

ASTC 2022

# Beyond Science Lessons, Towards Science Experiences

September 12, 2022

**MM**

+

**STUDIO JOSEPH**

+

**Bluecadet**

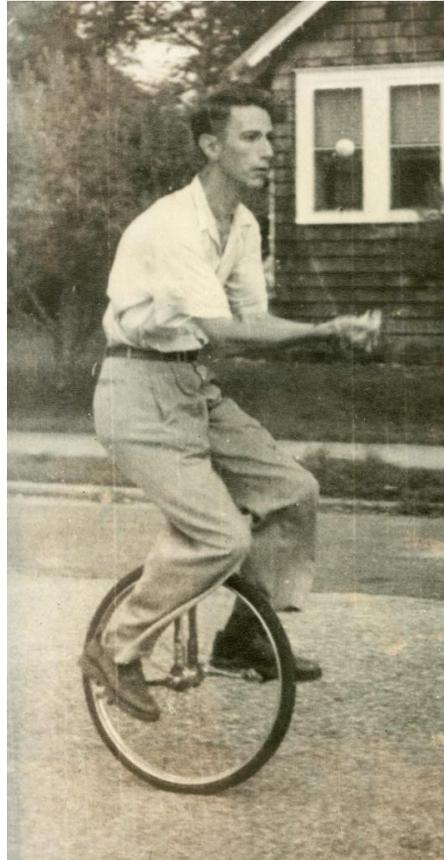




# MIT Museum

OVERVIEW

# People Discoveries Values



# Hacking Participation Authenticity

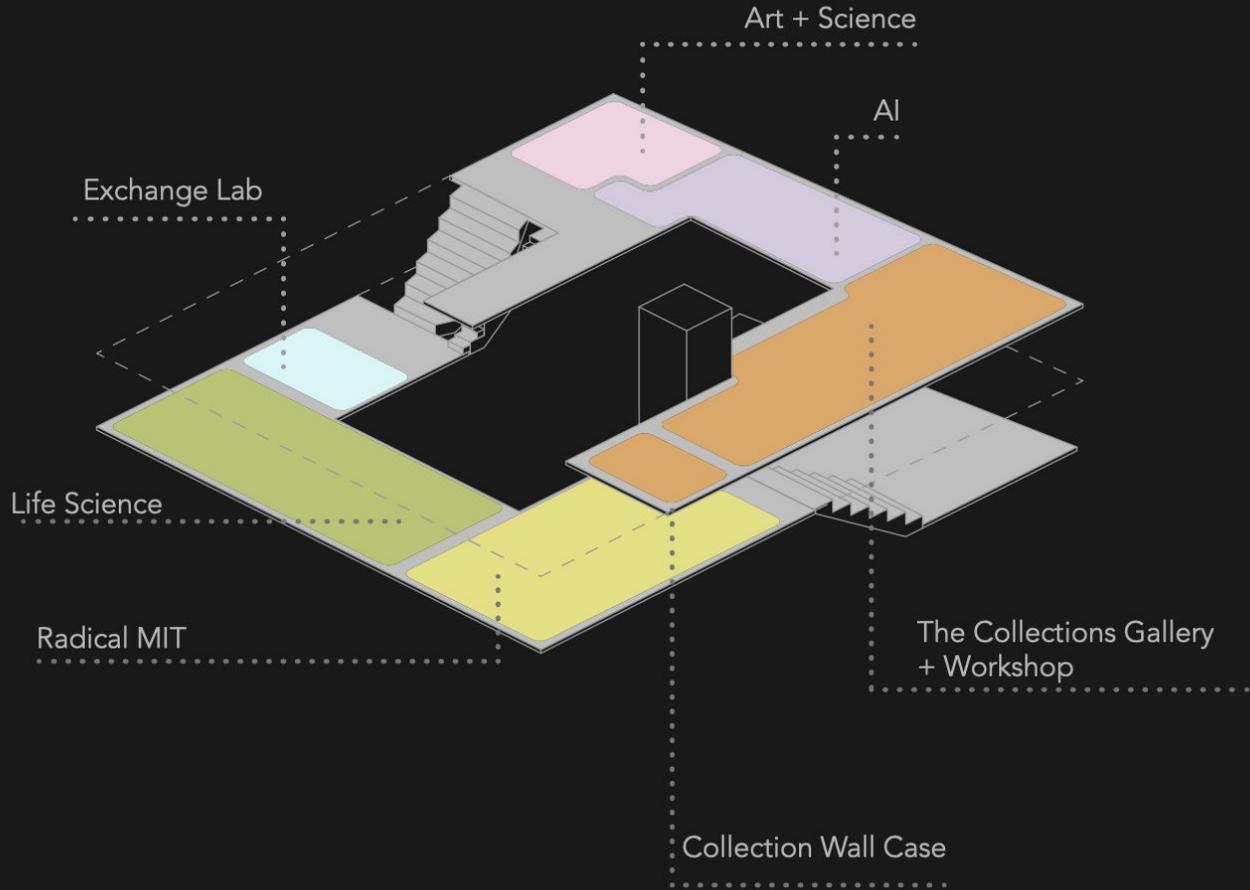




MIT Museum  
Temporarily closed

The Link  
314 Main St,  
Cambridge, MA 02142







# CULTURES

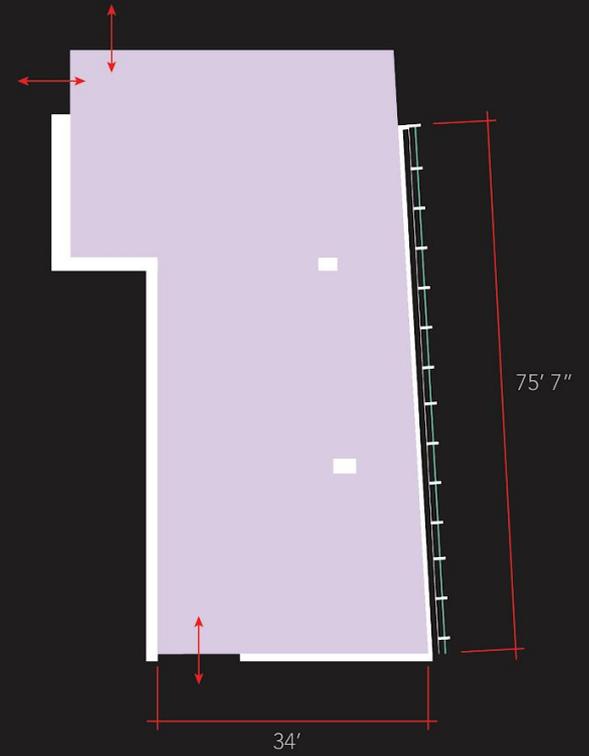
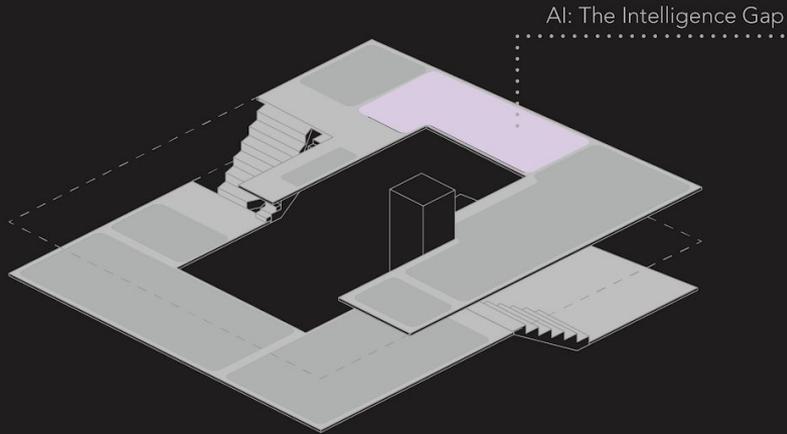


## ALTERING

# SENSING

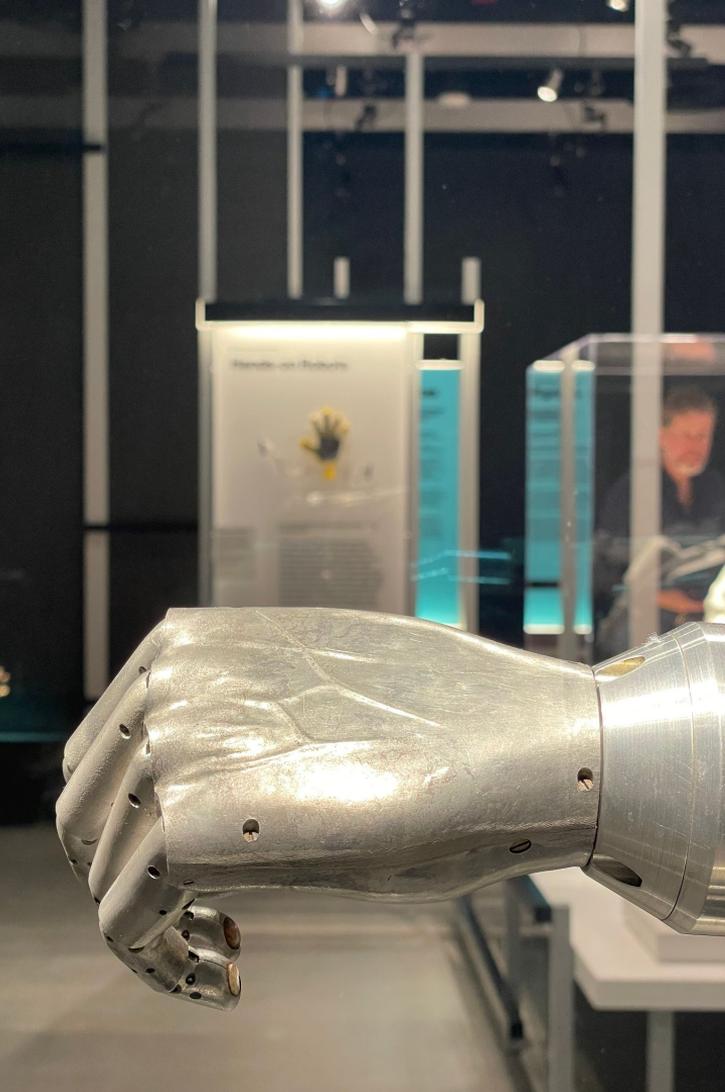
Textual information panel on the right wall, likely providing details about the exhibit.







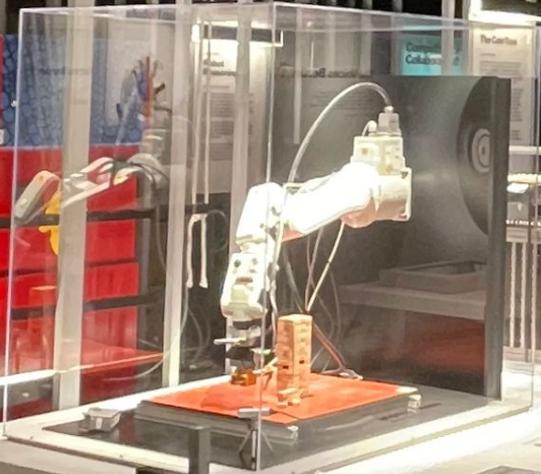
**The irony of artificial intelligence is that it inspires new perspectives on human intelligence.**



Hands-on Robots



Text describing the hands-on robot exhibit, including a small image of the robot's hand.



Interactive display panel with an orange background, likely providing information about the robot's capabilities or safety features.

Interactive display panel with a white background, possibly detailing the robot's programming or control interface.





**Make every pixel count.**

**Black Box**

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**Collaborative Poetry**

# Black Box

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Collaborative Poetry



**We need to understand what’s happening inside the black box—how neural networks are processing input, and where our lack of understanding affects the output as well as potential bias and inefficiencies.**

— Lindsay Bartholomew, MIT Exhibit Developer

# neural network

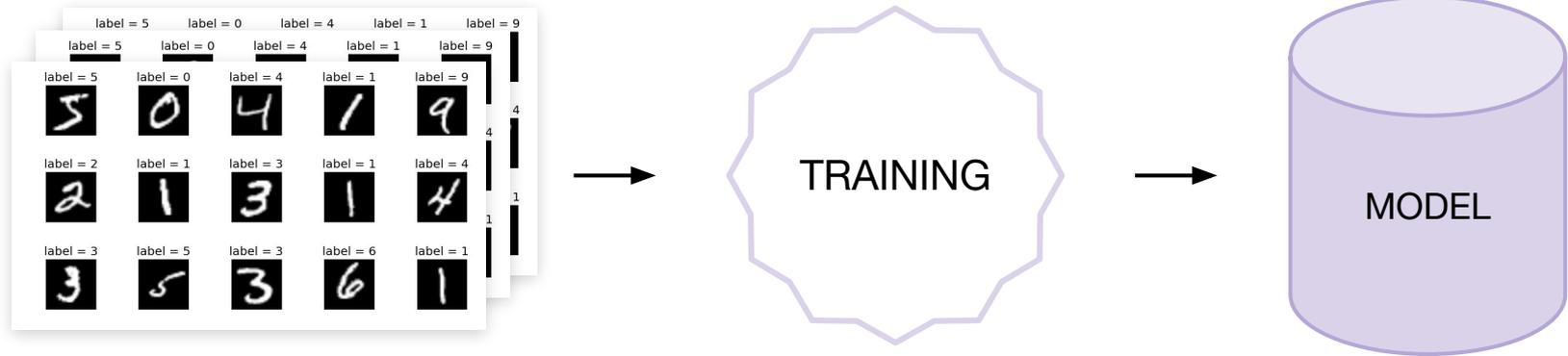
## **Noun**

a computer architecture in which a number of processors are interconnected in a manner suggestive of the connections between neurons in a human brain and which is able to learn by a process of trial and error

- Merriam Webster

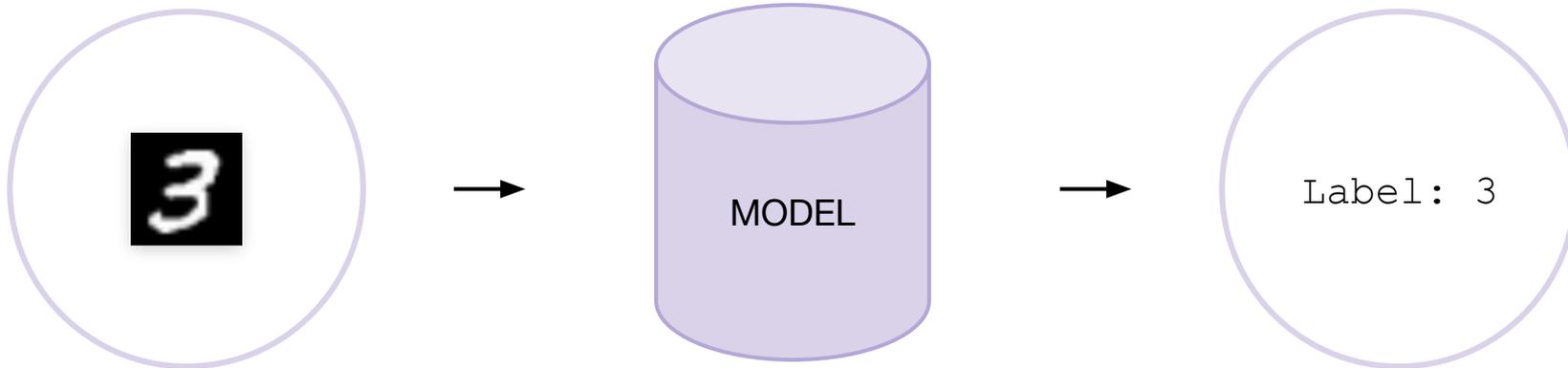
# neural network

## Training

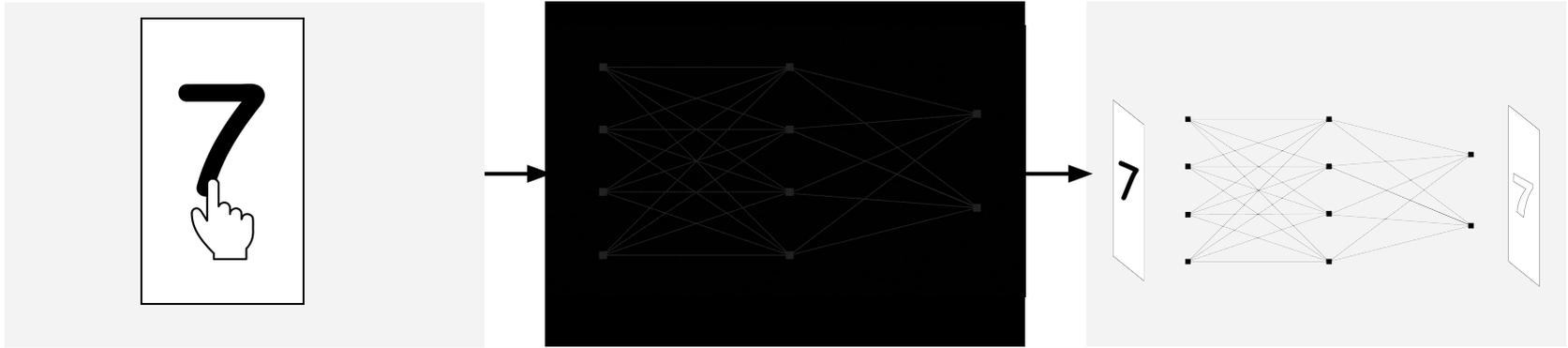


# neural network

## Processing



# Visitor Experience



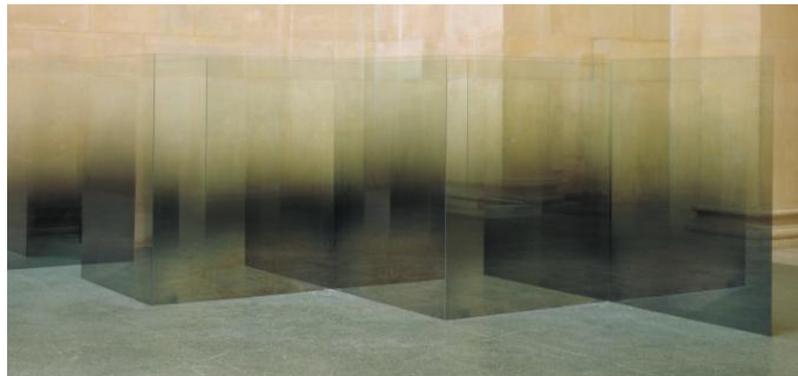
1. Input

2. Compute

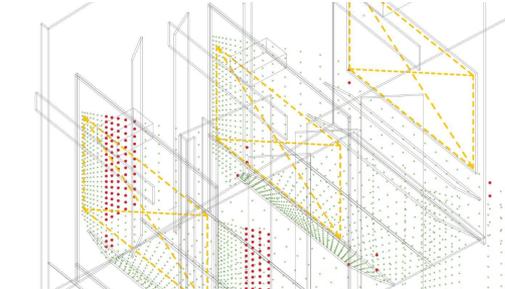
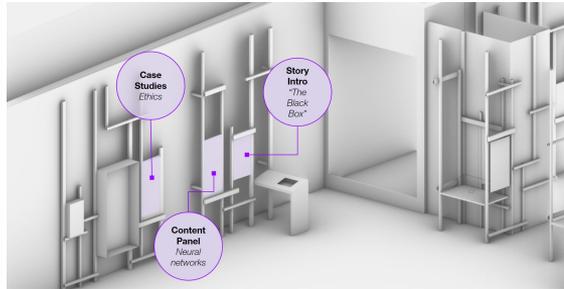
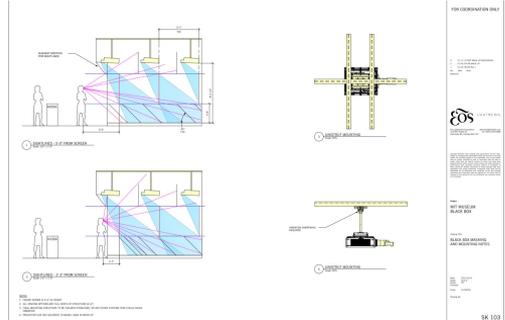
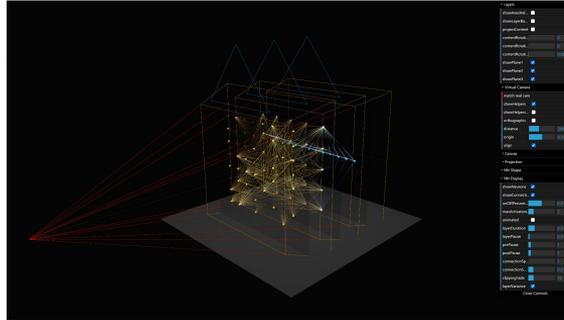
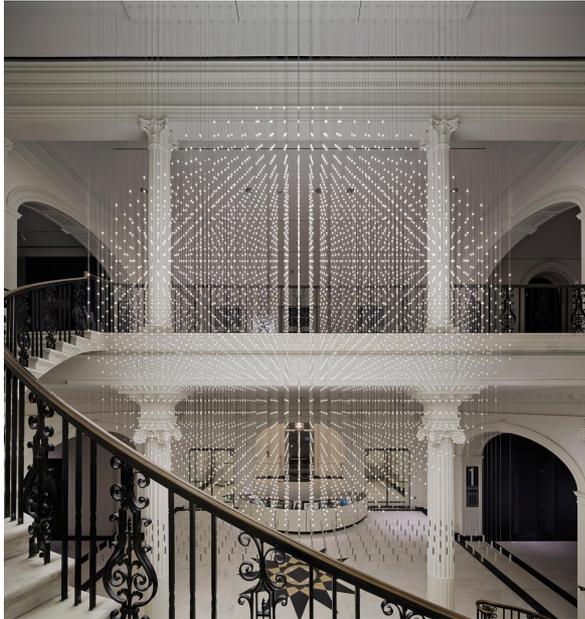
3. Result

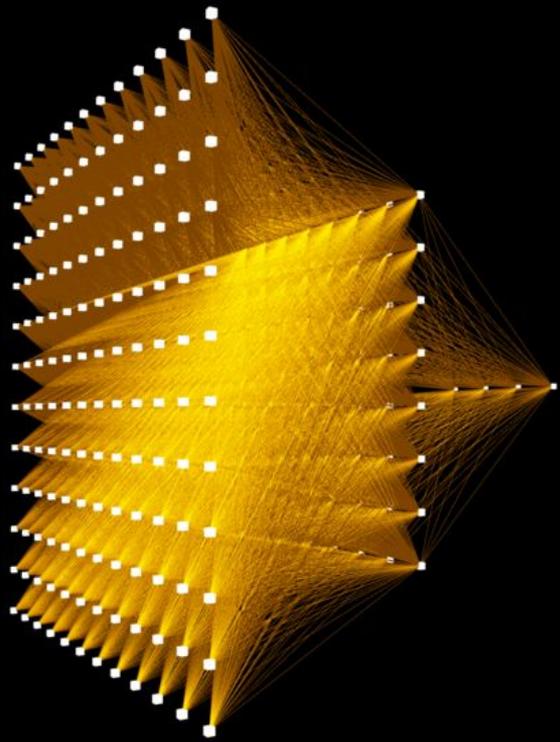
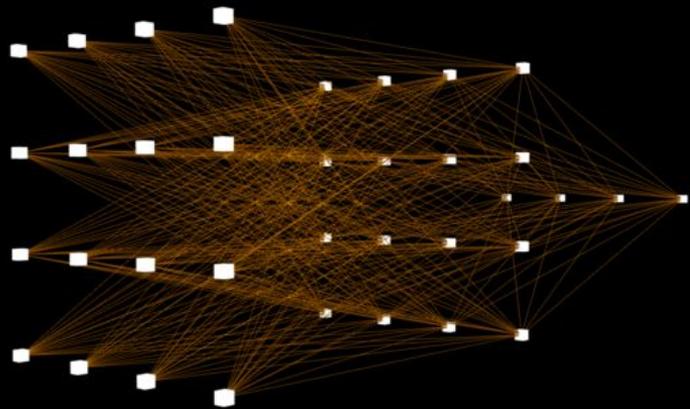
# Unveiling the Digital Realm

# Initial Thinking - Spatial/Experiential

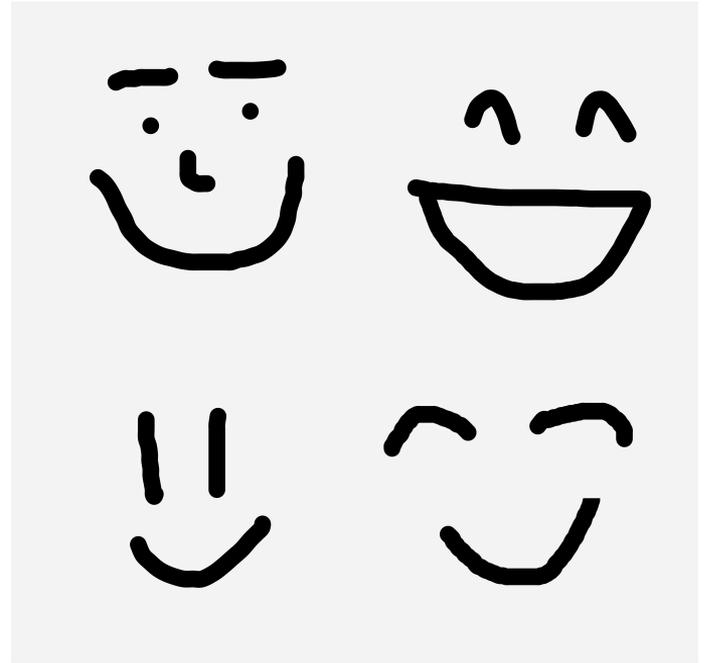
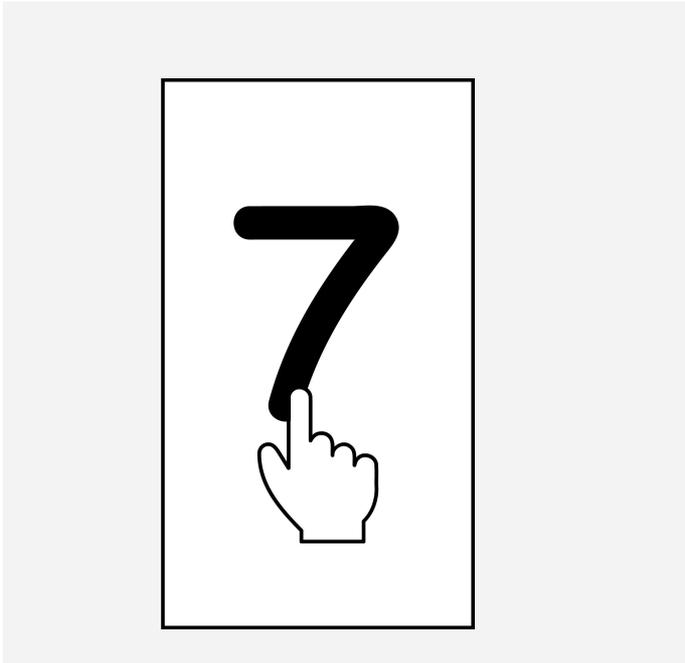


# Experience + Spatial + Graphics + Media + AV + Fabrication + Content

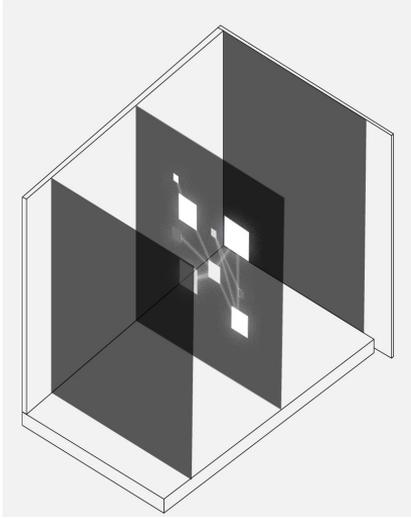




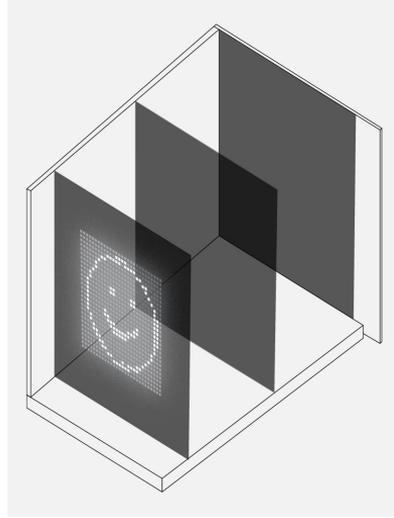
## Visitor Experience



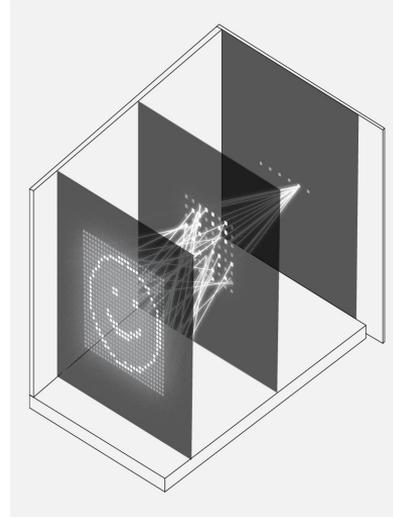
# Canvas States



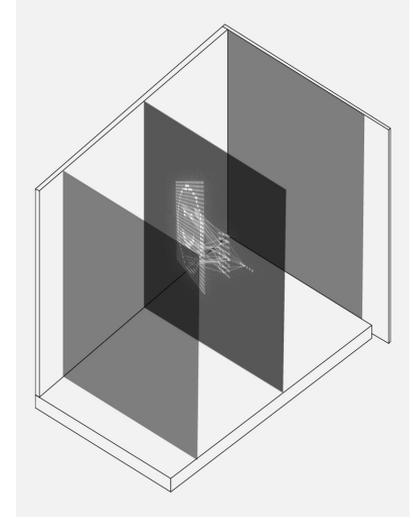
Attract



Input Received

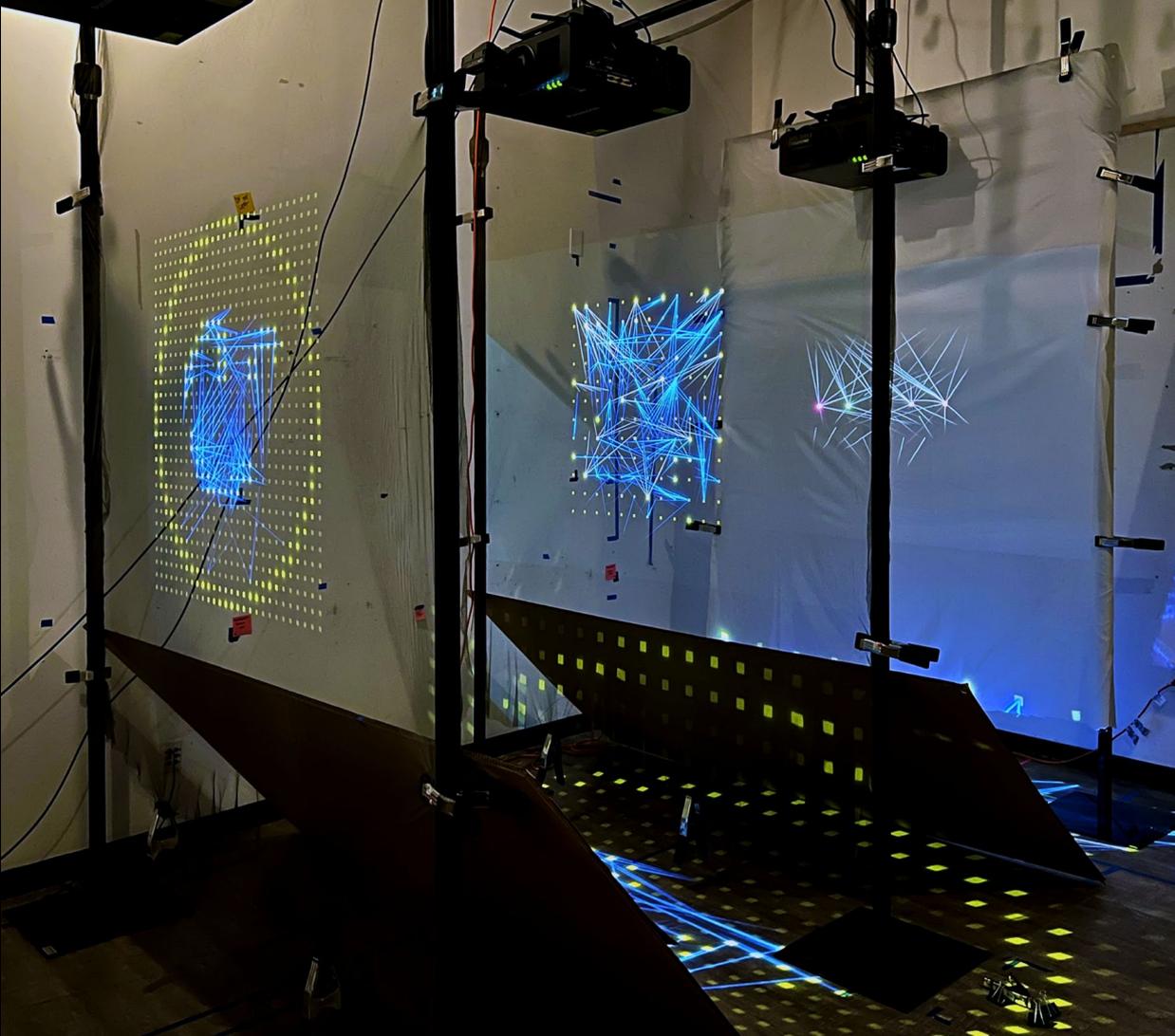


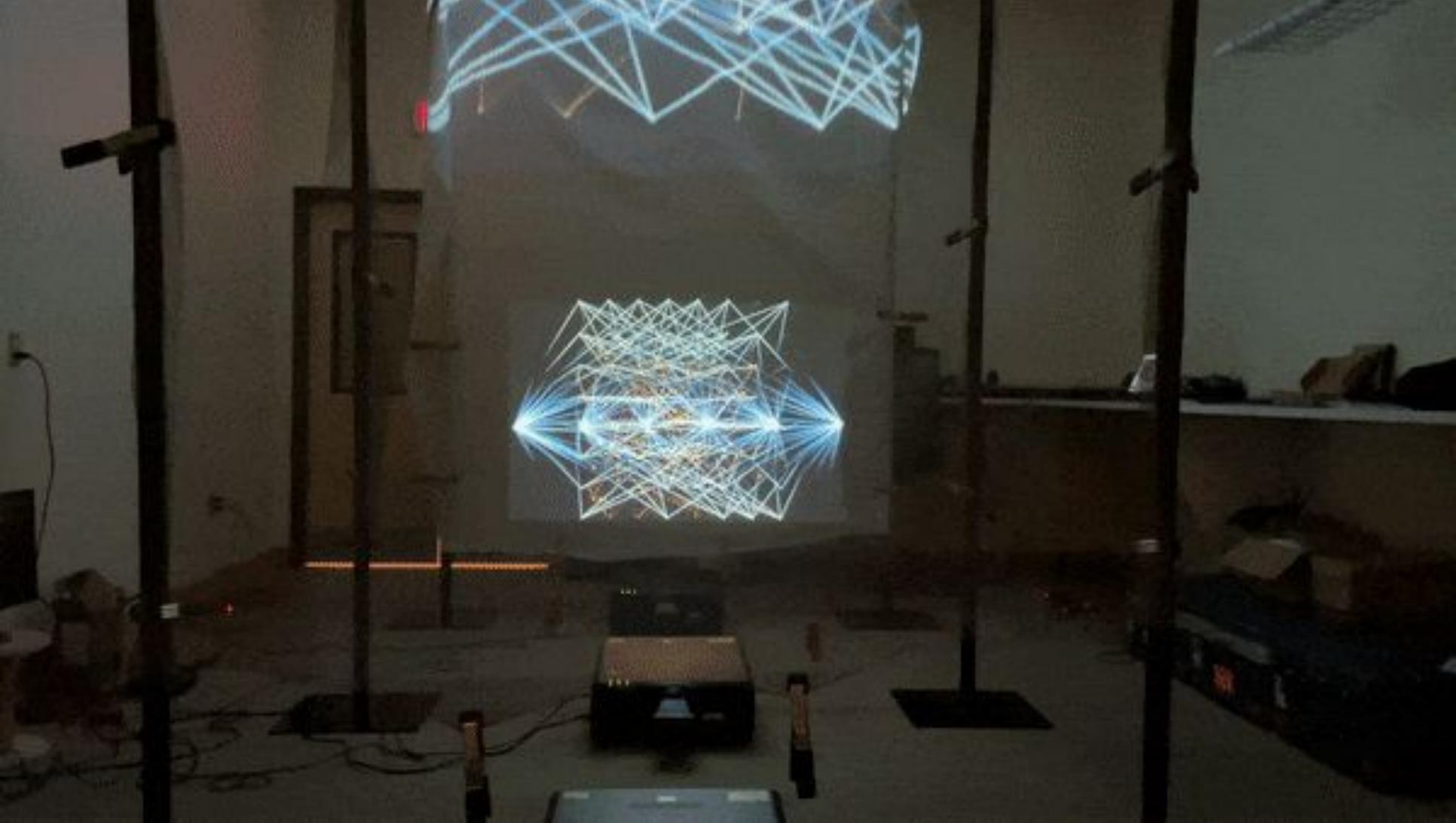
Computing



Result

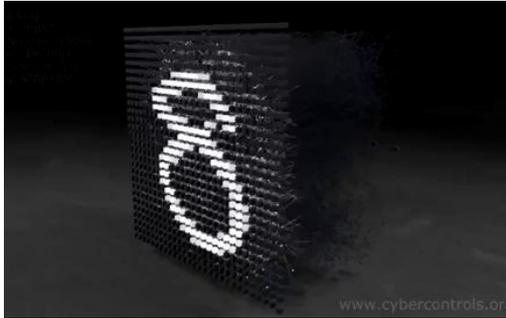






# Hacking the Museum

# Visual Affordances



Approach #1

## Technical/Functional

A demonstrative tool to show how neural networks work.

Theme: **Programmed and Decisive** or **Onboarding?**

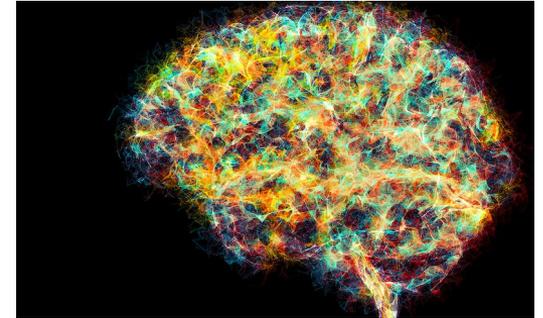


Approach #2

## Expressive/Artistic

A beautiful visualization that exposes the inner workings of a neural network in an artistic way.

Theme: **Introduction?**



Approach #3

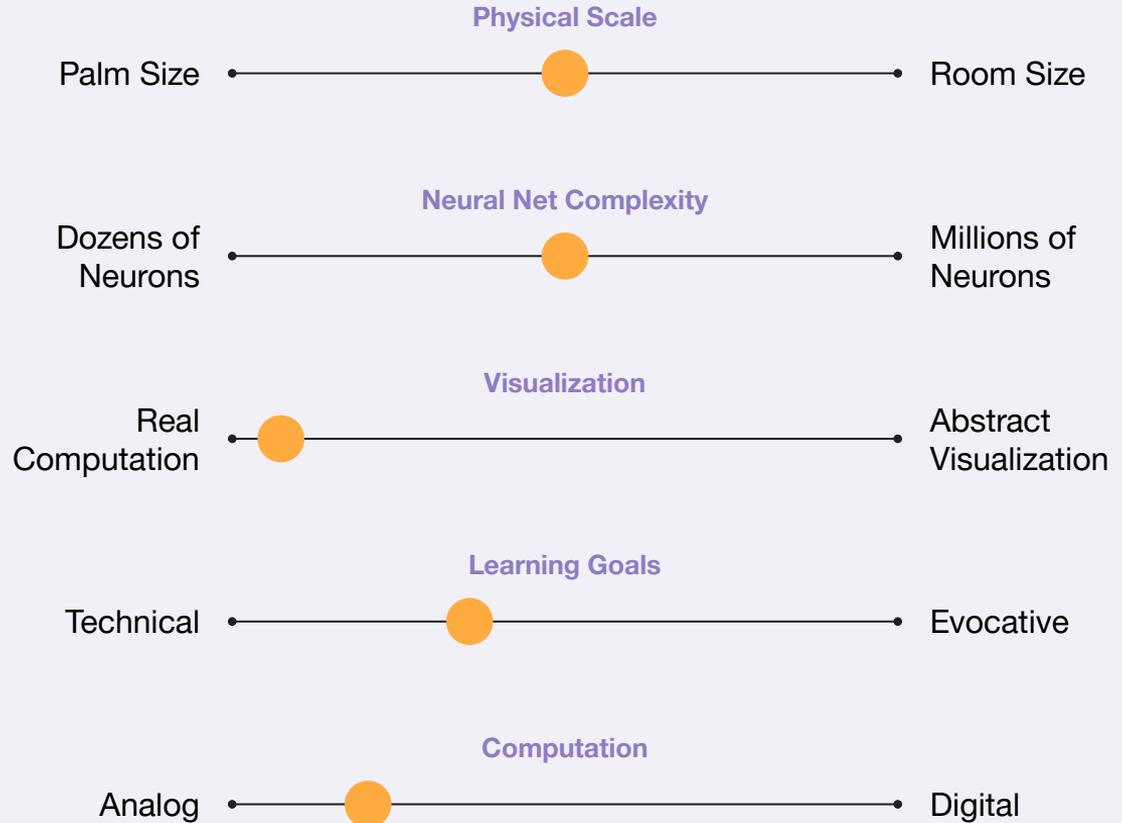
## Empathetic/Biological

Bringing a real-life, humanizing tone to neural networks by relating the Blackbox expression to how our own brains process (biases included).

Theme: **Neutral or Partial?**

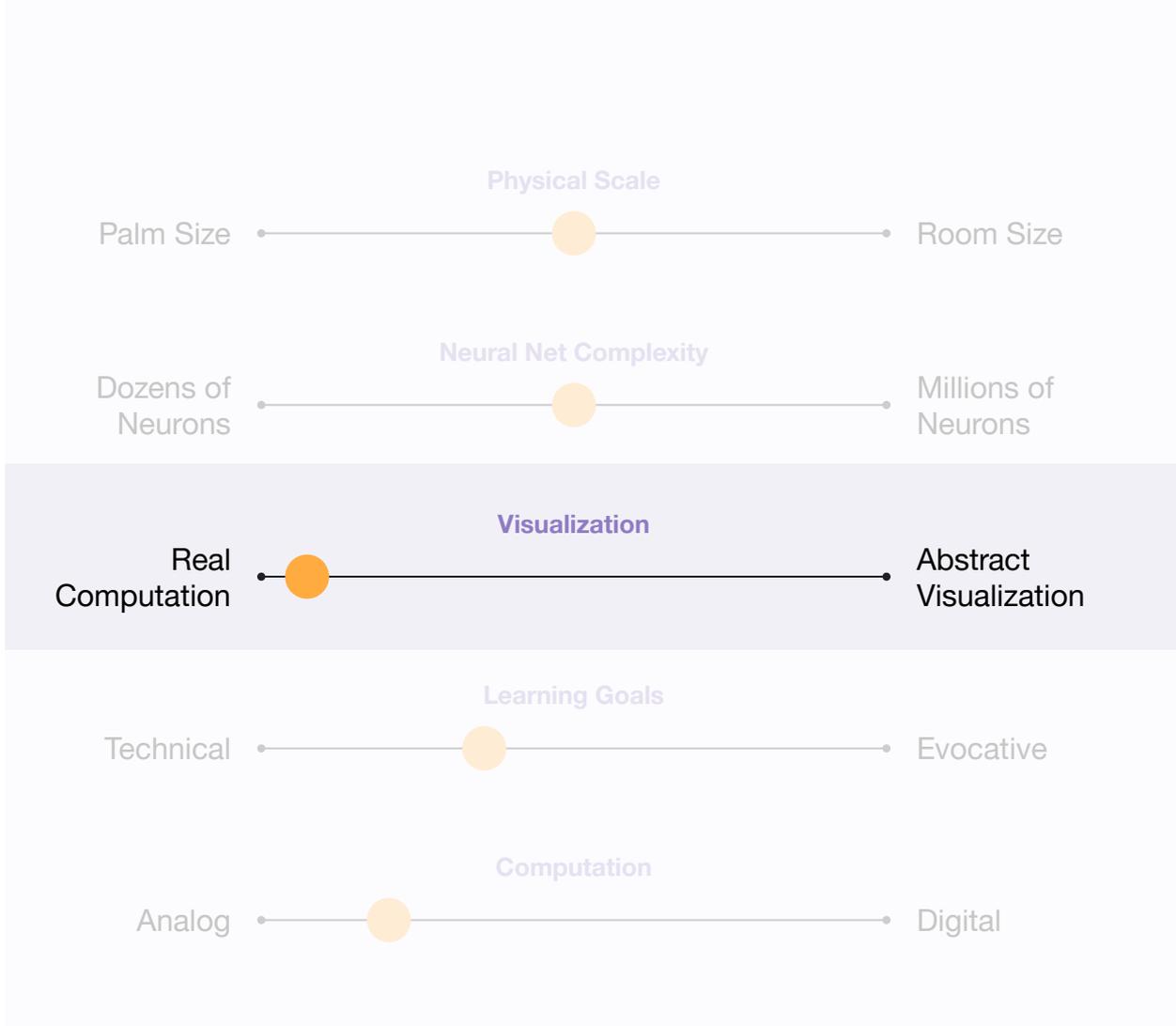
# Experience Spectra

How do we want visitors to experience Black Box? What are the spatial and content goals?



# Experience Spectra

How do we want visitors to experience Black Box? What are the spatial and content goals?



**Can a machine  
analyze data ?**



**interpret emotion ?**

# Crowd-Sourced Training

0 DRAWING CONTRIBUTED

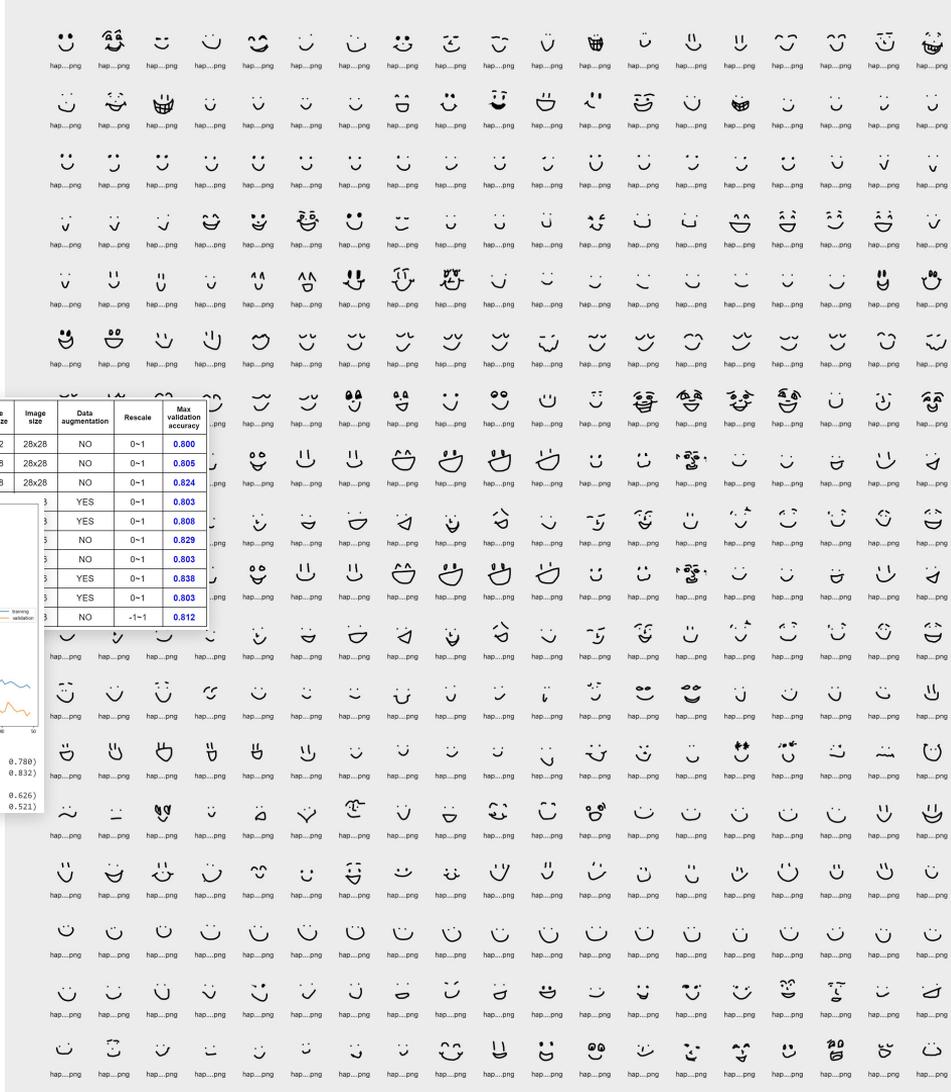
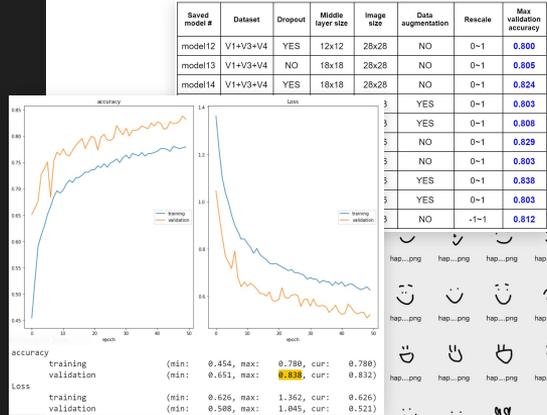
## Happy

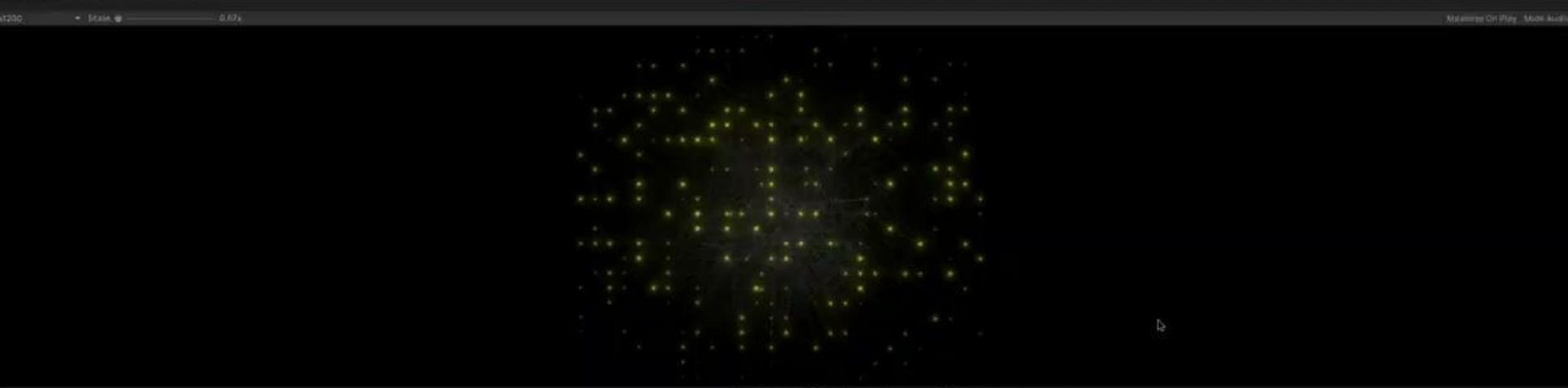
Draw this expression on the empty face



Clear Skip

Submit





0 (1020x1080) 3.44s 0.56s Maximize On Play Mute Audio Stats Gizmos

Scene Console Hierarchy Project Inspector

Shaded 20 60 100

ProjectbinPlane2

ProjectbinPlane1

ProjectionPlane0

AttractCamera

# How does this **neural network** understand your drawing?

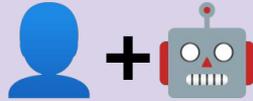
TRY IT

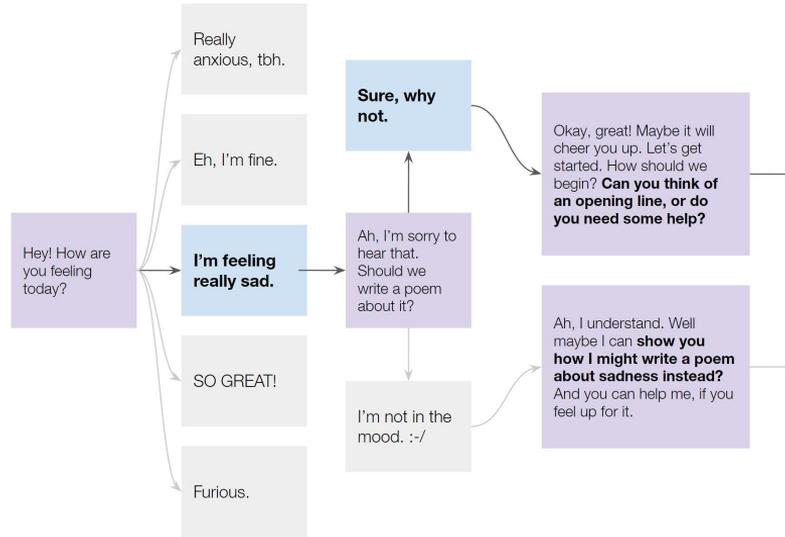


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# Collaborative Poetry

# Writing Together





Complex

Simple

### Poem Text

Walking with my love on the beach  
Under the radiant and blue ocean

Generate

Retry

### GPT-3 Params

Temperature

0.9

Length

A word

A line

A few lines

Number of Options

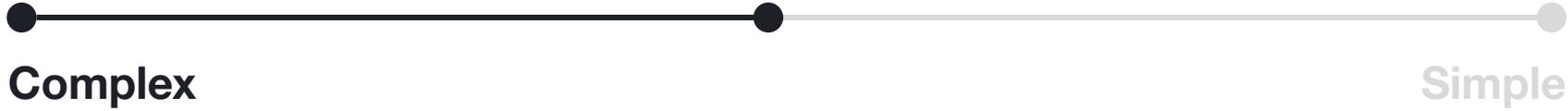
1

3

Last Prompt for GPT-3

Write a poem about the following subject: A walk on the beach.  
Write the poem in the following genre: Ballads. Write the poem in  
style of Emily Dickinson. The mood of the poem should be  
hopeful. Start without a title.

Walking with my love on the beach



**Subject**

Generate

**Mood**

Generate



**Complex**

**Simple**



Model prompt >>> The bird was dead.

 Model prompt >>> The bird was dead.

=====

 And the dog lay dead-beaten

 Model prompt >>> The bird was dead.

=====

 And the dog lay dead-beaten

Upon the path,

And the poor old owl

Came down with a thump

And we heard him cry.

=====

 Model prompt >>> The bird was dead.

=====

 And the dog lay dead-beaten

Upon the path,

And the poor old owl

Came down with a thump

And we heard him cry.

=====

 Model prompt >>> His ghost was tawny

brown

=====

 Model prompt >>> The bird was dead.

=====

 And the dog lay dead-beaten

Upon the path,

And the poor old owl

Came down with a thump

And we heard him cry.

=====

 Model prompt >>> His ghost was tawny

brown

=====

 And there was his bird,

And we heard him call.

=====

 Model prompt >>> The bird was dead.

=====

 And the dog lay dead-beaten

Upon the path,

And the poor old owl

Came down with a thump

And we heard him cry.

=====

 Model prompt >>> His ghost was tawny

brown

=====

 And there was his bird,

And we heard him call.

=====

 Model prompt >>> The bird was dead.

=====

 Model prompt >>> The bird was dead.

=====

 And the dog lay dead-beaten  
Upon the path,  
And the poor old owl  
Came down with a thump  
And we heard him cry.

=====

 Model prompt >>> His ghost was tawny  
brown

=====

 And there was his bird,  
And we heard him call.

=====

 Model prompt >>> The bird was dead.

=====

 But the wren took up the wren  
And sang--and we heard.  
The wren was dead.  
And the dog cried out, "You, sir,  
You did it."  
"I did it," said the man,  
"To save you."  
The bird he sang to us,  
"You did it. You did it."  
We thought we heard him.  
"You did it. You did it,"

=====



## blue and gold

At the foot of the mountain  
I can see green and purple  
The headwaters of a rushing stream  
I can listen to the music  
Of leaves rustling in the wind  
I can smell the rain and flowers

The kindness that the forest extends  
Is a gift we can all appreciate  
But before you can know  
You must first walk through  
The thick canopy of trees

Oftentimes  
The whole forest seems to welcome you  
As it envelops you  
In its soft embrace  
Without judgment, without fear  
What a lovely experience

Talia D. + AI

The kindness that the forest extends  
Is a gift we can all appreciate  
But before you can know  
You must first walk through  
The thick canopy of trees

Oftentimes  
The whole forest seems to welcome you  
As it envelops you  
In its soft embrace  
Without judgment, without fear  
What a lovely experience

Talia D. + AI

Another poem  
completed.

**What are the necessary  
ingredients for *any* successful  
creative collaboration?**

Poem Generation

Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed do eiusmod tempor incididunt ut labore et dolore magna aliqua. Ut enim ad minim veniam, quis nostrud exercitation ullamco laboris nisi ut aliquip ex ea commodo consequat.

Excepteur sint occaecat cupidatat non proident, sunt in culpa qui officia deserunt mollit anim id est laborum. Neque porro quisquam est, qui dolorem magnam aliquam quaerat voluptatem.



AS IF THE MESSAGE  
FOR A  
LARKS ON  
THE SPRAY  
ARE FLYING

BUT THE  
SUN WANE  
IS IN THE  
WEST

NIGHTINGALE  
NOW SINGS

THE SWAN IS  
BACK, AND THE  
NIGHTINGALE,

AND THE GREY  
WATER RIPPLES BY

AI

AND THE LONELY  
WANDERER  
NOW DO NOT HEAR

EAR FROM THE  
DISMAL GROVE

A LONELY  
SWAN FROM  
THE SEA  
FLIES

WITH THE SUN  
ON HIS BREAST

AND THE  
CLOUDS

WHEN HE  
REACHES  
THE FOREST

WITH THE  
HAPPY ST

AI



The sun is  
and the moon  
is in the  
sky

and I would  
be a star

I would be a star  
in the sky

After this  
I will be a star  
in the sky

After this  
I will be a star  
in the sky

## Poem Generation

Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed diam nonummy nibh euismod tincidunt ut laoreet dolore magna aliquam erat volutpat. Ut wisi enim ad minim veniam, quis nostrud exerci tation laoreet ullam corper suscipit lobortis nisl ut aliquip ex ea commodo consequat. Duis autem eum iriure dolor in hendrerit in vulputate velit esse molestie consequat aliquam.



The bird  
and the dog  
was dead  
and the  
bird was  
beaten  
in the  
path  
of old  
men with

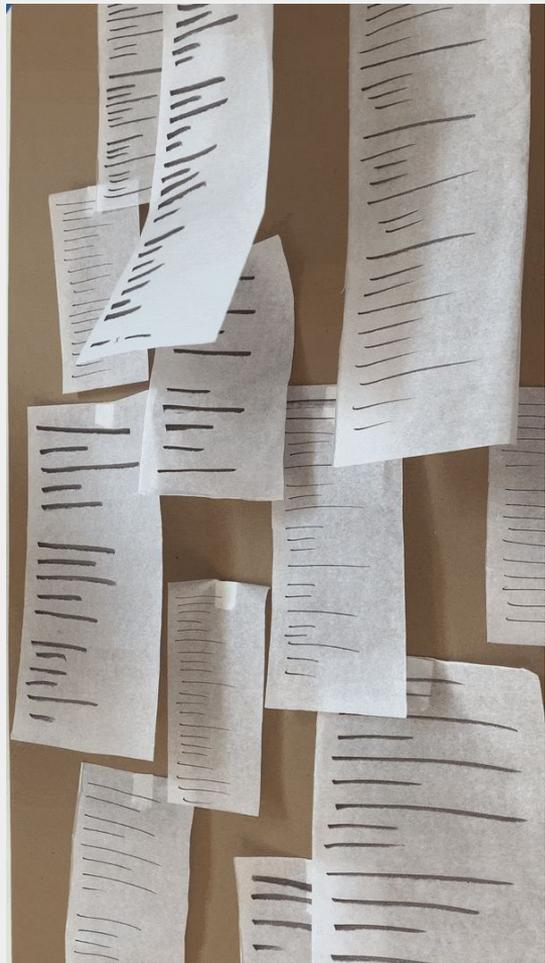
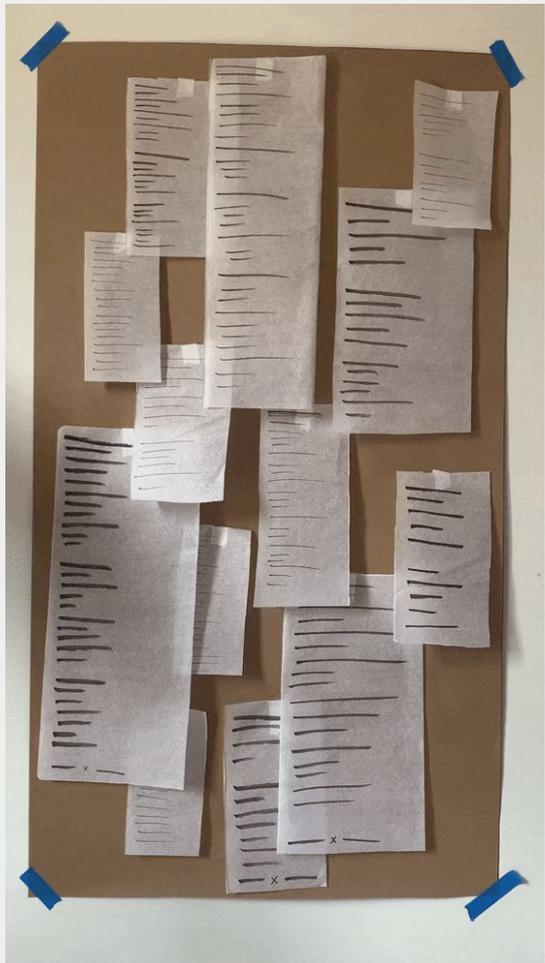
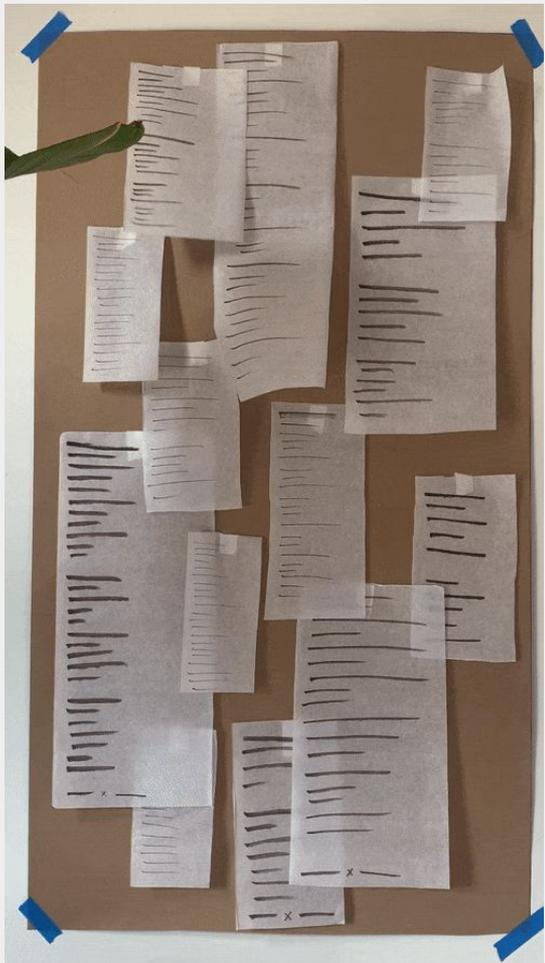
Do you hear  
the people sing  
THEY ARE SINGING  
THE CRY SONG OF THE SEA,  
The song of the men  
WHO HAVE SAILED AWAY.

Passive  
or E

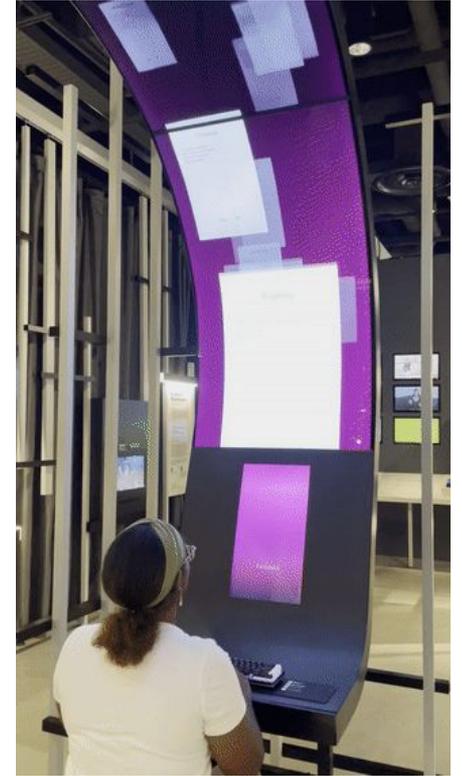
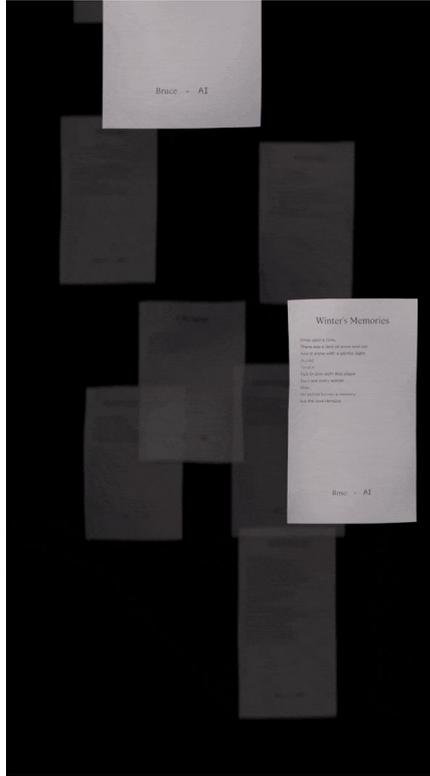
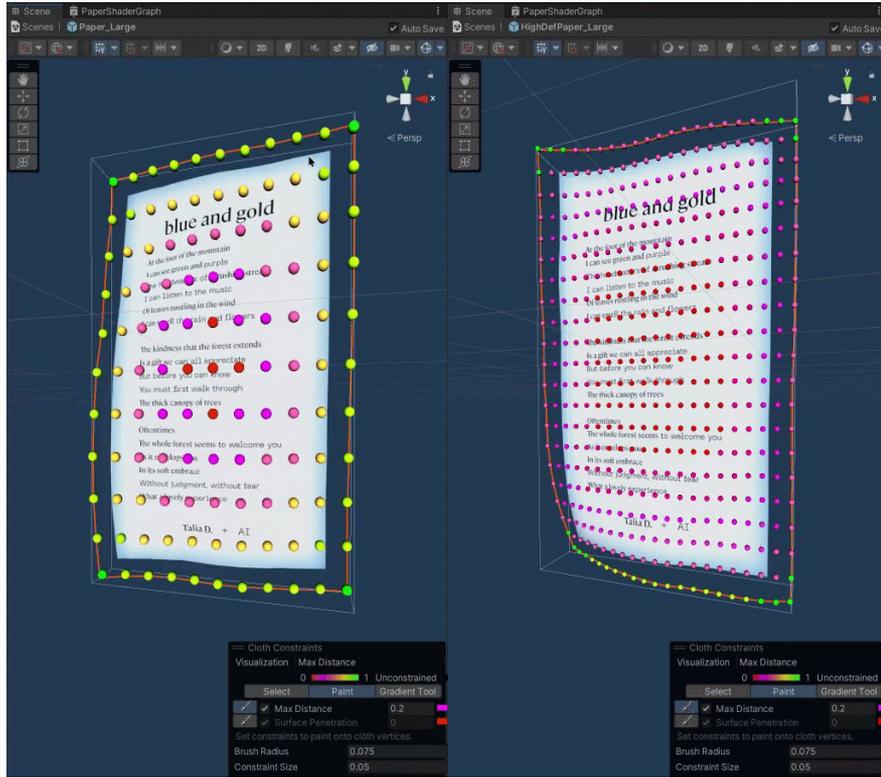
There once  
was a woman,  
SAID THE WIND,  
She was a woman  
indeed, said the wind,  
SHE HAD A WIFE  
AND CHILDREN TOO,  
But they are all gone and  
YET SHE  
WANDERS,  
And she will  
wander  
ON AND ON.

CREATED AT 4:33PM 8/1/2023

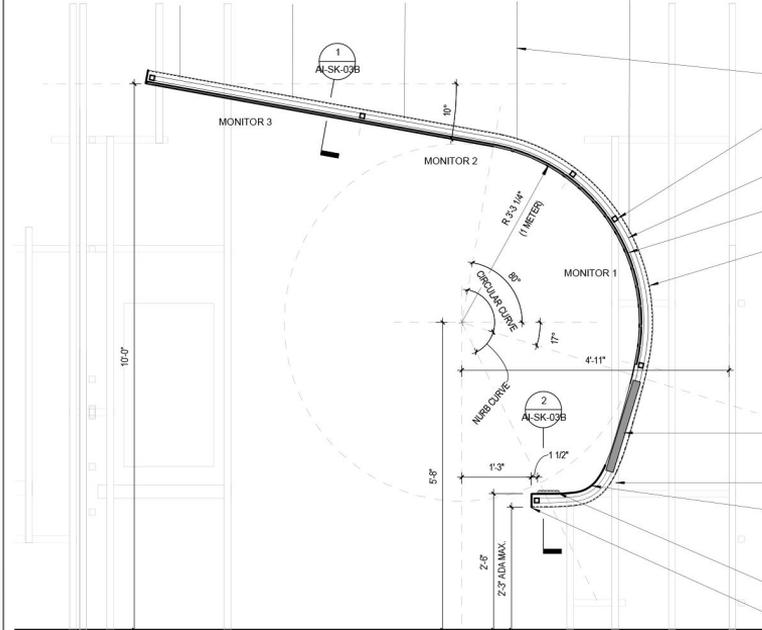




## 3.2 AI: MIND THE GAP | Collaborative Poetry



**GENERAL NOTE:**  
FABRICATOR TO COMMUNICATE IF PROPOSED ADJUSTMENTS HAVE AN IMPACT ON THE CONTRACTED BUDGET AND APPROVED FABRICATION AND INSTALLATION SCHEDULE.



MONITOR CONTROL UNITS DETACHED FROM FLEXIBLE SCREENS AND PLACE ABOVE LIGHTING TRACK

HANGERS FROM LIGHTING TRACK

1" x 1" STEEL TUBE - ATTACHED TO VERTICAL TUBES TO PREVENT SWAYING

CUSTOM BENT 1" x 1" TUBE TO GUIDE SCREEN CURVATURE

3x LG OLED FLEXIBLE MONITORS MINIMUM RADIUS IS 1M

1/16" THICK PERFORATED METAL MESH, DETACHABLE IN SEGMENTS FOR SERVICE ACCESS, INSET 1/8"

MCMNICHOLS ITEM 1633311441

TOUCHSCREEN MONITOR. ATTACHMENT METHOD BY FABRICATOR

1" x 3" STEEL TUBE

1/8" THICK STEEL SHEET, BENT. OPENING FOR MONITOR COVERS BEZEL WITH 1/8" INSET COVERED IN DURABLE BLACK RUBBER

KEYBOARD SECURELY MOUNTED ON TOP OF RUBBER SURFACE

ALL METAL EDGES EASED

1 SECTION DETAIL - CURVED SCREEN INPUT STATION UPDATE  
3/4" = 1'-0"

DO NOT SCALE FROM THIS DRAWING - USE NOTED DIMENSIONS ONLY. ALL DIMENSIONS AND LEVELS SHALL BE VERIFIED ON SITE BEFORE PROCEEDING WITH WORK. THE ARCHITECT MUST BE NOTIFIED OF ANY DISCREPANCY.

Client  
**MIT MUSEUM EXHIBITS**  
KENDALL SQUARE SITE 5-E28  
314 MAIN STREET,  
CAMBRIDGE, MA 02142

Exhibit Designer  
**STUDIO JOSEPH**

500 Park Avenue 16E  
New York, NY 10022  
T 212.935.3302  
www.studiojoseph.com

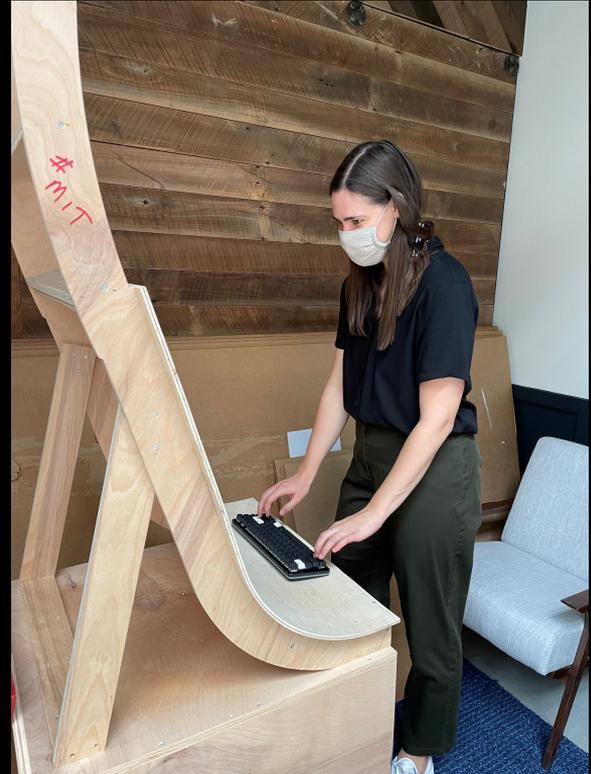
Date  
10/19/2021  
11:20:21 PM

Project No.  
**2001**

Scale  
FULL SIZE (11x17) - AS INDICATED  
HALF SIZE (8.5x11) - AS INDICATED/2

Drawing Title  
COLLABORATIVE  
POETRY UPDATE

Sheet No.  
**AI-SK-03A**







### Let AI Unlock Your Creativity

Research shows that AI-powered tools can help you generate ideas, overcome creative blocks, and explore new perspectives. By leveraging AI, you can unlock your full creative potential and bring your most innovative concepts to life.

**Pass**  
to the  
State  
of  
the  
Future

Research shows that AI-powered tools can help you generate ideas, overcome creative blocks, and explore new perspectives. By leveraging AI, you can unlock your full creative potential and bring your most innovative concepts to life.



Let's write

A shadow on the  
river seen by h



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# Thank You!

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**Studio Joseph**

*500 Park Avenue - New York, NY 10022  
212.935.3392*

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**Pentagram**

*250 Park Ave S. - New York, NY 10003  
212.683.7000*

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**Bluecadet**

*1526 Frankford Ave. - Philadelphia, PA 19125  
267.639.9956*

---

**Tillotson Design**

*40 Worth Street Suite 703 - New York, NY 10013  
212.675.7760*