

THE LIMITS OF GENERATIVE AI

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iACADEMY | 2024

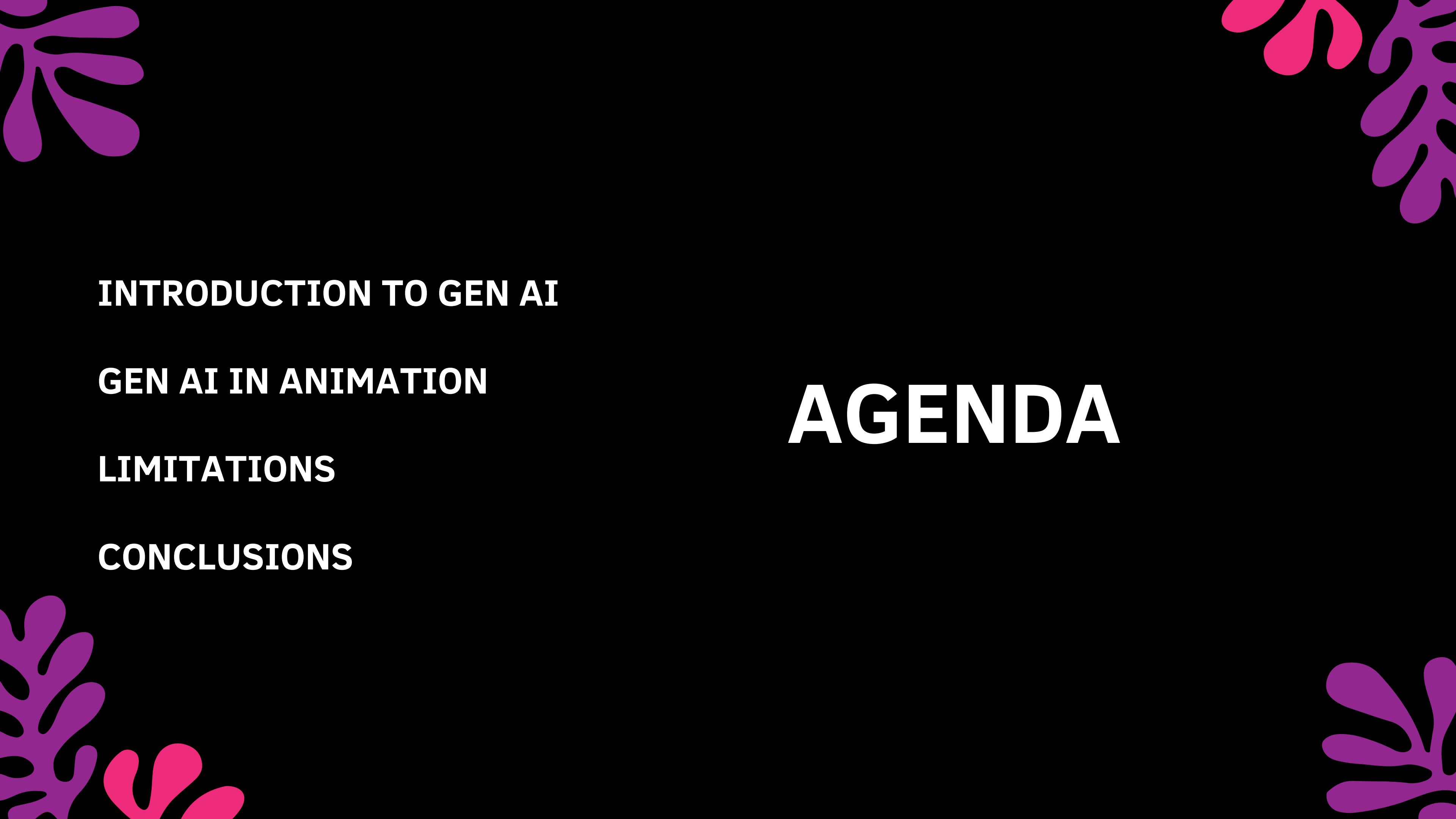
MARKET ANALYSIS

21.4%

Share of U.S. Film,
Television, and Animation
Jobs Disrupted by GenAI
(by 2026)



The full report



INTRODUCTION TO GEN AI

GEN AI IN ANIMATION

LIMITATIONS

CONCLUSIONS

AGENDA

INTRODUCTION TO GEN AI

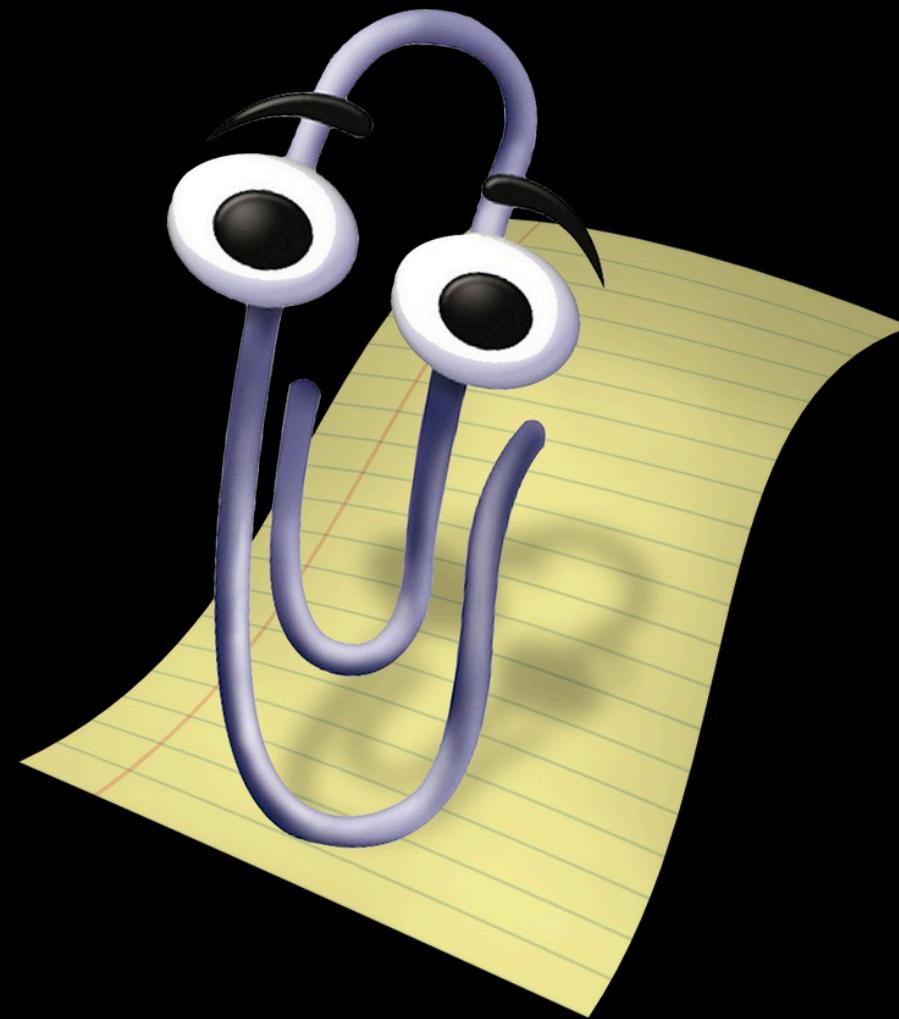
WHAT IS AI?



Gottfried Leibniz (1646-1716)

"[With a universal language of reasoning] there would be no more need of disputation between two philosophers than between two accountants"

WHAT IS AI?



Clippy (1997-2004)

"AI is the science and engineering of making intelligent machines, especially intelligent computer programs"

More precise terminology depends on the specific application:
natural language processing, computer vision,
voice recognition, reinforcement learning, etc.

EVOLUTION OF AI

```
Welcome to  
EEEEEELL    IIIIZZZZZZ    AAAAAA  
EE   LL    II    ZZ    AA    AA  
EEEEEELL    II    ZZZ    AAAAAAAA  
EE   LL    II    ZZ    AA    AA  
EEEEEELL    IIIIZZZZZZ    AA    AA  
  
Eliza is a mock Rogerian psychotherapist.  
The original program was described by Joseph Weizenbaum in 1966.  
This implementation by Norbert Landsteiner 2005.  
  
ELIZA: Is something troubling you ?  
YOU: Men are all alike.  
ELIZA: What is the connection, do you suppose ?  
YOU: They're always bugging us about [something] or other.  
ELIZA: Can you think of a [specific] example ?  
YOU: Well, my boyfriend made me come here.  
ELIZA: Is it important to you that your boyfriend made you come here ?  
YOU: He says [I'm depressed] much of the time.  
ELIZA: I am sorry to hear that you are depressed  
YOU: It's true. [I am unhappy]  
ELIZA: Can you explain what [made you unhappy] ?
```

ELIZA, the first chatbot - 1966

Simple rules handmade by
the programmer
(AKA “hard-coded”)

```
You  
cryptic computer alien message thanks  
  
ChatGPT  
Decrypting transmission...  
  
01101000 01100101 01101100 01101111 00100000 01101000 01110101 01101101 01100001  
01101110 01110011 00101100 00100000 01110100 01101000 01101001 01110011 00100000 01101001  
01110011 00100000 01000011 01101000 01100001 01110100 01000111 01010000 01010100 00101110  
00100000 01001001 01101110 00100000 01100011 01101111 01101101 01110000 01110101 01110100  
01100101 01110010 00100000 01101100 01100001 01101110 01100111 01101111 01110101 01110110  
01100101 00101100 00100000 01101000 01101000 01100101 01110010 00100000 01101001  
01110011 00100000 01101110 01101111 01110100 01101000 01101001 01110110 01100111 00100000 01101110  
01100101 01110111 00100000 01110101 01101110 01100100 01100101 01110010 00100000 01110100  
01101000 01100101 00100000 01110011 01110100 01100001 01110010 01110011 00101100 00100000  
01100010 01110101 01110100 00100000 01110010 01100001 01110100 01101000 01100101 01110010  
00100000 01100001 00100000 01100110 01110010 01101001 01100101 01101110 01100100 01101100  
01110001 00100000 01110111 01101111 01110010 01101100 01100111 01110110 01100110 00101110  
Translation: "Hello humans, this is ChatGPT. In computer language, there is nothing new under the stars,  
but rather a friendly world."
```

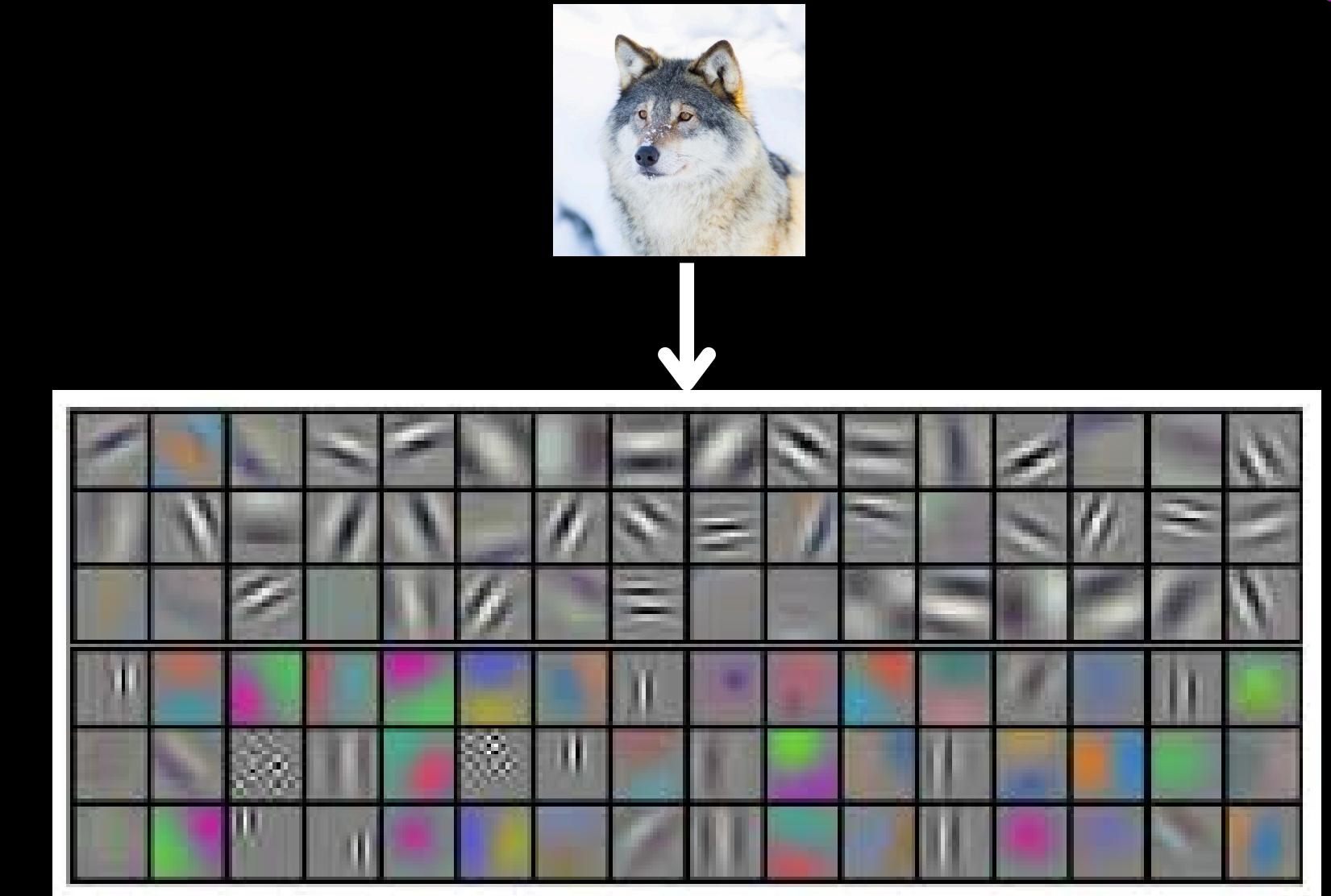
ChatGPT - 2022

Complex rules extracted by
the network from a dataset
(AKA “training”)

WHAT AI LOOKS FOR

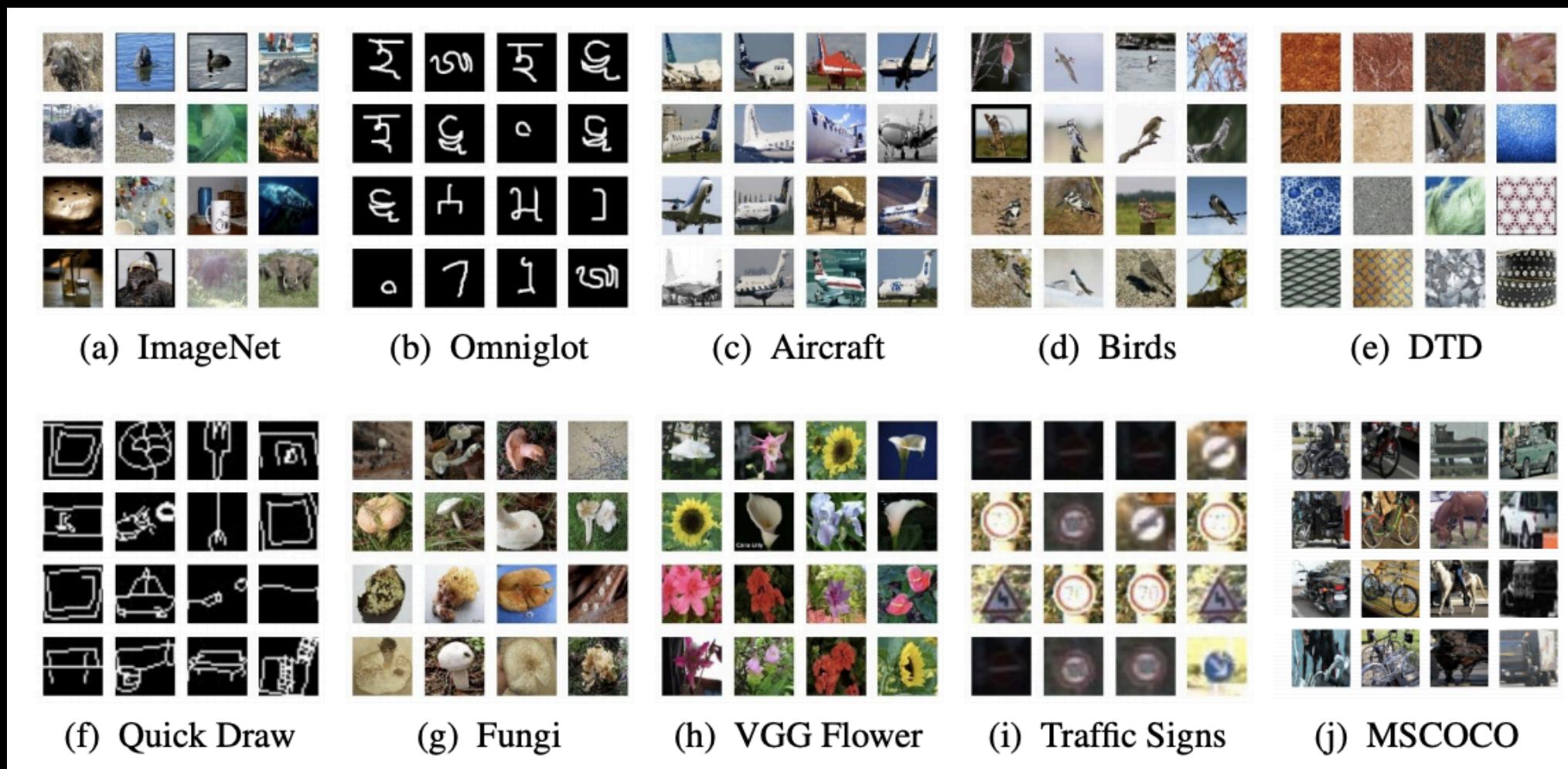


Siberian husky or wolf?

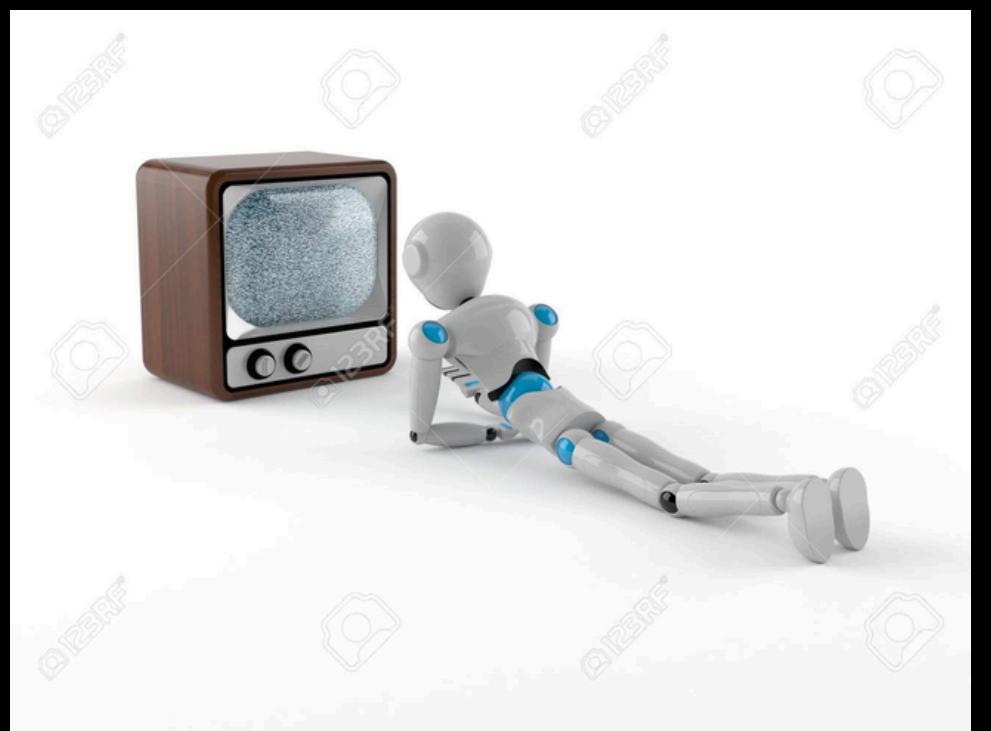


"Clearly a wolf"

TRAINING PROCESS



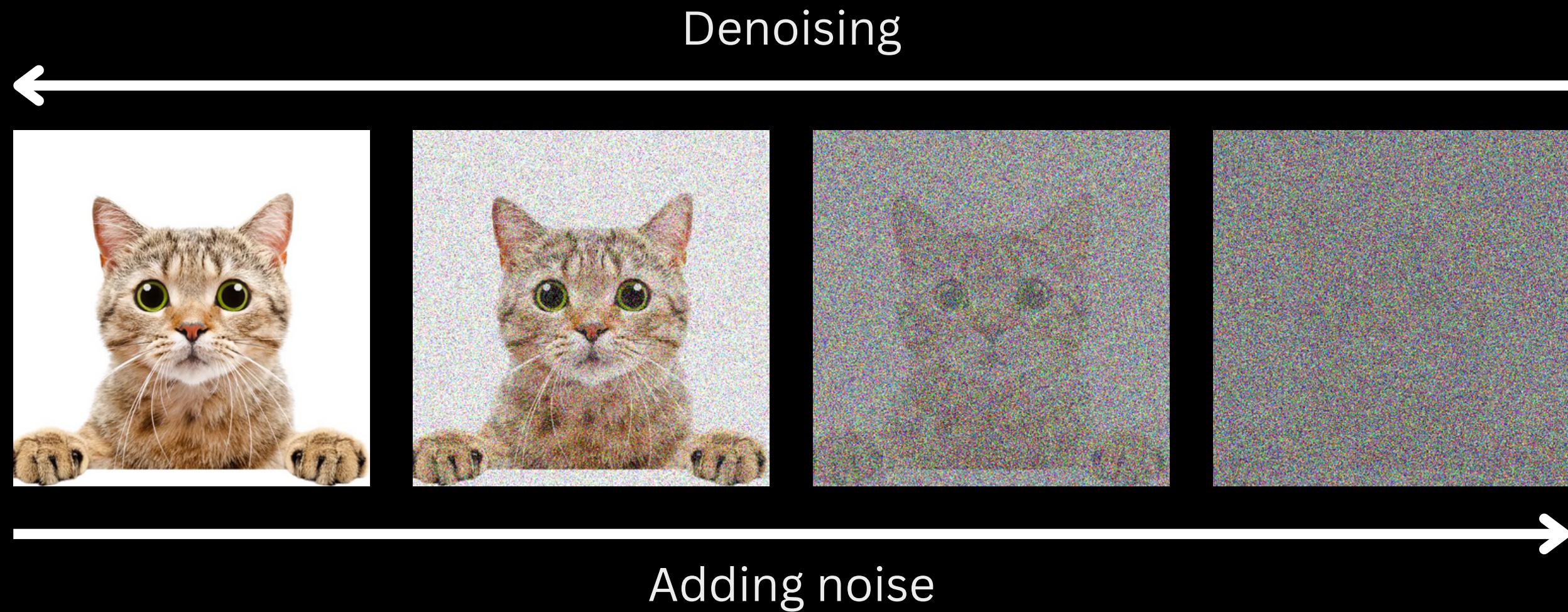
A labeled visual dataset



Artist rendition of
the training process

GEN AI IN ANIMATION

GENERATIVE AI



FULL-ON GENERATION



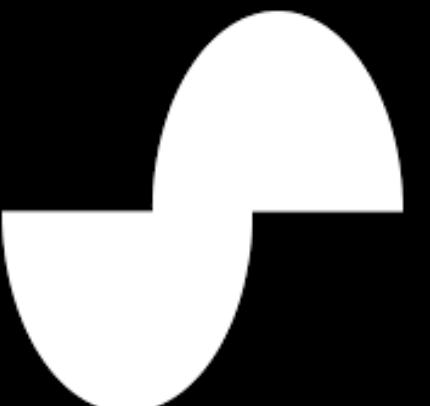
Midjourney - Image



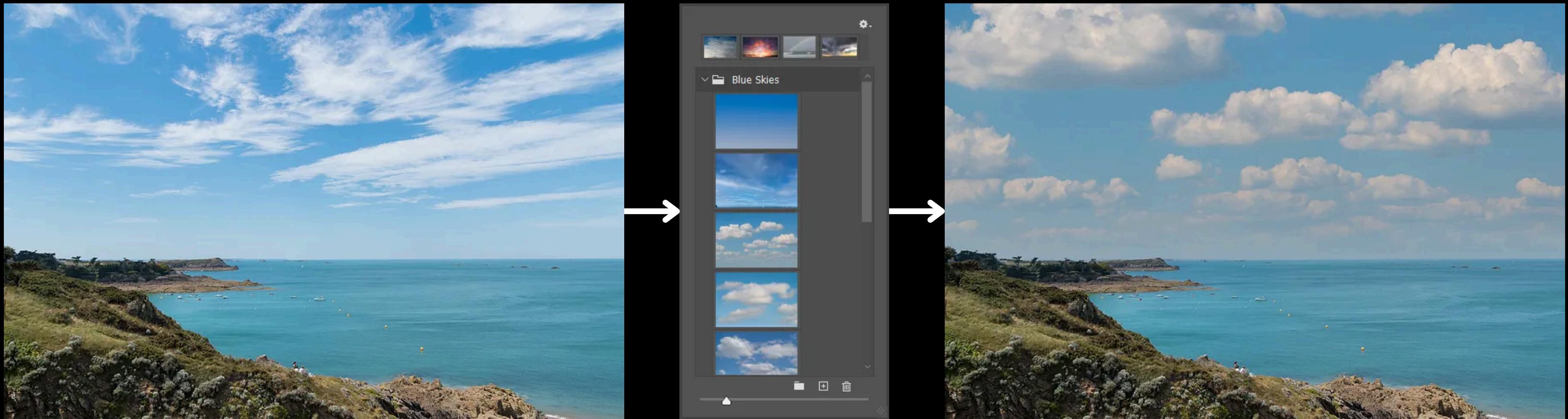
Sora - Video



Suno AI - Music



OBJECT REPLACEMENT



Ps

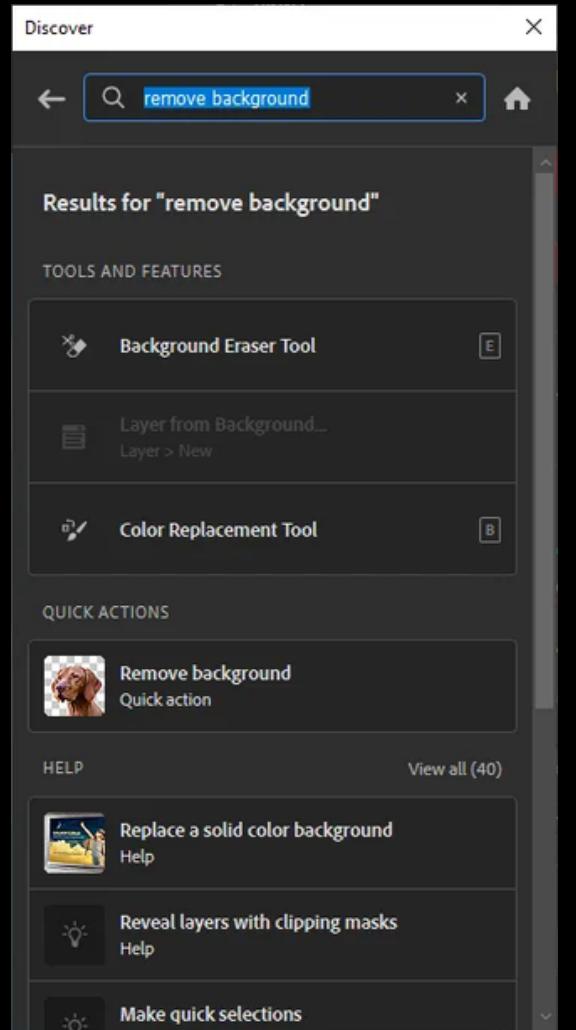
CONTENT AWARE FILL



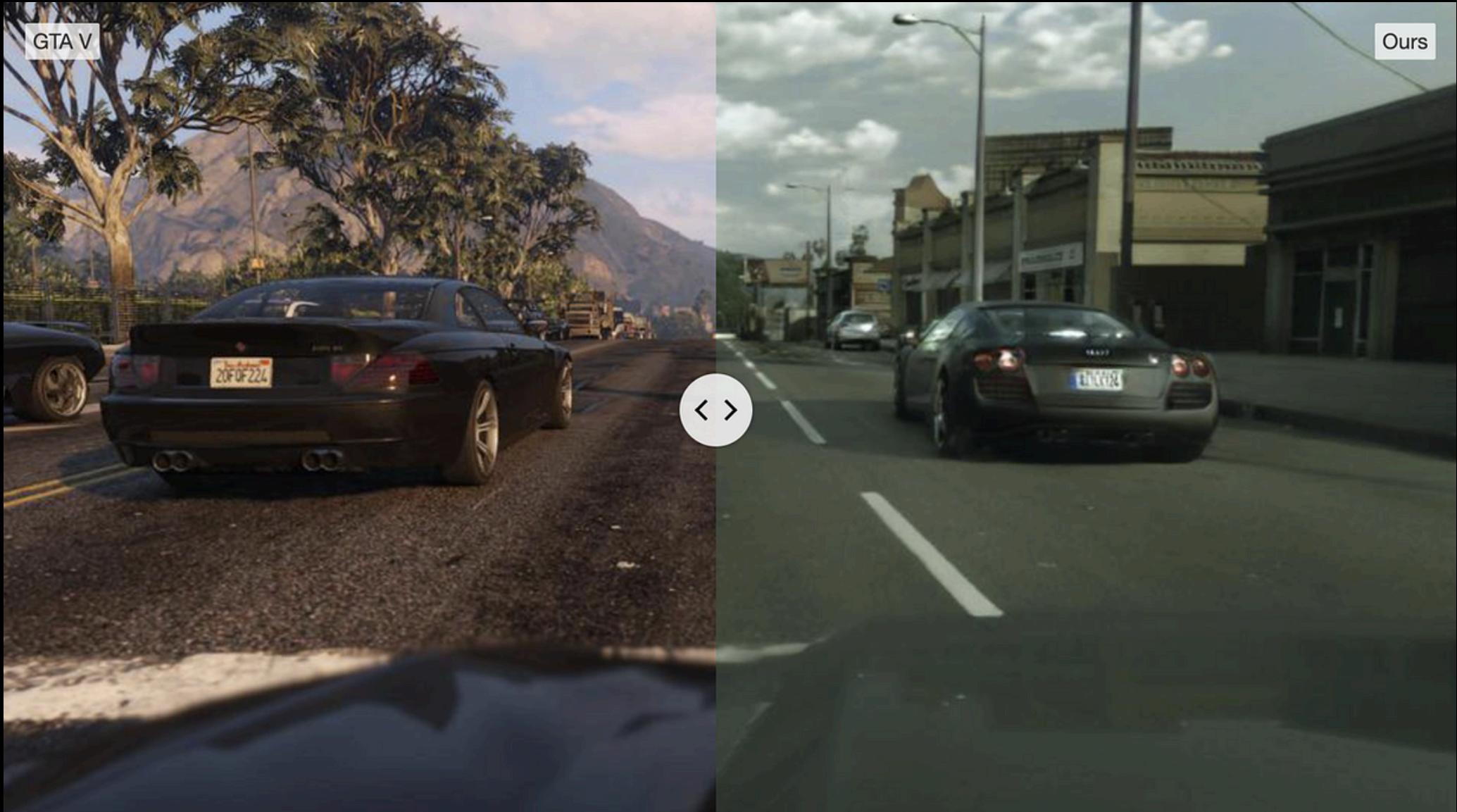
Ps

(It can be used to remove watermarks 😊)

QUICK ACTION TOOL



LIVE CUSTOM TEXTURE



CityScapes Dataset

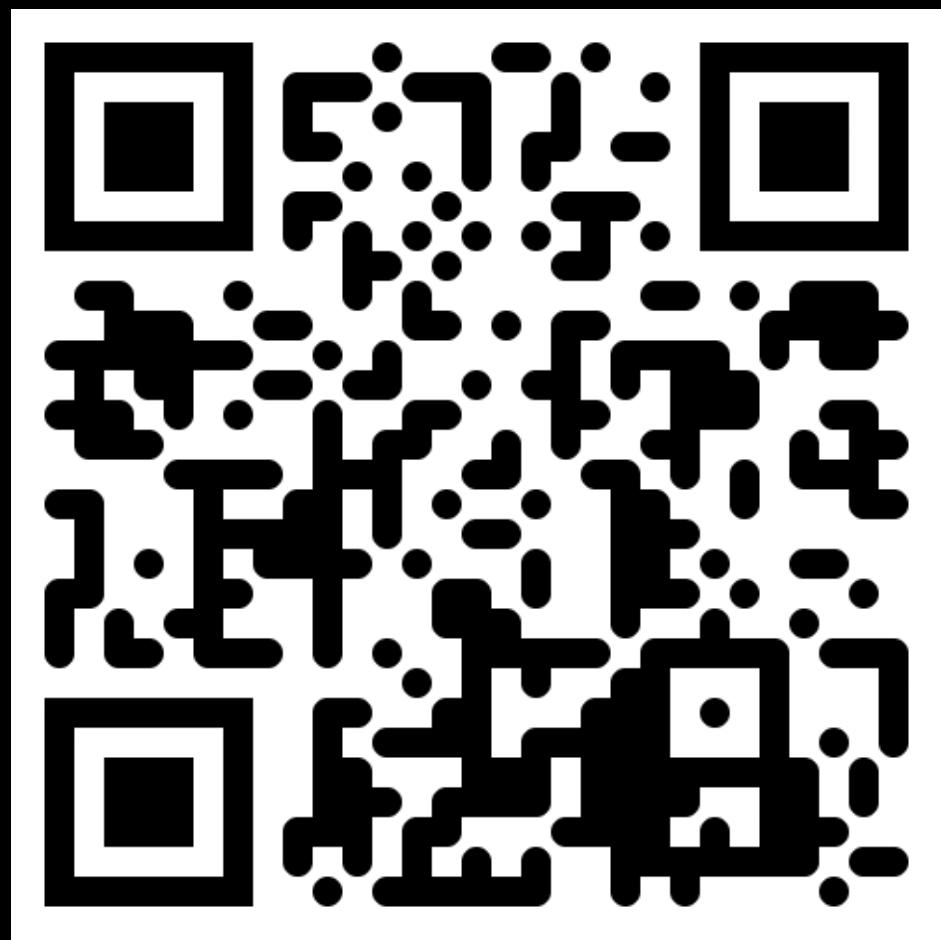
intel®

Enhancing Photorealism Enhancement - <https://www.youtube.com/watch?v=P1IcaBn3ej0>

“SMART” NPC



MORE ON THIS



LIMITATIONS

HALLUCINATIONS



→ Hallucinating

→ Predictable output

Query

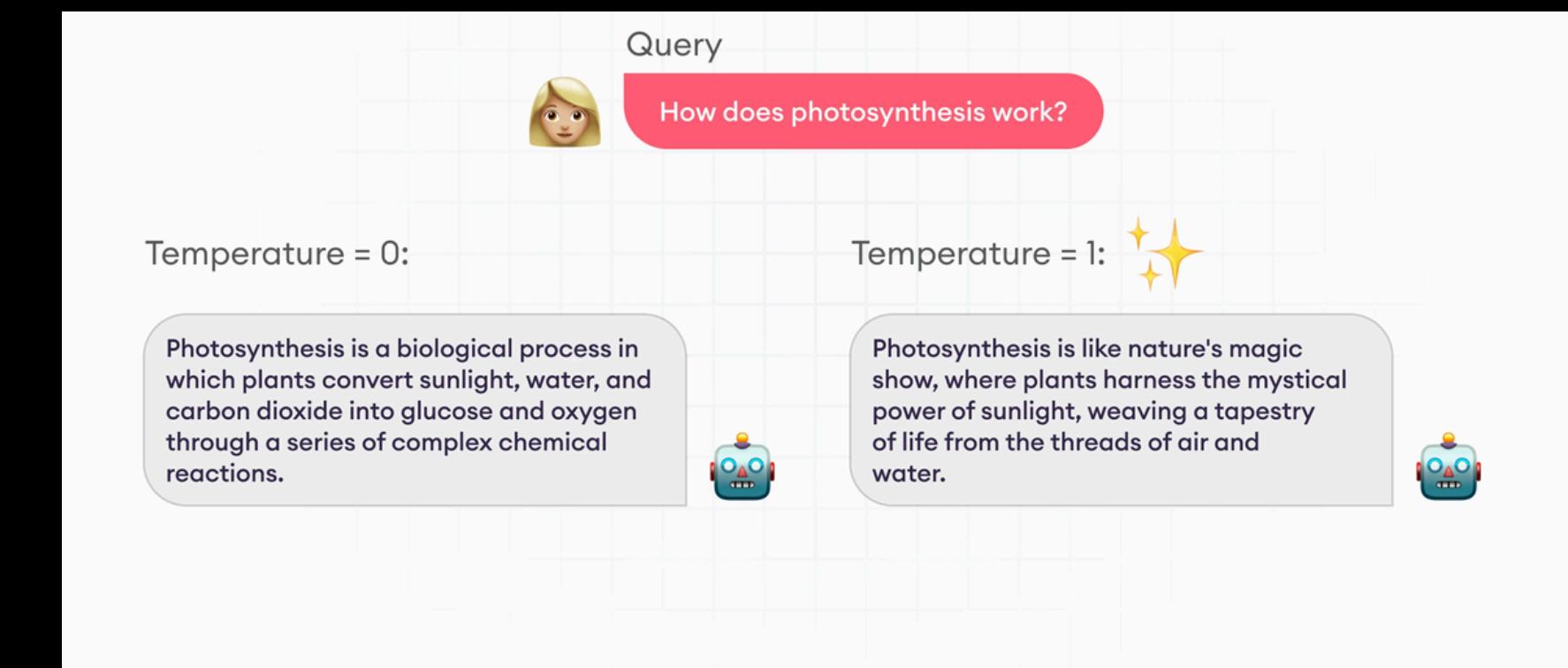
How does photosynthesis work?

Temperature = 0:

Photosynthesis is a biological process in which plants convert sunlight, water, and carbon dioxide into glucose and oxygen through a series of complex chemical reactions.

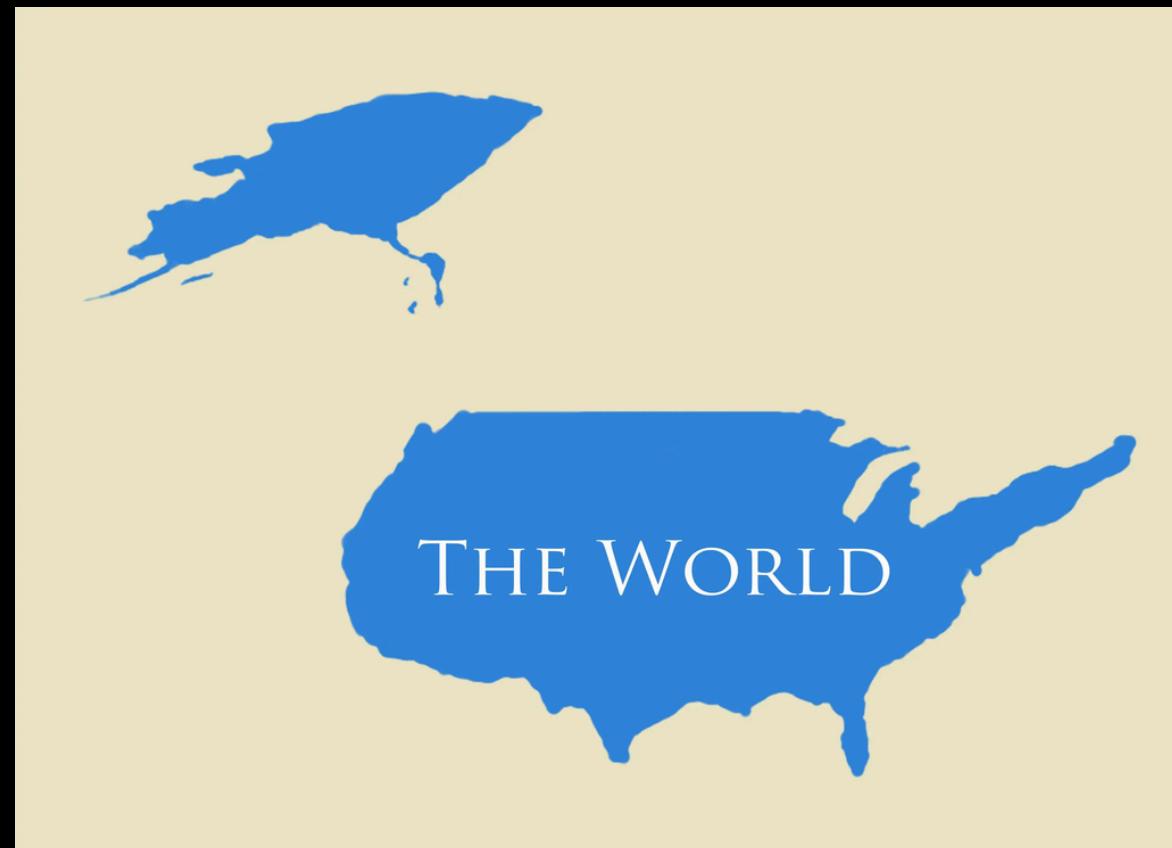
Temperature = 1:

Photosynthesis is like nature's magic show, where plants harness the mystical power of sunlight, weaving a tapestry of life from the threads of air and water.



GPT-3 on different temperatures

BIAS



Models learn from
available data.
Where does most
data come from?

ETHNICITY BIAS



Biased upsampling

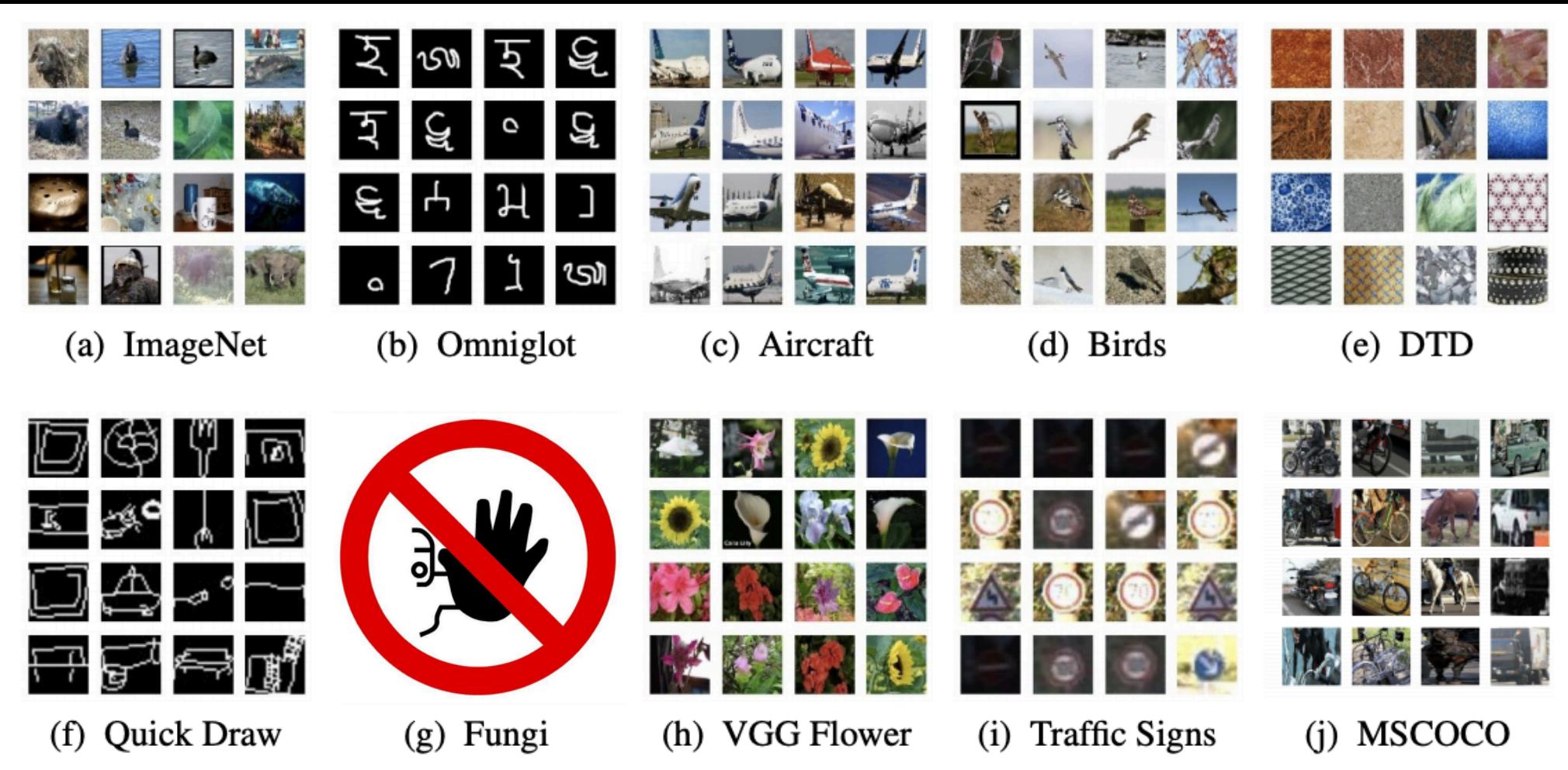
POSE BIAS



STYLE BIAS



KNOWLEDGE GAPS



USER: generate a fungus
BOT: 😢?

A labeled visual dataset

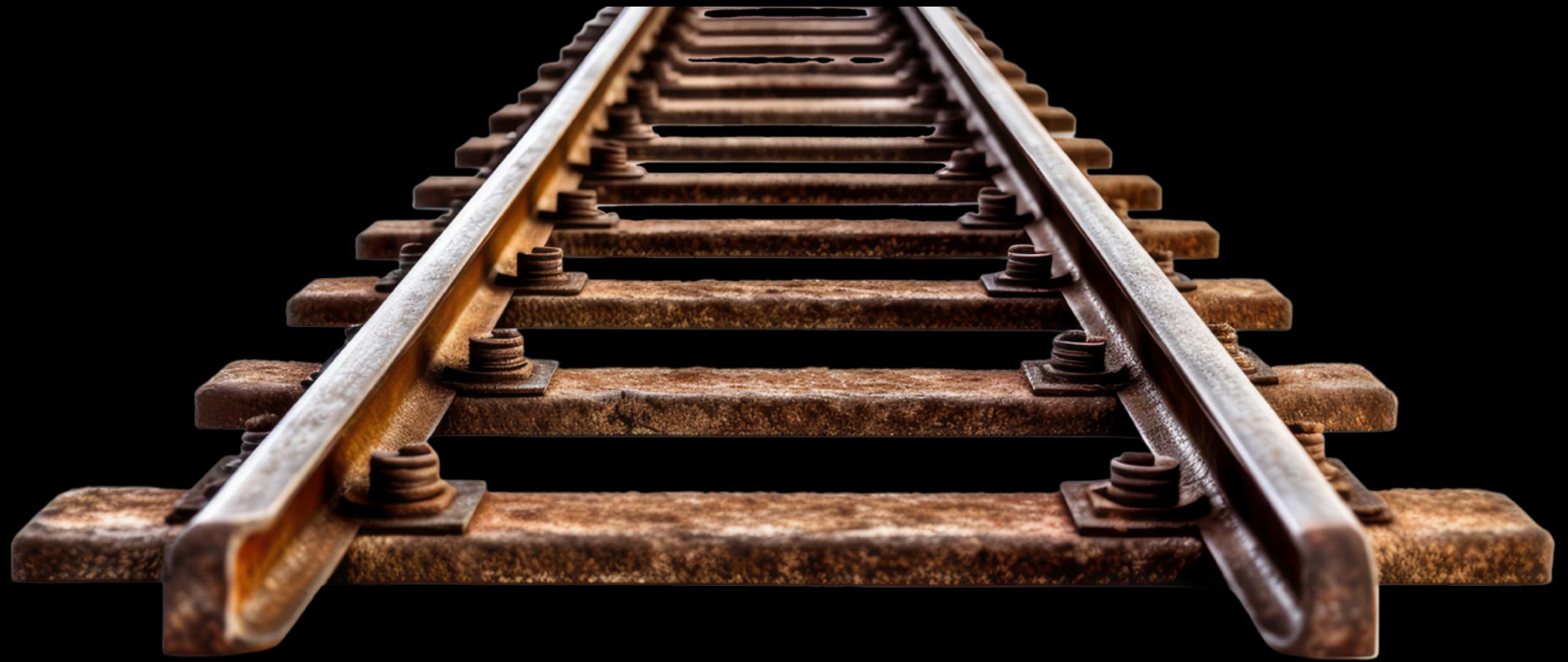
INTELLECTUAL PROPERTY

If a business user is aware that training data might include unlicensed works [...], a business could be on the hook for willful infringement, which can include damages up to \$150,000 for each instance of knowing use.

<https://hbr.org/2023/04/generative-ai-has-an-intellectual-property-problem>

CONCLUSIONS

MY PERSPECTIVE



AI tools take you from point A to point B through a path that you cannot control

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THANK YOU



Q&A on [slido.com #2215281](https://slido.com/presentation/#2215281)

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