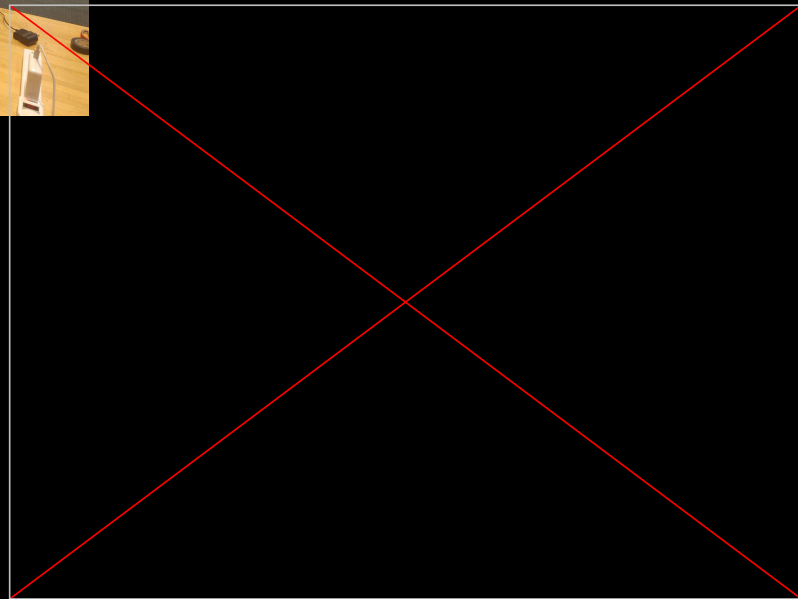
Call and
Reponse
paradigm



Input:



Query by
Gesture



Input:

Query by
Gesture

Free gestural
Exploration
to
Controlled
Expression

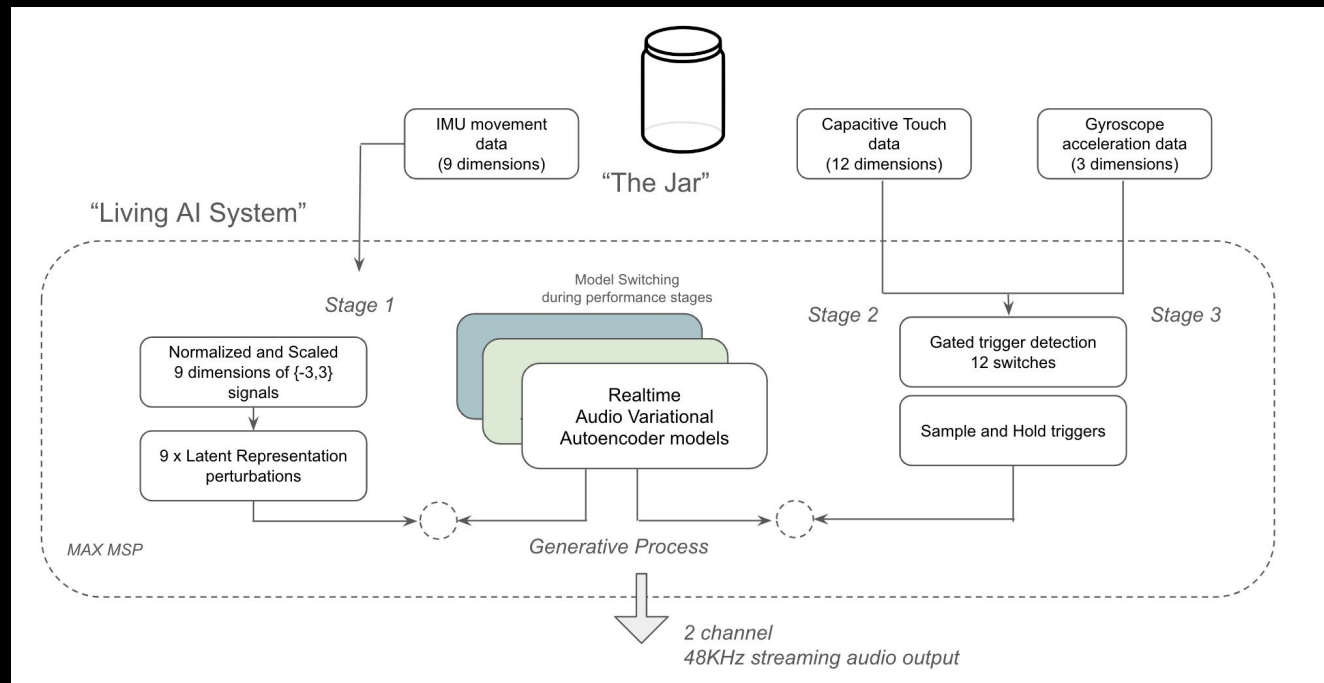


Excerpt from Tod Machover's VALIS 2.0 (2023), premiered in Boston
<https://bostonglobe.com/2023/08/31/arts/an-ai-opera-1987-reboots-new-generation/>

Input:

Query by
Gesture

Free gestural
Exploration
to
Controlled
Expression



Excerpt from Tod Machover's VALIS 2.0 (2023), premiered in Boston
<https://bostonglobe.com/2023/08/31/arts/an-ai-opera-1987-reboots-new-generation/>

Input:

@Seoul Arts Center

Query by
Articulation



Excerpt from world Premier of Flow Symphony (Aug, 2024)
By Tod Machover, commissioned for the Sejong Soloists

Model:

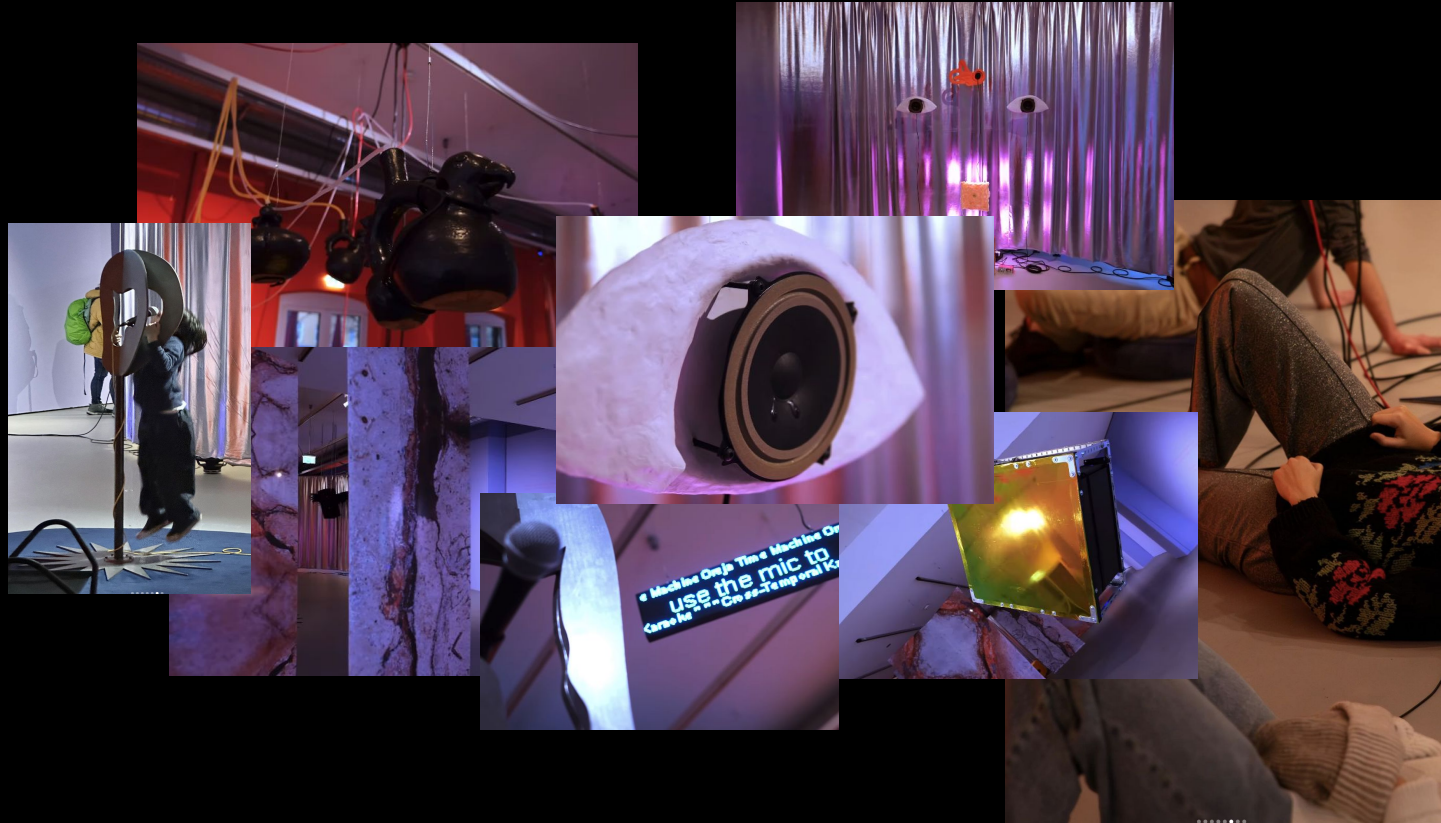


Small
Curated
Datasets

Excerpt from world Premier of Flow Symphony (Aug, 2024)
By Tod Machover, commissioned for the Sejong Soloists

Model:

Interactive
Cultural
Archive



Resonancias (2023)
With **Nicole L'huillier** (a collaboration with the Andean Moche culture and
untouched whistling vessels held at the Linden Museum Stuttgart

Input:

Architectural



Living Knitwork Pavillion (2024), (Demonstrated at Burning Man '24)
with **Irmandy Wicaksono**

Input:

Architectural



Living Knitwork Pavillion (2024), (Demonstrated at Burning Man '24)

Soft Responsive Architectural Space with Functional Textiles and Integrated System.
In Proceedings of the Annual Conference of the Association for Computer-Aided
Design in Architecture 2024

Recap:

Smart instruments are often not smart
Leveraging expert technique is smart

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Smart instruments are often not smart
Leveraging expert technique is smart

Model Making mistakes as *directed*
Serendipity

AI Radio:



AI Radio:



The Object - music (noun)

(vs)

The Action - music (verb)

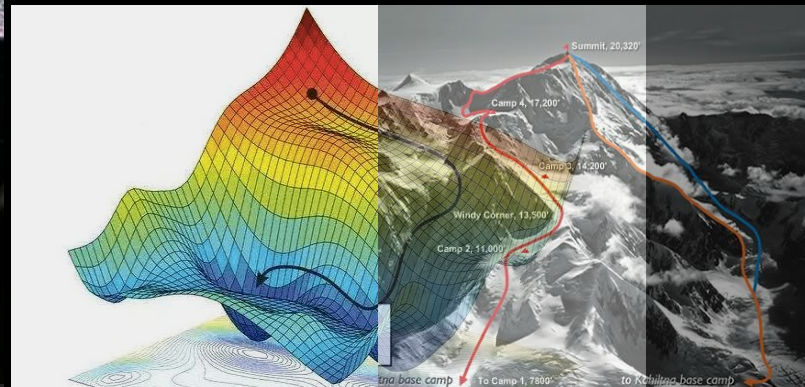
AI Radio:



The Object - music (noun)

(vs)

The Action - music (verb)



AI Radio:

But...



Gordon, Skylar, Robert Mahari, Manaswi Mishra, and Ziv Epstein. "Co-creation and ownership for AI radio." arXiv preprint arXiv:2206.00485 (2022).

Regulation / Media standards Neo-Luddite Toolbox



Glaze - Protecting Artists from Generative AI

HOW DOES GLAZE WORK?

The TLDR version: On a pixel level Glaze interferes with AI's ability to accurately train on your images.



Coalition for
Content Provenance
and Authenticity

AI models that don't violate copyright are getting a new certification label

MIT scholars awarded seed grants to probe the social implications of generative AI

NURTURE ORIGINALS, FOSTER ART, AND KEEP ENTERTAINMENT SAFE (NO FAKES) ACT

The Cost: Financial, Environmental, Cultural



Spawning @spawning_ · May 3
It's a real joy to announce our @huggingface partnership 😊

From today, eligible datasets hosted on Hugging Face will show a data report powered by our API, informing model trainers what data has been opted out and how to remove it.

Another big step towards consenting training!

📍 Data Sourcing report powered by 🤖 Spawning.ai

Some elements in this dataset have been identified as opted-out, or opted-in, by their creator.

42,785,281 5

Opted-out

Opted-in

Reference to Spawning AI
<https://spawning.ai/>

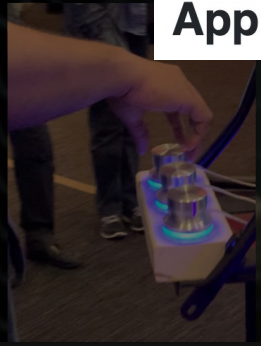
Trust





Workshop on Indian Music Analysis and Generative Applications (WIMAGA) [🔗](#)

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LIVE DEMO:

make some sounds
misusing foundation
models



Thank you! 🌱



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@eardrummerman