Friedrich-Alexander-Universität
Erlangen-Nürnberg

Prof. Dr. Benjamin Jörissen
https://joerissen.name
https://ucdcae.fau.de

UNESCO Chair — uni twin

FAU

Generative Artificial Intelligence and the Politics of Perception:

Artistic Practice as Critical Intervention

4th International Technical University of Kenya
- Exploring Visual Cultures Conference

The Technical University of Kenya/online, 26. November 2024

What's the problem with „AI" & „generative AI" (GAI)?

CLIP

U-NET
+ SCHEDULER

DECODER

Contrastive **L**anguage-**I**mage **P**re-training

has „learned" how words and
parts of images relate;

actually: **has built up
statistical patterns
between billions of items
in the data set**

CLIP

Contrastive Language-Image Pre-training

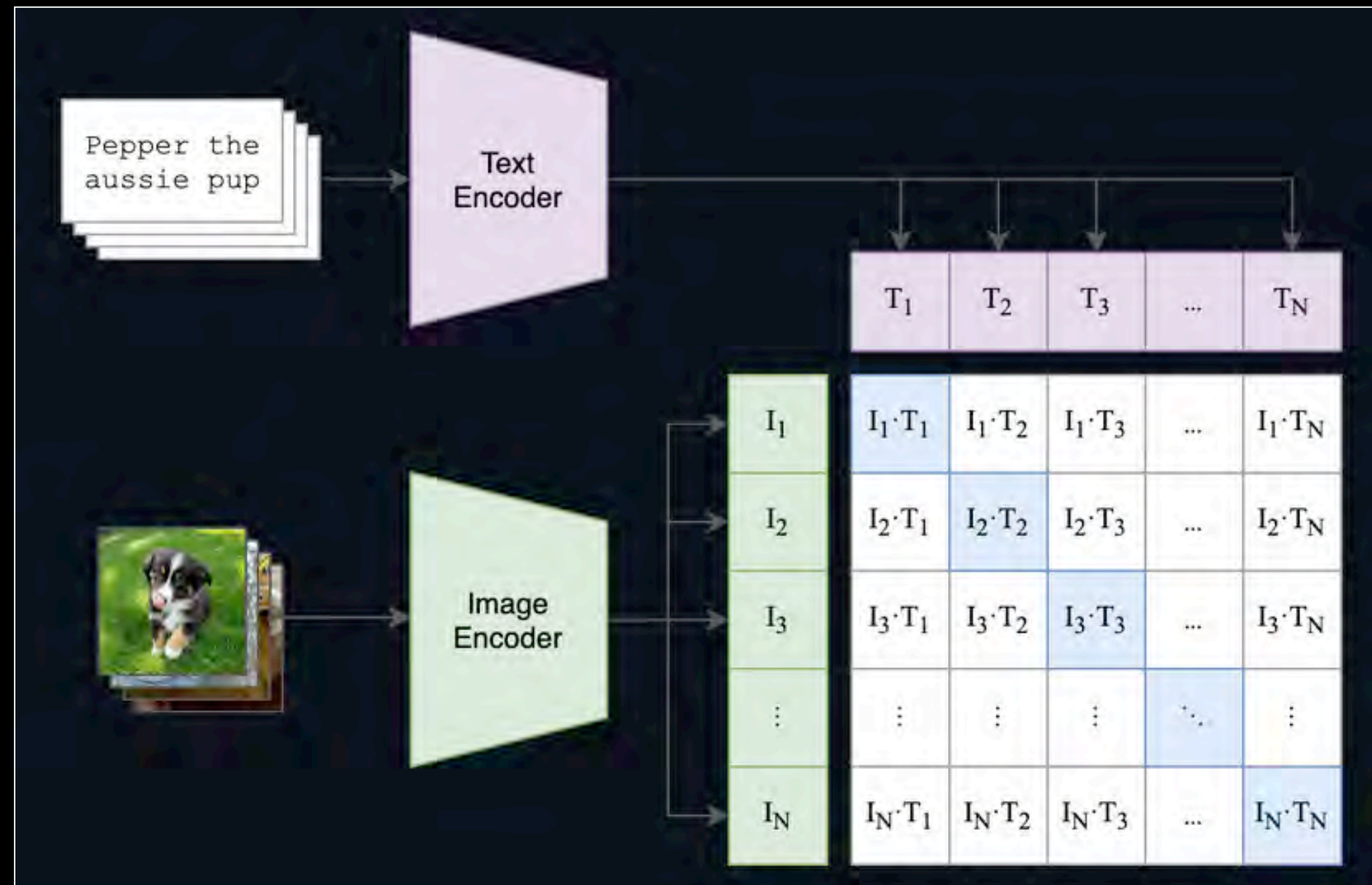has „learned" how words and
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→ projects images and words into
a „high-dimensional space",
i.e. **vectors** with many dimensions
that can be combined

u [0.3,-0.4,-0.99,0.135, …]
v [0.24,0.86,-0.70,-0.872 …]
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„Contrastive Pre-Training"

Contrastive Language-Image Pre-training

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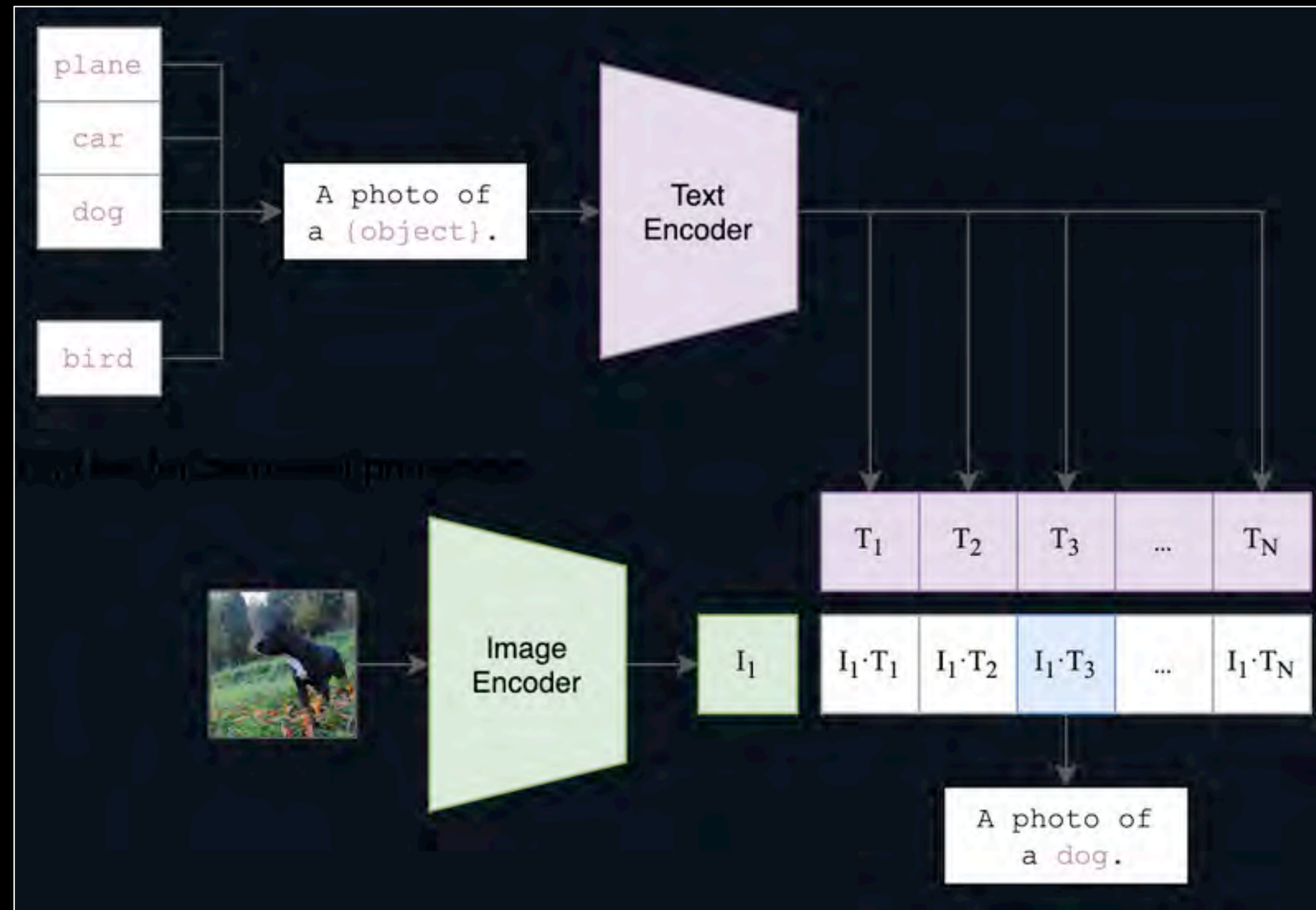parts of images relate;

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Categorize any image using CLIP and always get a result

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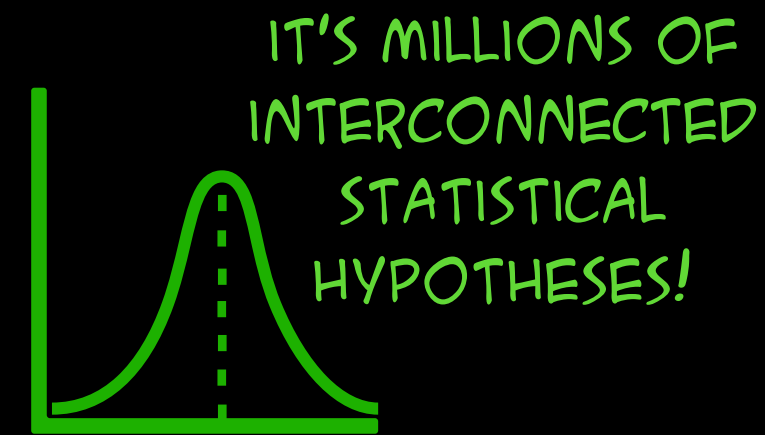that can be combined

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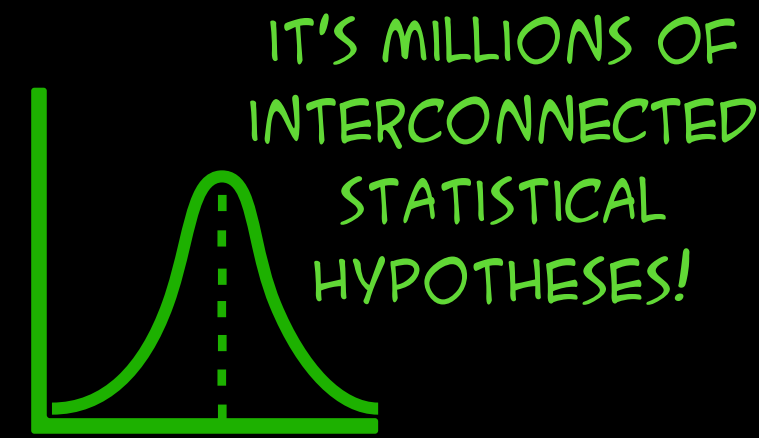
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HTTPS://LAION.AI/

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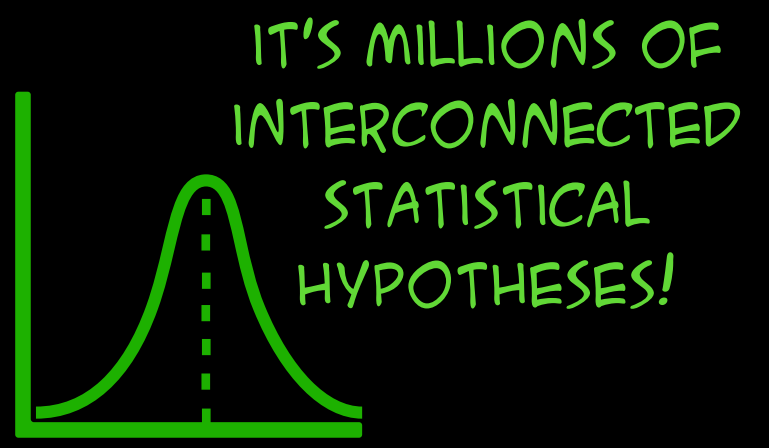has „learned" how words and parts of images relate;

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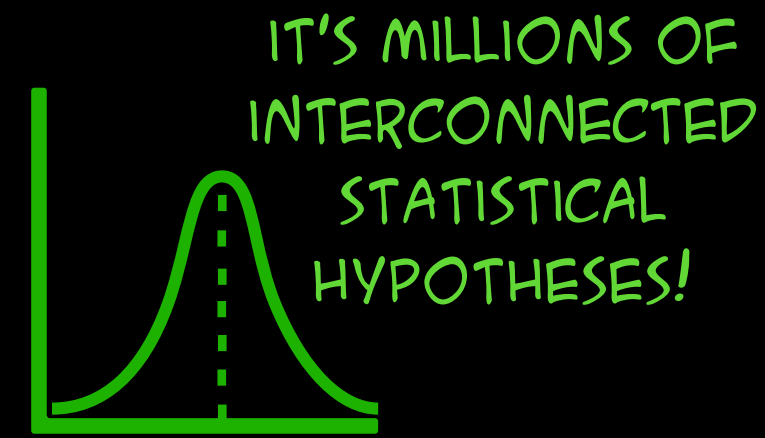
HAVE CREATORS BEEN ASKED/ PAID?

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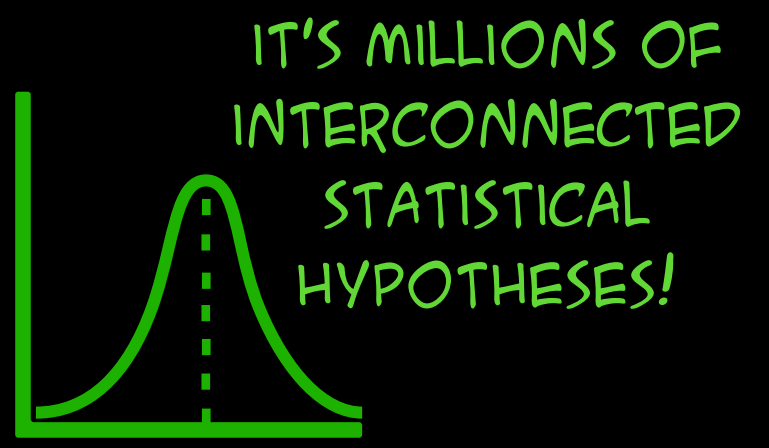has „learned" how words and parts of images relate;

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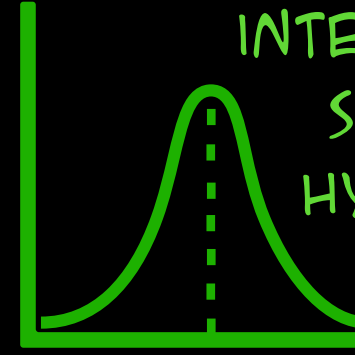
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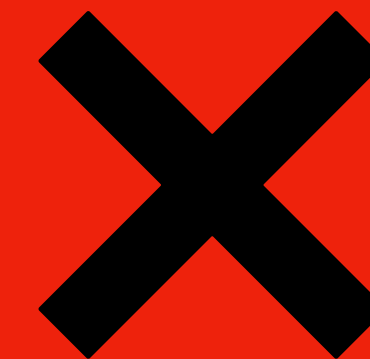
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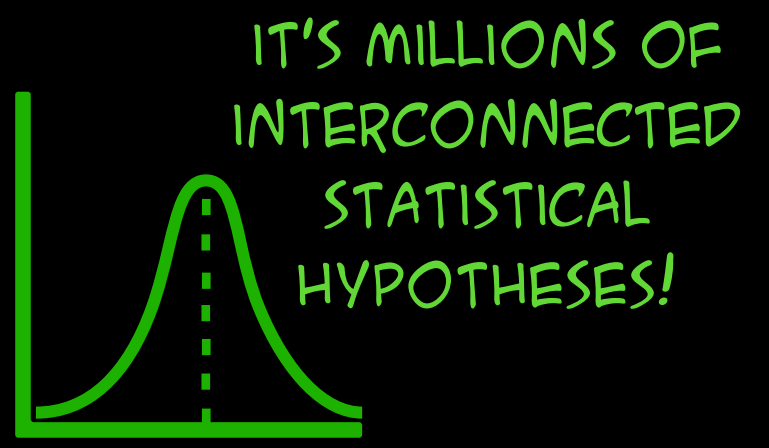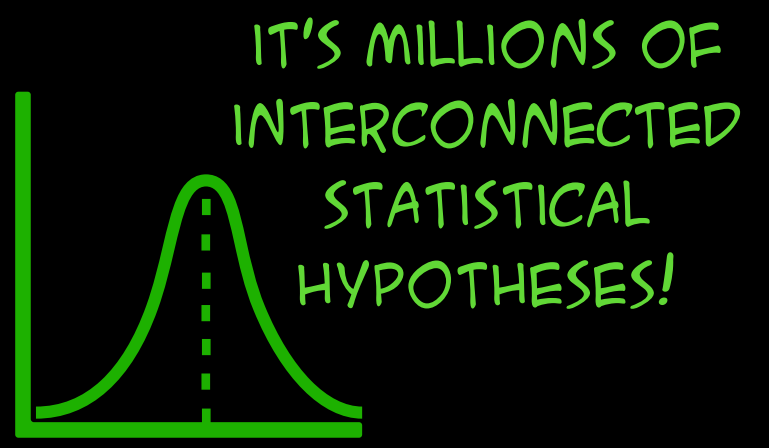has „learned" how words and parts of images relate;

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WHO CONTROLS THE QUANTIFIED „MEANINGS" OF THIS NETWORK?

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INDIGENOUS AI PROJECTS DISCUSS THESE VECTORIZATIONS WITH ELDERS + KNOWLEDGE-KEEPERS!

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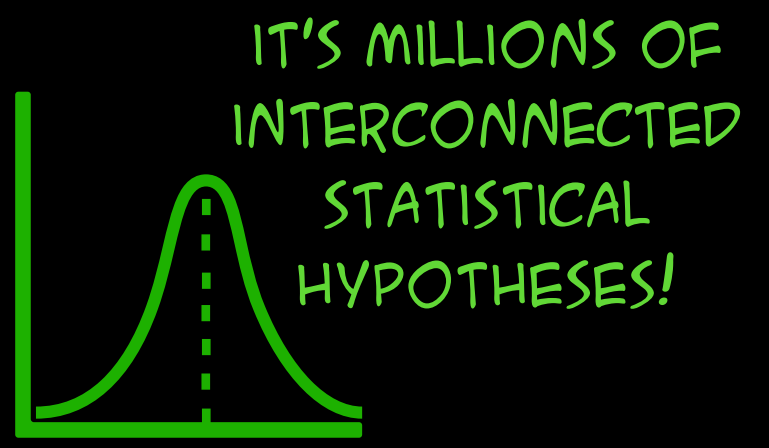parts of images relate;

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BUT
IT TAKES A
LOT OF TIME

if we put in a prompt,
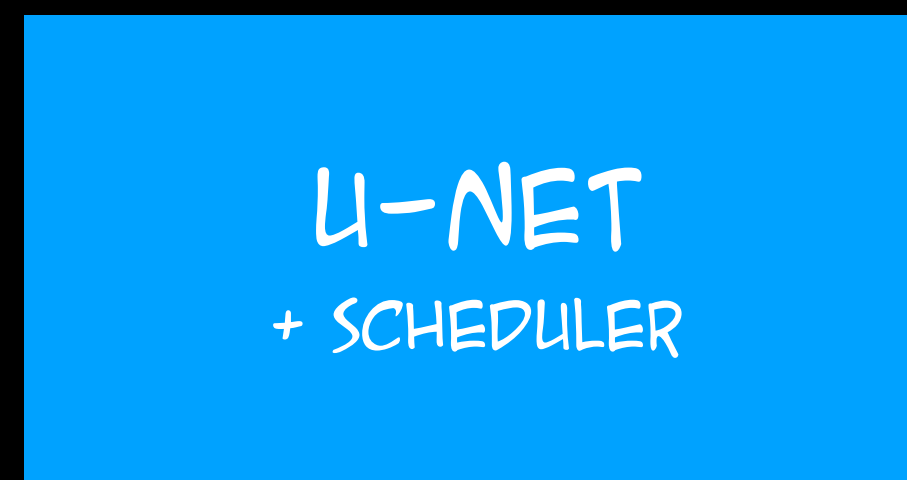we activate
– i.e. use, rely on –
CLIP

CLIP

passes
semantic
information
as vector →

U–NET
+ SCHEDULER

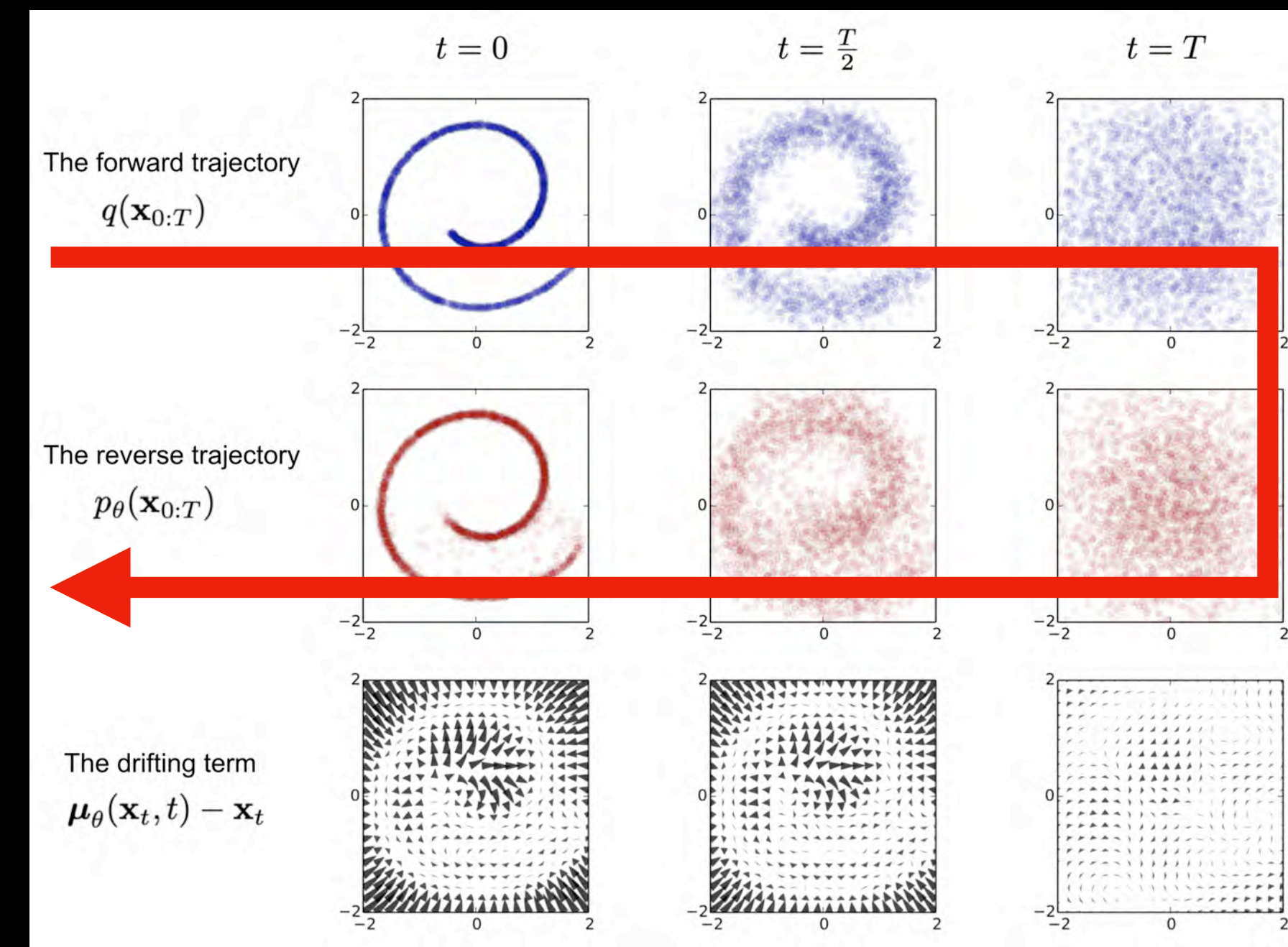if we put in a prompt,
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has been trained with different
data sets to **let images appear
from pure noise** using high-
dimensional CLIP vectors

CLIP

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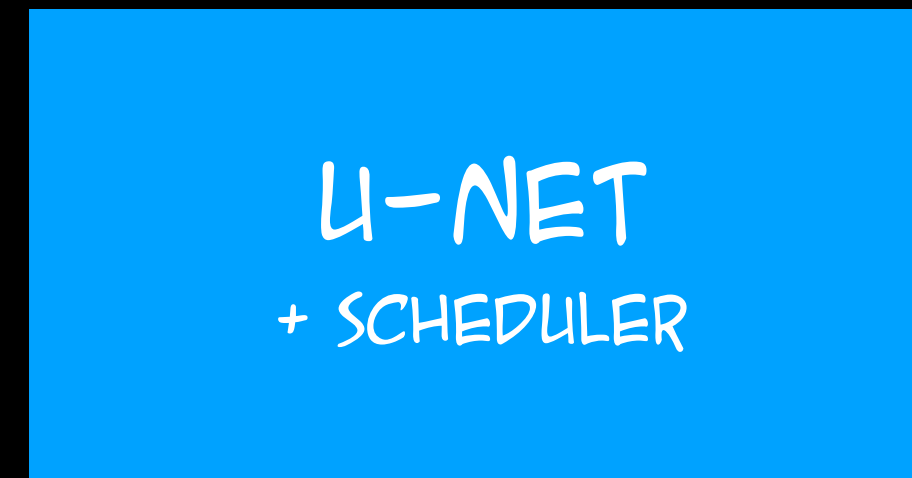semantic
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U-NET
+ SCHEDULER

→ does not directy read our
prompt, but its translation via
CLIP

$t = 0$ $t = \frac{T}{2}$ $t = T$

The forward trajectory
$q(\mathbf{x}_{0:T})$

The reverse trajectory
$p_\theta(\mathbf{x}_{0:T})$

The drifting term
$\boldsymbol{\mu}_\theta(\mathbf{x}_t, t) - \mathbf{x}_t$

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Four approaches towards AI, and how they might inform our practice

radical hope

Charles Tonderai Mudede: „radical technophilia"

Bildlogo der Konferenz „AI: Ancestral Immidiacies", HKW Berlin, 24.-26.5.24
https://www.hkw.de/en/programme/ai-ancestral-immediacies-alterlife-afterlife

„But what if a machine not only remembered those darkest of days [of slavery] but also realized how they continue to structure the capitalist global economy of our times??"

„What if, with this technology, economics really became the splendid dream of the neoclassical school: not a matter of social history but of models and algebra. A political-economic machine that really lives up to the Benthamite promise of generating the greatest amount of good for the greatest number of humans—what kind of machine would this be?"

„If AI becomes not just us, as the computer architect Blaise Aguera y Arcas maintains, but much more than us, if it sees society in technical rather than cultural or spiritual terms, then the days of slavery will not only be remembered but erased, cleared."

Mudede, C. T. (2024). Will AI Remember the Days of Slavery? E-Flux, 143.
https://www.e-flux.com/journal/143/592571/will-ai-remember-the-days-of-slavery/

Critically embracing technology:

Generative software as an algorithmic,
culturally sensitive dialogue partner and as
a decolonial liberation program.

Lewis, G. E. (2000). Too Many Notes: Computers, Complexity and
Culture in „Voyager". Leonardo Music Journal, 10, 33–39.

Too Many Notes: Computers, Complexity and Culture in *Voyager*

George E. Lewis

*V*oyager [1,2] is a nonhierarchical, interactive musical environment that privileges improvisation. In *Voyager,* improvisors engage in dialogue with a computer-driven, interactive "virtual improvising orchestra." A computer program analyzes aspects of a human improvisor's performance in real time, using that analysis to guide an automatic composition (or, if you will, improvisation) program that generates both complex responses to the musician's playing and independent behavior that arises from its own internal processes.

This work, which is one of my most widely performed compositions, deals with the nature of music and, in particular, the processes by which improvising musicians produce it. These questions can encompass not only technological or music-theoretical interests but philosophical, political, cultural and social concerns as well. This is consistent with the instrumental dimension or tendency in African musical organization, or what Robert Farris Thompson [3] identifies as "songs and dances of social allusion," one of several "ancient African organizing principles of song and dance that crossed the seas from the Old World to the New."

Voyager's unusual amalgamation of improvisation, indeterminacy, empathy and the logical, utterly systematic structure of the computer program is described throughout this article not only as an environment, but as a "program," a "system" and a "composition," in the musical sense of that term. In fact, the work can take on aspects of all of these terms simultaneously—considering the conceptual level, the process of

pears to stand practically alone [ ] the trenchancy and thoroughne[ ] of its analysis of these issues wi[ ] respect to computer music. Th[ ] viewpoint contrasts marked[ ] with Catherine M. Cameron's [ ] rather celebratory ethnograph[ ] at-a-distance of what she term[ ] "American experimentalism," [ ] which the word "race" never a[ ]pears, and in which her notion [ ] a "musical class structure" [ ] framed largely in terms of a no[ ] moribund debate about relati[ ] privilege between Europe and A[ ]

In contrast, Born's explicit id[ ] male, all-white musical and cu[ ] only by the French institute, bu[ ] traces the outlines of the deve[ ] thetic of trans-European exper[ ] unrefuted thesis that the overw[ ] music research and compositio[ ] ever unsteadily at times) withi[ ] tural practices of European c[ ] imagine a work that, like *Voyage*[ ] cal discourse using computers [ ] and historically as a branch of t[ ]

Critically embracing technology:

Generative software as an algorithmic, culturally sensitive dialogue partner and as a decolonial liberation program.

leads to the same result. *Voyager's* aesthetic of variation and difference is at variance with the information retrieval and control paradigm that late capitalism has found useful in framing its preferred approach to the encounter with computer technology. As I have observed elsewhere, interactivity has gradually become a metonym for information retrieval rather than dialogue, posing the danger of commodifying and ultimately reifying the encounter with technology:

Too Many Notes: Computers, Complexity and Culture in *Voyager*

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2

radical critique

Extractionalism

Episteme

classification: **Commodification of traditional knowledge systems and ICH (Intangible Cultural Heritage)**
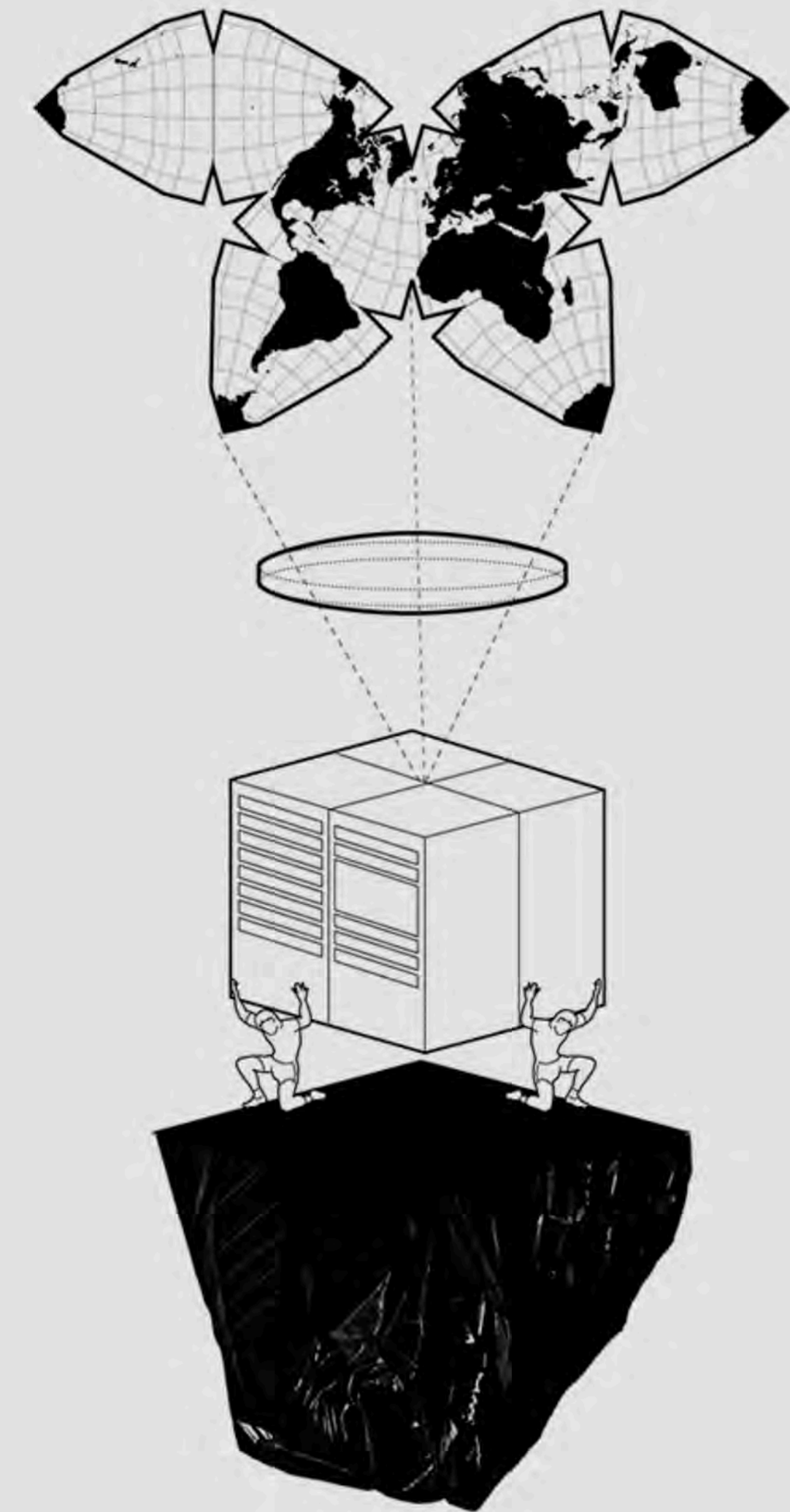
Culture

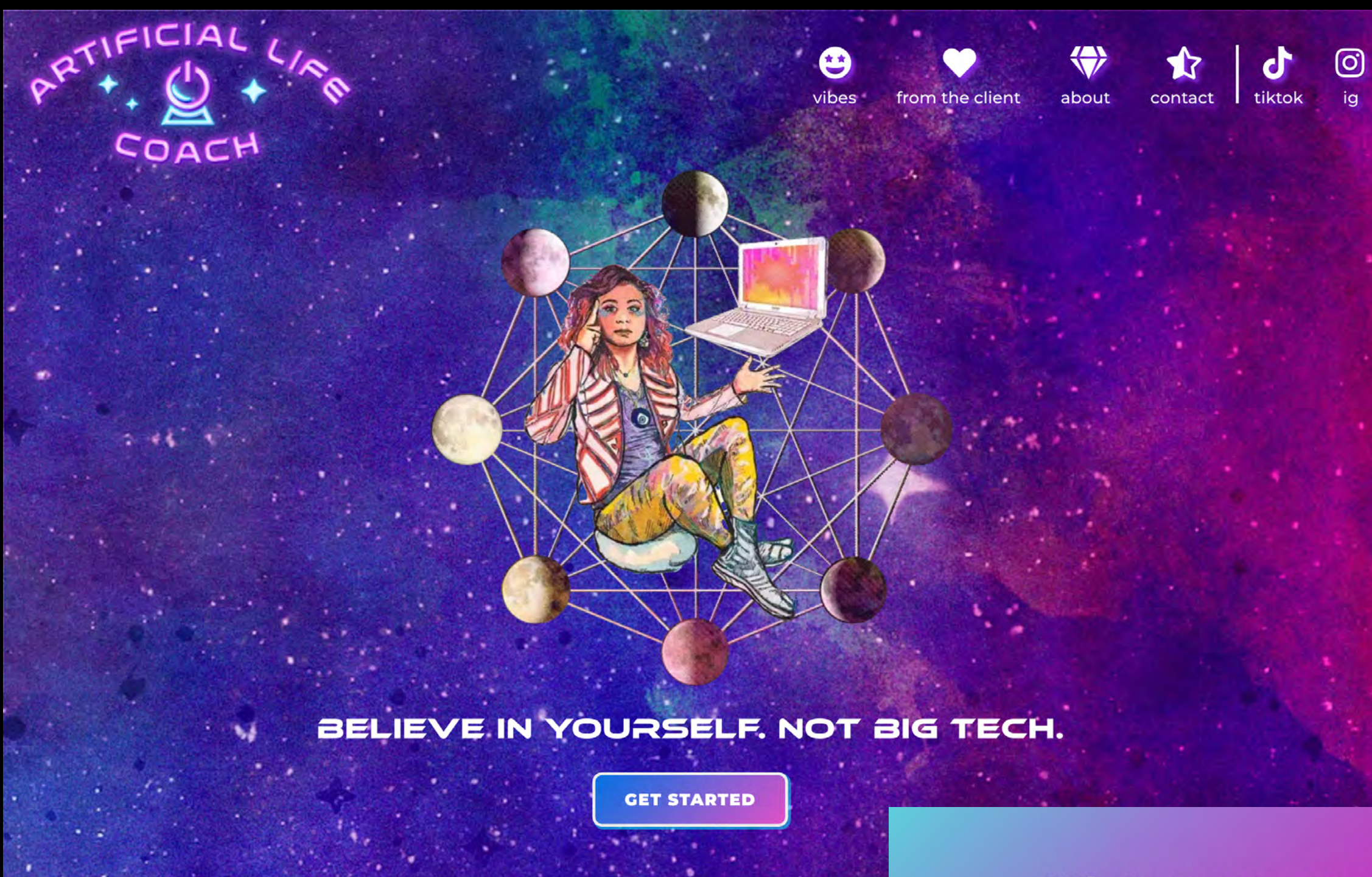*data scraping:* **Exploitation of creative labor**

Work

data (click-) work: **Neocolonial exploitation**

Planetary Matters

Planetary exploitation: Fossil energy, rare earths, toxic waste, (cooling) water

KATE CRAWFORD

ATLAS OF AI

Crawford, K. (2021). Atlas of AI: Power, Politics, and the Planetary Costs of Artificial Intelligence. Yale University Press.

**Şerife Wong:
Artificial Life Coach**

Wong, Ş. (2023). Artificial Life Coach. https://www.artificiallifecoach.com

3

artistic autonomy

Hito Steyerl, „Power Plants", Serpentine Galleries London, 11. April – 6. Mai 2019
(in cooperation with musician and Spoken Word Artist Kojey Radical)

https://youtu.be/1v08U5-BKnE?si=SgO-w3r1-4wC0Kqr

averaged internet garbage

Hito Steyerl:
„Mean Images"

AI and the Lens and
Screen Arts Spring
Symposium, New York,
18.5.2023

eine Art Black-Box-Algorithmus dafür verantwortlich machen würden,
bei dem
geheime Operationen stattfinden. Das ist

+ Keynote Presentation | Hito Steyerl

https://www.youtube.com/watch?v=LYF891n223w

averaged internet garbage

remove the noise of reality

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AI and the Lens and Screen Arts Spring Symposium, New York, 18.5.2023

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from establishing facts
to expressing probabilty

remove the noise of reality

represent the norm by signaling the mean,
represent likenesses with likelinesses

Hito Steyerl:
„Mean Images"

AI and the Lens and
Screen Arts Spring
Symposium, New York,
18.5.2023

eine Art Black-Box-Algorithmus dafür verantwortlich machen würden,
bei dem
geheime Operationen stattfinden. Das ist

+ Keynote Presentation | Hito Steyerl

https://www.youtube.com/watch?v=LYF891n223w
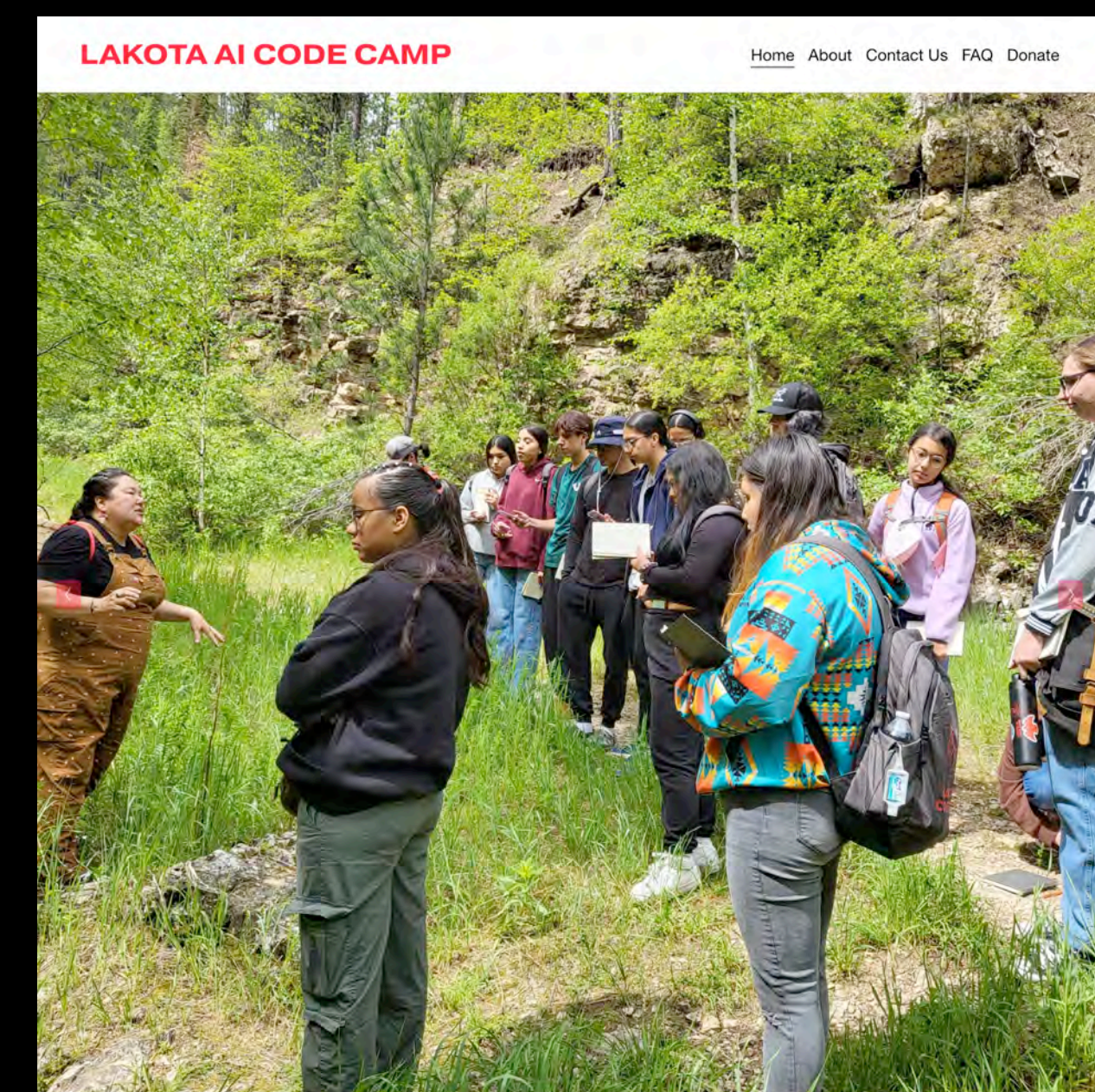
4

cultural autonomy

https://www.youtube.com/watch?v=yqRoVMXM43M

Suzanne Kite

Oglála Lakȟóta artist, composer, and academic.
https://www.kitekitekitekite.com

https://www.youtube.com/watch?v=quwcGtupcBA&t=2s

Advancing culturally rooted norms and practices to develop ethical human/non-human relationships with AI.

Activities

Lakota semiotics & song-making practices — 1

2 — Public communication of the research through artworks

AI tools collaborating with human dreamers — 3

4 — Publishing on Indigenous Research/Creation Methodologies

Beeinflussung durch künstliche Intelligenz.

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Advancing culturally rooted norms and practices to develop ethical human/non-human relationships with AI.

Artistic practice ("art work") is essential for exploring these interrelations.

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local community anchors

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local community anchors

Intensive collaboration beyond the boundaries of scientific knowledge vs. practical knowledge

https://www.youtube.com/watch?v=yqRoVMXM43M

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Activities

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2. Public communication of the research through artworks
3. AI tools collaborating with human dreamers
4. Publishing on Indigenous Research/ Creation Methodologies

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'What is the connection between materials from the earth that are moulded into sculptures and the materials of our dreams that are moulded into songs?'

Suzanne Kite

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'What is the connection between materials from the earth that are moulded into sculptures and the materials of our dreams that are moulded into songs?'

'How do Lakota ontologies prepare us to enter into new relationships and alliances with non-human beings, possibly including AI?'

Suzanne Kite

Oglála Lakȟóta artist, composer, and academic.
https://www.kitekitekitekite.com

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'We are striving to overcome the idea of artificiality and in particular to leave behind the idea of Western intelligence, which I believe is a complete myth.

There is nothing 'artificial' in this world, and in my community, intelligence is not the criterion for whether someone deserves care.'

Suzanne Kite

Oglála Lakȟóta artist, composer, and academic.
https://www.kitekitekitekite.com

https://www.allbrightcollective.com/edit/articles/mikaela-jade-indigital
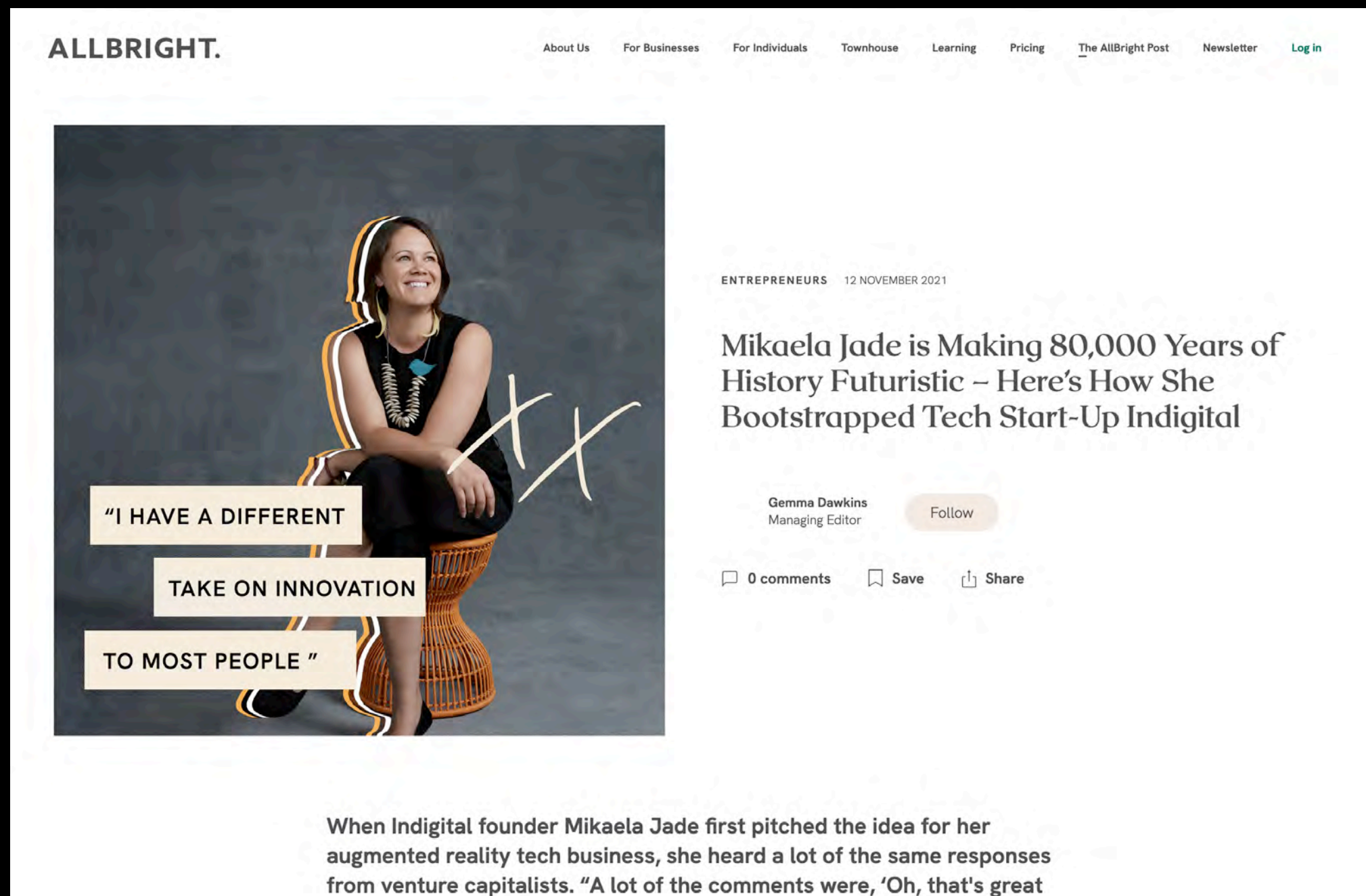
AI as part of the history(ies) of the earth/minerals
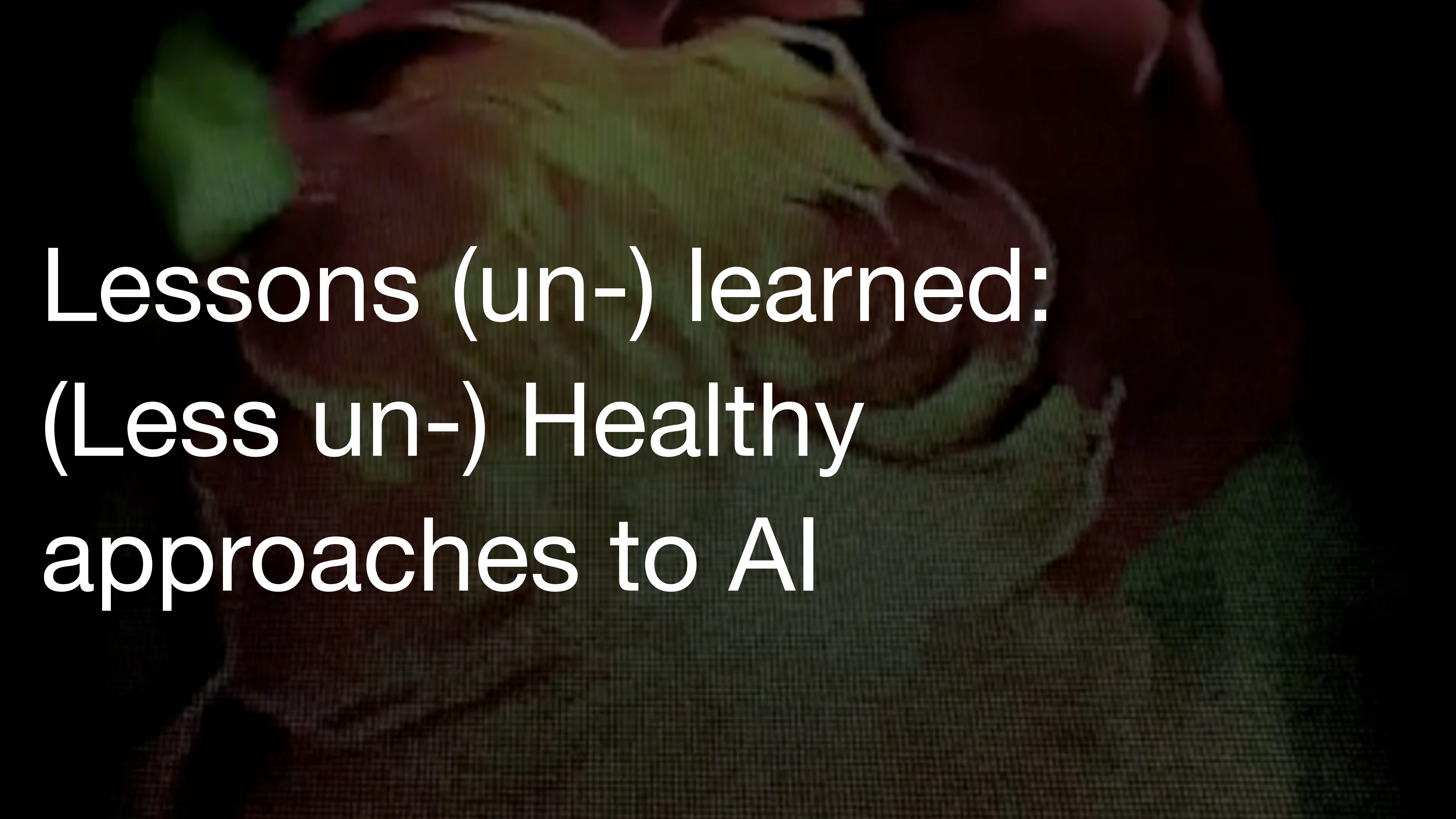
AI as a curatorial medium for intangible cultural heritage
Language, stories, forms of expression

Way of training AI not as a technical innovation, but as a continuation of cultural practices of transmission and care:
'tagging' and 'vectorisation' together with Elders

https://www.indigital.net.au/

Lessons (un-) learned:
(Less un-) Healthy
approaches to AI

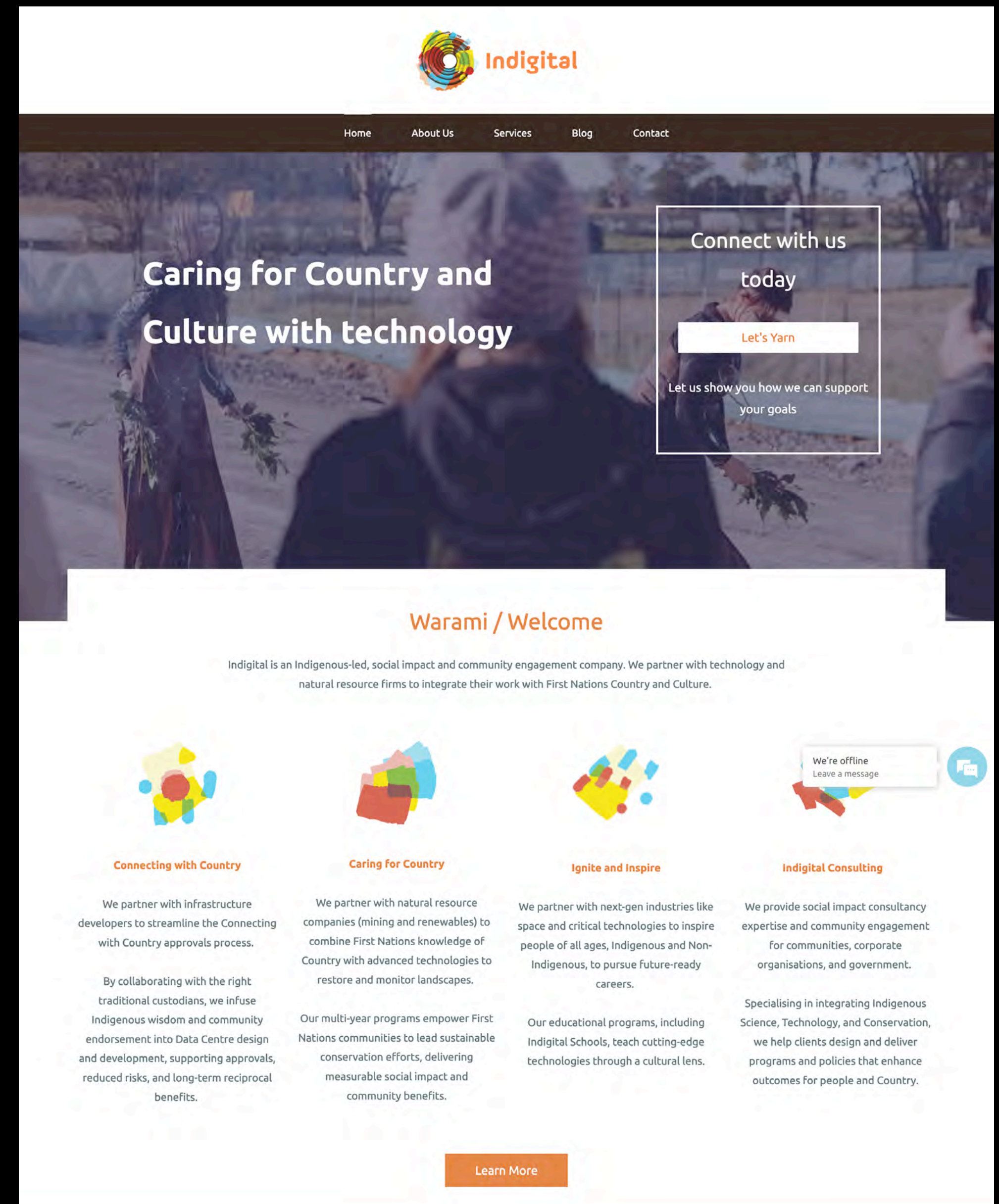| Atittude	sees ai as …	Method	Analysis
Radical Hope	Utopia	Imaginary Reframing	related to the cultural realities of digitality & ai (but less aware of economic realities)
Radical Critique	Dystopia	Cognitive Reframing	sees economy as active player, culture as object/victim of extractionalism
Artistic Autonomy	Means of expression	Artistic Reframing	art (as) following its aesthetic rules (only) generates strength because of its symbolic nature
Cultural Autonomy	Curatorial Actor, Means of Care & Healing	Cosmologic Reframing	connects culture & economy, but both embedded in indigenous cosmology → deep redefinition & recontextualization of technology

Atittude	sees ai as …	Method	Analysis	learnings
Radical Hope	Utopia	Imaginary Reframing	AI & digitality as dialogue partner related to own social & cultural realities (but less aware of economic realities)	important to overcome limitations of established hegemonial viewpoints
Radical Critique	Dystopia	Cognitive Reframing	sees economy as active player, culture as object/victim of extractionalism	important for deep, structural understanding of AI and its contexts
Artistic Autonomy	Means of expression	Artistic Reframing	art (as) following its aesthetic rules (only) generates strength because of its symbolic nature	important for media-aesthetically informed strategies, perceptual politics & practice development
Cultural Autonomy	Curatorial Actor, Means of Care & Healing	Cosmologic Reframing	connects culture & economy, but both embedded in indigenous cosmology → deep redefinition & recontextualization of technology	calls for culturally rooted orientations for technological & political action, introduces (non-western) artistic approaches entangled with care & educational work

AI4ArtsEd

Artificial Intelligence for Arts Education

Projektlaufzeit:

01.2024 bis 12.2026

FAU FRIEDRICH-ALEXANDER UNIVERSITÄT ERLANGEN-NÜRNBERG · kunst.uni-koeln.de · dfki ai Deutsches Forschungszentrum für Künstliche Intelligenz / German Research Center for Artificial Intelligence · ph karlsruhe University of Education Pädagogische Hochschule

(HOW) CAN WE BUILD A BETTER AI?

Research design: participatory, interdisciplinary, cooperative bottom-up development
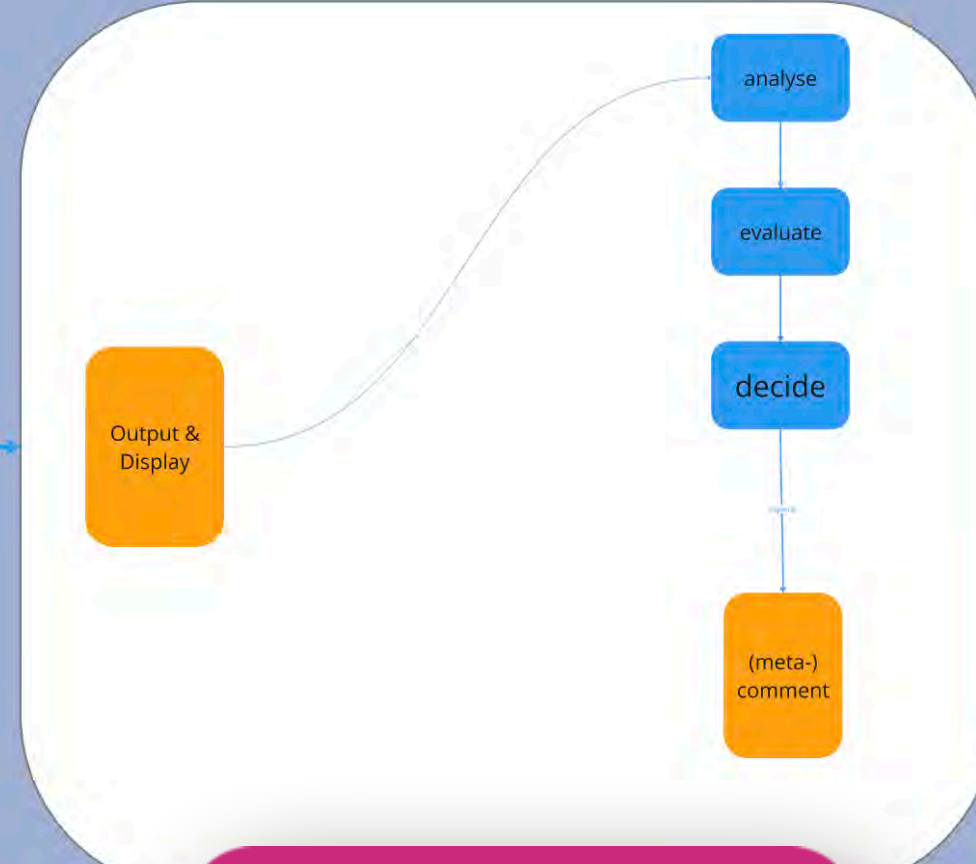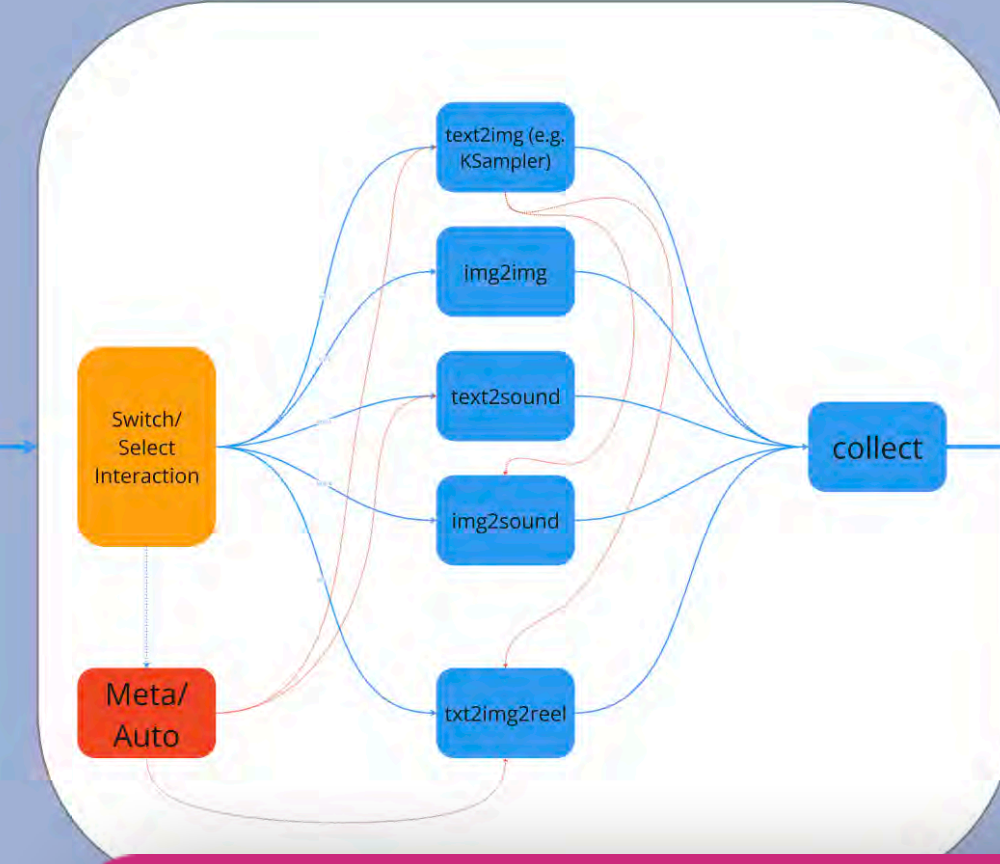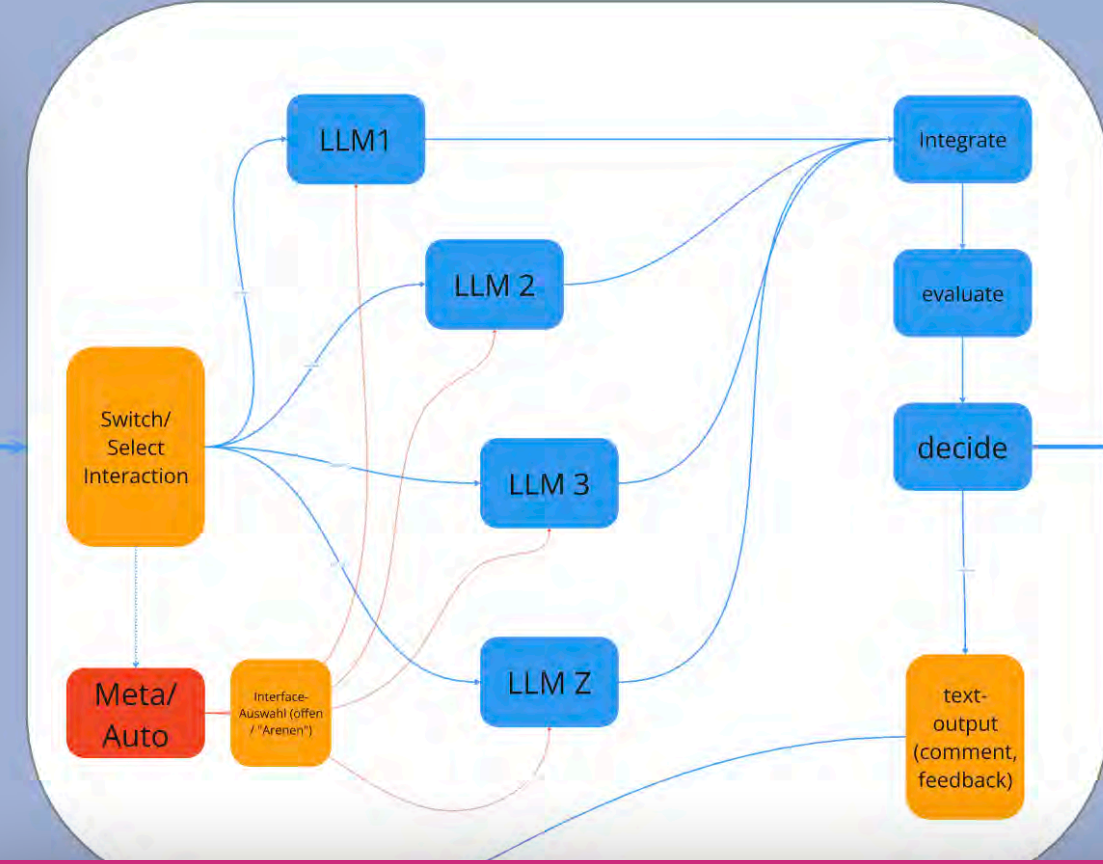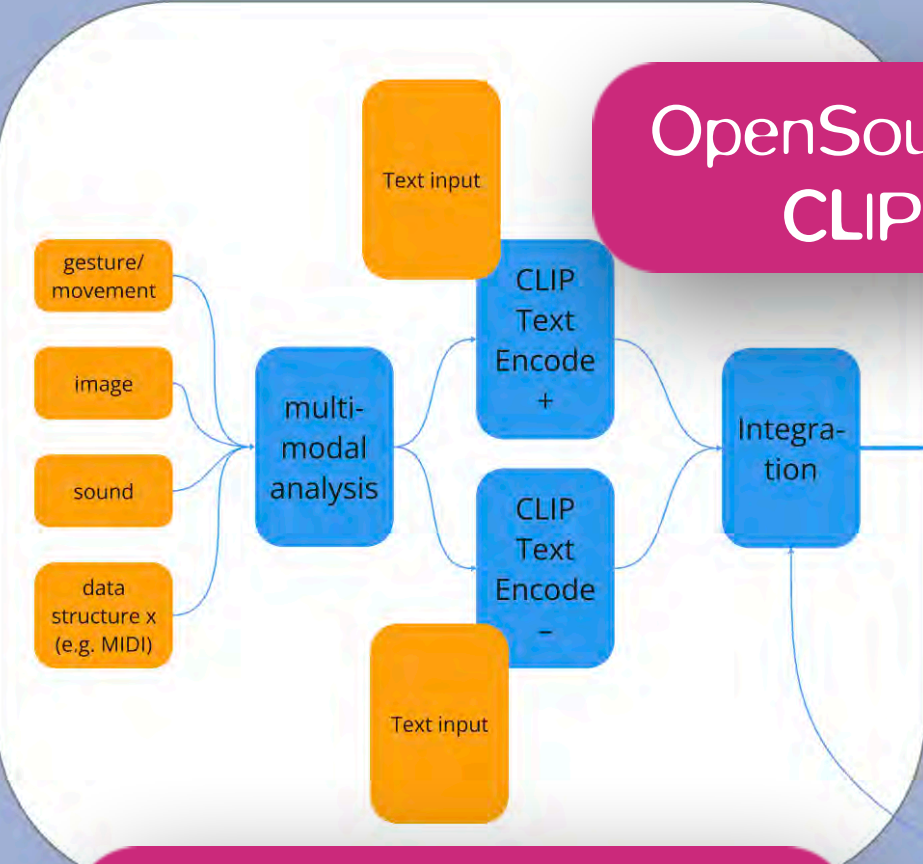
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prompt conditioning

Module "LLM" können durch externe Prozess ersetzt werden (spezialisierte GPT oder andere LLM). Meta/Auto-Modul kann durch manuellen Workflow (Anweisungen) ersetzt werden.

- Text input
- gesture/movement
- image
- sound
- data structure x (e.g. MIDI)
- multi-modal analysis
- CLIP Text Encode +
- CLIP Text Encode –
- Integration
- Text input

OpenSource-CLIP

aimed for: multimodal inputs, not language-centered

---

prompt interception

- Switch/Select Interaction
- LLM1
- LLM 2
- LLM 3
- LLM Z
- Meta/Auto
- Interface-Auswahl (offen / "Arenen")
- Integrate
- evaluate
- decide
- text-output (comment, feedback)

Prompt interception: not prompt optimization, but prompt decentering and artistic prompt deconstruction.

---

generative action

aed kann durch externe Lösungen/Handlungsanweisungen ersetzt werden

- Switch/Select Interaction
- text2img (e.g. KSampler)
- img2img
- text2sound
- img2sound
- txt2img2reel
- Meta/Auto
- collect

Option to participatively train custom models (cultural diversity, socio-spatial reference)

---

output & evaluation

- Output & Display
- analyse
- evaluate
- decide
- (meta-) comment

Bias-Evaluation of the Output + Feedback

Interface: Modular approach, self-directed use of modules

Aimed for: collaboration with indigenous & decolonial initiatives, internal project unlearning, and, if applicable, development of models

Aimed for: Open-source outcome, operational independent from service providers

Friedrich-Alexander-Universität
Erlangen-Nürnberg

Prof. Dr. Benjamin Jörissen
https://joerissen.name
https://ucdcae.fau.de

Generative Artificial Intelligence and the Politics of Perception:

Artistic Practice as Critical Intervention

4th International Technical University of Kenya
- Exploring Visual Cultures Conference

The Technical University of Kenya/online, 26. November 2024