

# *When Machines Learn Too...* *A How and Why of AI*

MAARTEN H. LAMERS



Universiteit  
Leiden  
The Netherlands



**CONFERENCE**  
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# Introducing ChatGPT

We've trained a model called ChatGPT which interacts in a conversational way. The dialogue format makes it possible for ChatGPT to answer followup questions, admit its mistakes, challenge incorrect premises, and reject inappropriate requests.

[Try ChatGPT ↗](#)[Read about ChatGPT Plus ↗](#)

M

in 100 words explain the limitations of AI creativity



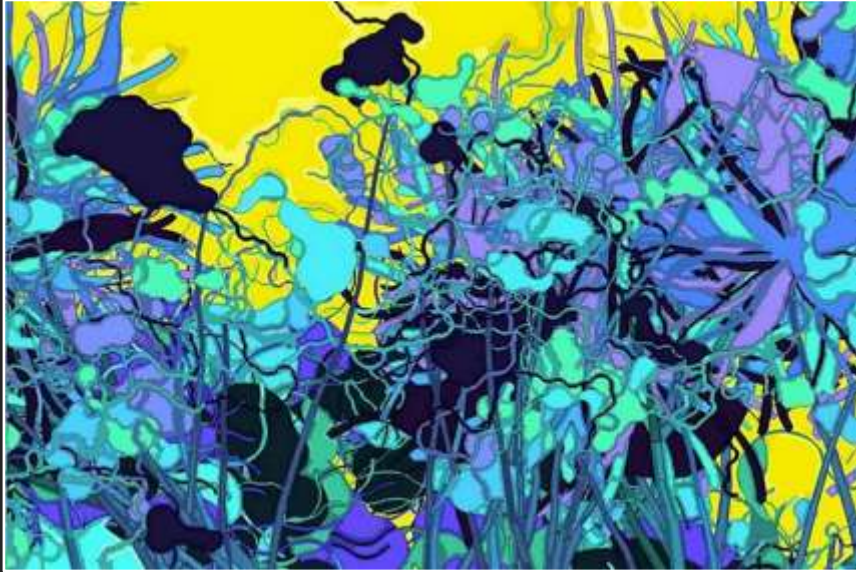
AI creativity has limitations primarily because it lacks the intuition, experience, and emotions that humans possess. Although AI can generate novel and creative solutions to problems, it is limited to the data it has been trained on and lacks the ability to connect disparate ideas or think outside of the box. Additionally, AI lacks the ability to perceive beauty and aesthetics, which are crucial aspects of many creative fields. Finally, AI can produce outputs that are technically impressive but lack human-like authenticity or nuance, which can make it difficult for AI-generated works to resonate with audiences on an emotional level. Overall, while AI has made great strides in the realm of creativity, it still falls short of the innate abilities of human creativity.

[↻ Regenerate response](#)

Free Research Preview. ChatGPT may produce inaccurate information about people, places, or facts. [ChatGPT Ma](#)

“A hamburger in the shape of a Rubik’s cube, professional food photography”





Painting by AI system *AARON*, Harold Cohen, 2004



Collage about Afghan wars by *The Painting Fool*, Simon Colton, 2009

A science fiction image showing a group of astronauts in a desolate, rocky landscape. In the background, a massive, ancient-looking alien structure with intricate carvings and a large, clawed hand-like shape dominates the scene. The sky is filled with soft, golden light, suggesting a sunrise or sunset. The astronauts are silhouetted against the bright light, looking towards the alien structure.

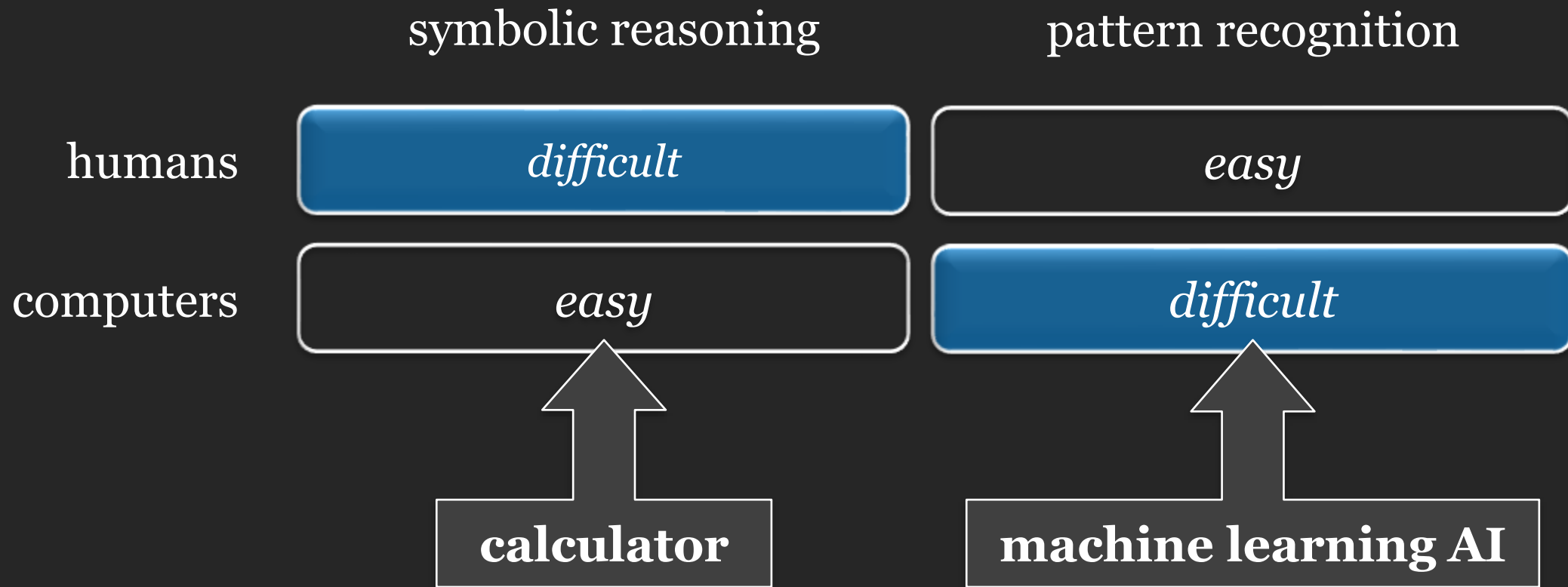
High levels of complexity / realism / diverseness

Declarative nature of prompting

→ Fuel tendency to project human qualities as understanding, intention, and creativity

AI

	symbolic reasoning	pattern recognition
humans	<i>difficult</i>	<i>easy</i>
computers	<i>easy</i>	<i>difficult</i>
	calculating, ordening numbers, <i>algorithmics</i>	recognizing a dog, understanding speech, predicting weather





# Machine Learning

Artificial Intelligence

Machine Learning

**Machine learning models are not explicitly programmed** to do a task

Instead, they **learn from examples** or trial-and-error

They **extract (induce) a model of the data** from **patterns** in the data



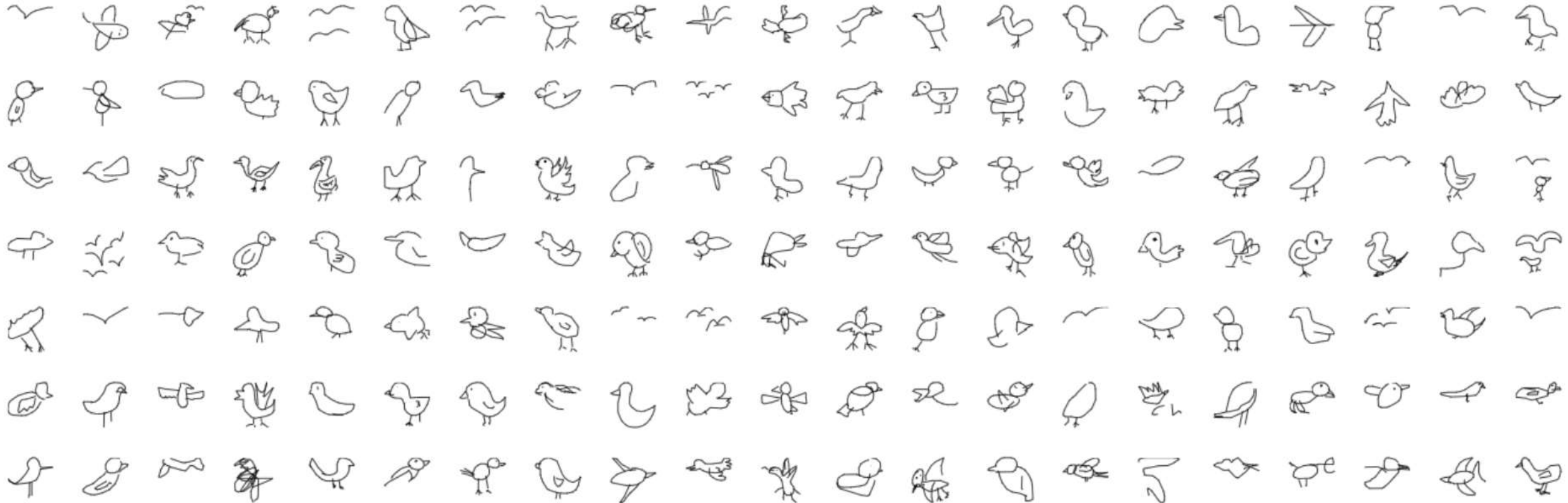
Now visualizing: bird

Randomize

You are looking at 111,610 bird drawings made by real people... on the internet.

If you see something that shouldn't be here, simply select the drawing and click the flag icon.

It will help us make the collection better for everyone.







amazon

The Amazon logo, featuring the word "amazon" in a white, lowercase, sans-serif font. Below the text is a thick, orange arrow that starts under the 'a' and curves upwards and to the right, ending under the 'n'.

	A
1	Angry
2	Animal
3	Car
4	Cat
5	Cut
6	Dog
7	Food
8	Kylian Mbappé
9	Leiden
10	Lonely
11	Play
12	Rubik's cube
13	Swim
14	Tiger
15	Utrecht





	A	B
1	Angry	mgmk.wzpw.xspv
2	Animal	vdsa.ffpf.vclg
3	Car	heyy.wywc.kyye
4	Cat	zcla.dcqf.wdle
5	Cut	asdi.tysj.ewho
6	Dog	zdna.ecpf.wclf
7	Food	cubl.qcyc.kqsu
8	Kylian Mbappé	omng.jwpc.wowf
9	Leiden	atzp.nezu.mypo
10	Lonely	rkvq.eqmb.wwfq
11	Play	gfhd.cktj.qzkj
12	Rubik's cube	ojef.neko.rdvl
13	Swim	sxdt.tkpt.zhps
14	Tiger	zbla.dcrf.wdle
15	Utrecht	atzo.mezu.myqo

(12D latent space)

Uliratha ?

\* randomwordgenerator.com

zdla.ecrf.wdlf ?



Creative?





Indication of change in the value on any Variable.	Statement of Results.	Data.										Working Variables.		
		$1V_1$	$1V_2$	$1V_3$	$0V_4$	$0V_5$	$0V_6$	$0V_7$	$0V_8$	$0V_9$	$0V_{10}$	$0V_{11}$	$0V_{12}$	$0V_{13}$
		1	2	n										
$1V_2 = 1V_2$	$= 2n$	...	2	n	2n	2n	2n							
$1V_3 = 1V_3$	$= 2n - 1$	1	...	...	2n - 1									
$1V_4 = 1V_4$	$= 2n + 1$	1	...	...	2n + 1									
$2V_5 = 0V_5$	$= 2n - 1$	...	...	...	0	0	...	...	...	...	$2n - 1$			
$2V_4 = 0V_4$	$= 2n + 1$	...	...	...			...	...	...	...	$2n + 1$			
$1V_{11} = 2V_{11}$	$= \frac{1}{2} \cdot \frac{2n-1}{2n+1}$	...	2	...	...	...	...	...	...	...	$\frac{1}{2} \cdot \frac{2n-1}{2n+1}$			
$1V_1 = 1V_1$	$= \frac{2n-2}{4}$	...	...	...	...	...	$2n-2$	4	...	$\frac{2n-2}{4}$	...			
$3V_6 = 3V_6$	$= \frac{2n \cdot 2n-1 \cdot 2n-2}{2 \cdot 3 \cdot 4} = A_3$	...	...	...	...	...	...	...	...	0				
$4V_{11} = 5V_{11}$	$= B_3 \cdot \frac{2n \cdot 2n-1 \cdot 2n-2}{3 \cdot 3} = B_3 A_3$	...	...	...	...	...	...	...	...	0	$B_3 A_3$			
$1V_{22} = 1V_{22}$	$= A_0 + B_1 A_1 + B_3 A_3$	...	...	...	...	...	...	...	...	...	0			
$2V_{12} = 0V_{12}$	$= A_3 + B_1 A_1 + B_3 A_3$	...	...	...	...	...	...	...	...	...	...			
$2V_{13} = 3V_{13}$	$= n - 3 (= 1)$	1	...	...	...	...	...	...	...	...	n - 3			
Here follows a repetition of Operations thirteen to twenty-three.														
$4V_{13} = 0V_{13}$	$= B_7$	...	...	...	...	...	...	...	...	...	...	...	...	
$0V_{21} = 1V_{21}$	$= n + 1 = 4 + 1 = 5$	1	...	n + 1	...	...	0	0	...	...	...	...	...	
$1V_1 = 1V_1$	by a Variable-card.													
$1V_3 = 1V_3$	by a Variable card.													

*“[It] has no pretensions to originate anything. It can do whatever we know how to order it to perform. [.....] Its province is to assist us in making available what we are already acquainted with.”*





*Machines may create things without explicit instruction, once they can learn*

Paraphrased by Maarten

*“The evidence available to Lady Lovelace did not encourage her to believe that [machines] had [the **property of learning**]. It is quite possible that the machines in question in a sense got this property.”*

*Computing Machinery and Intelligence, 1950*

Creative?







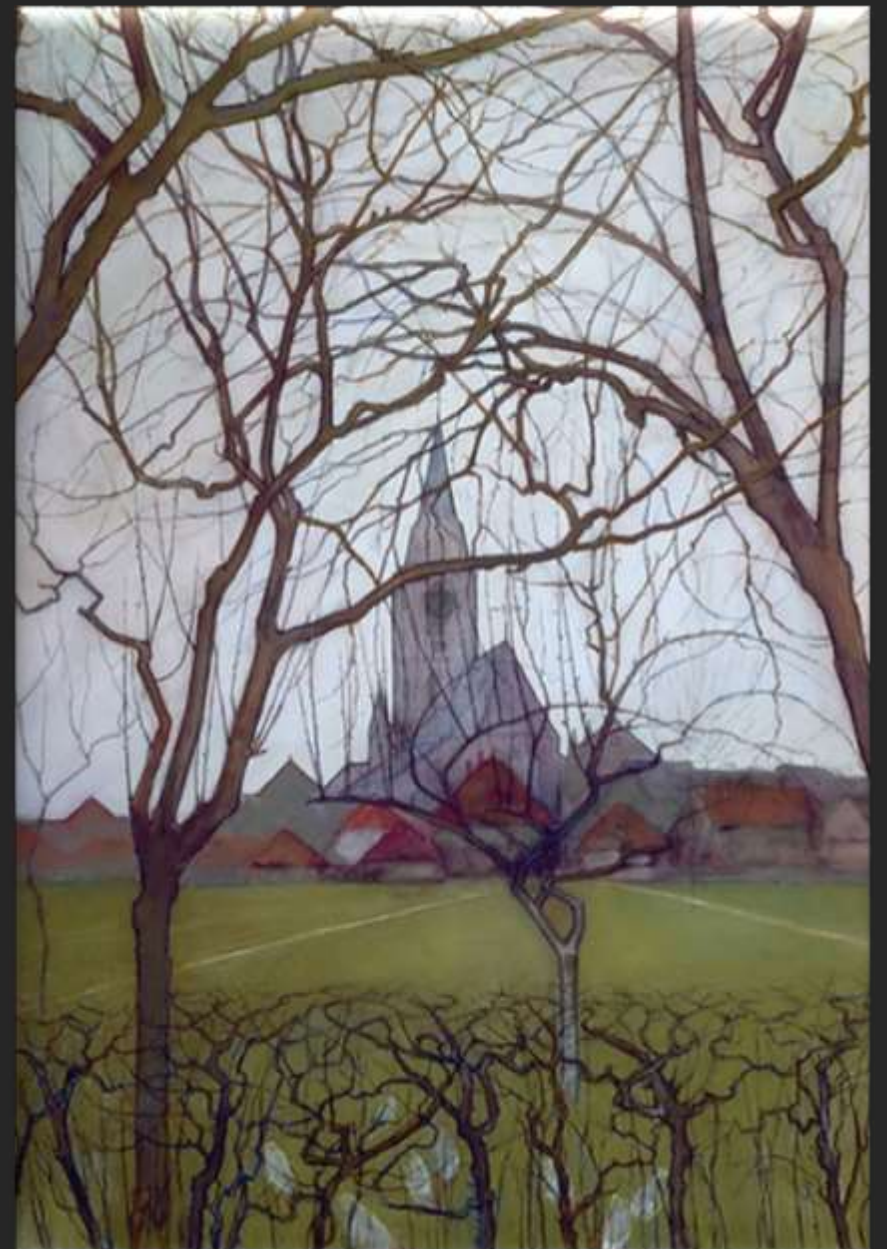


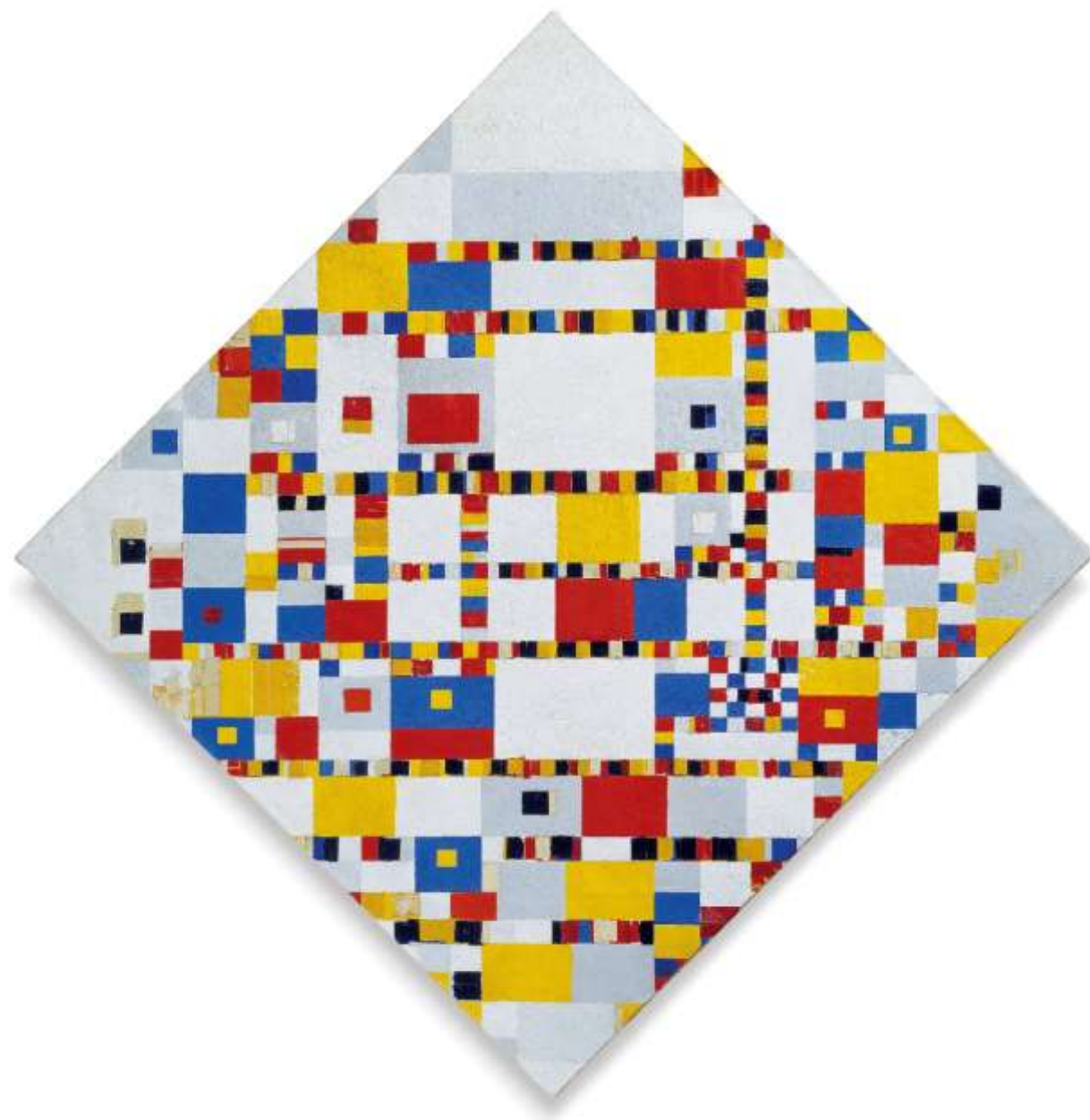
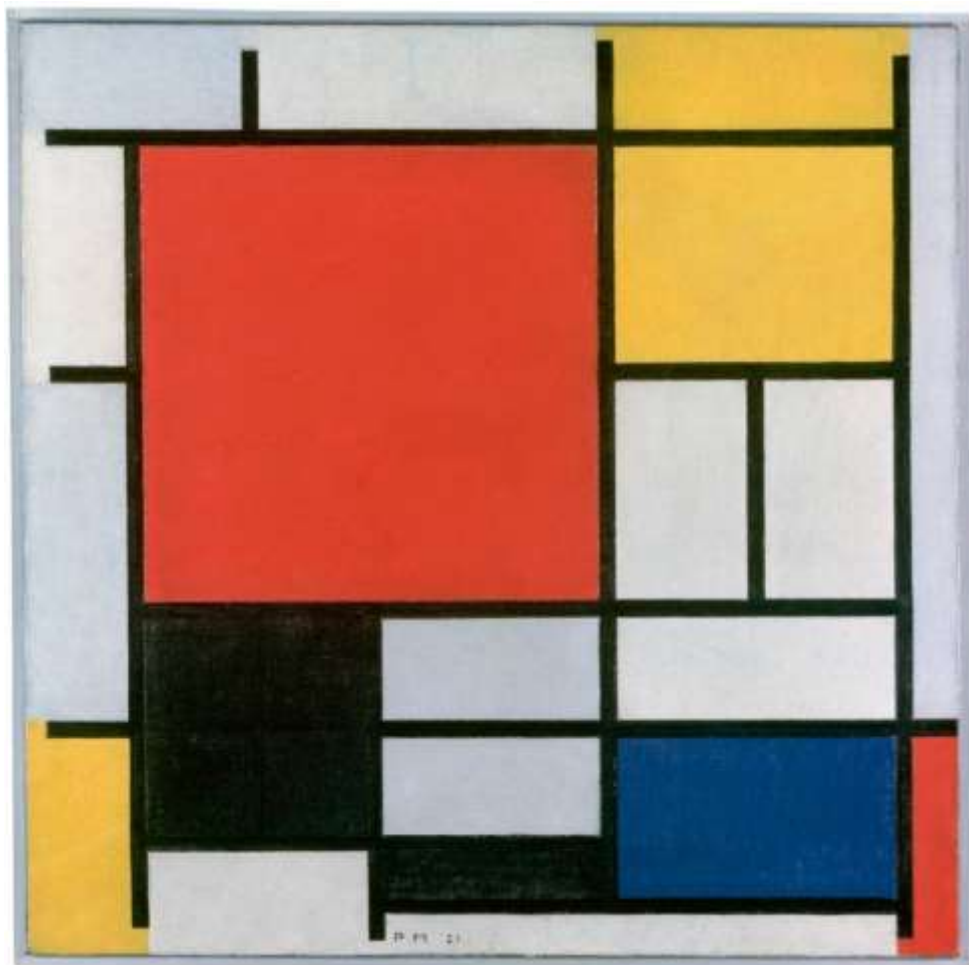


**Exploratory creativity**

**Finding new ideas within an existing conceptual space**





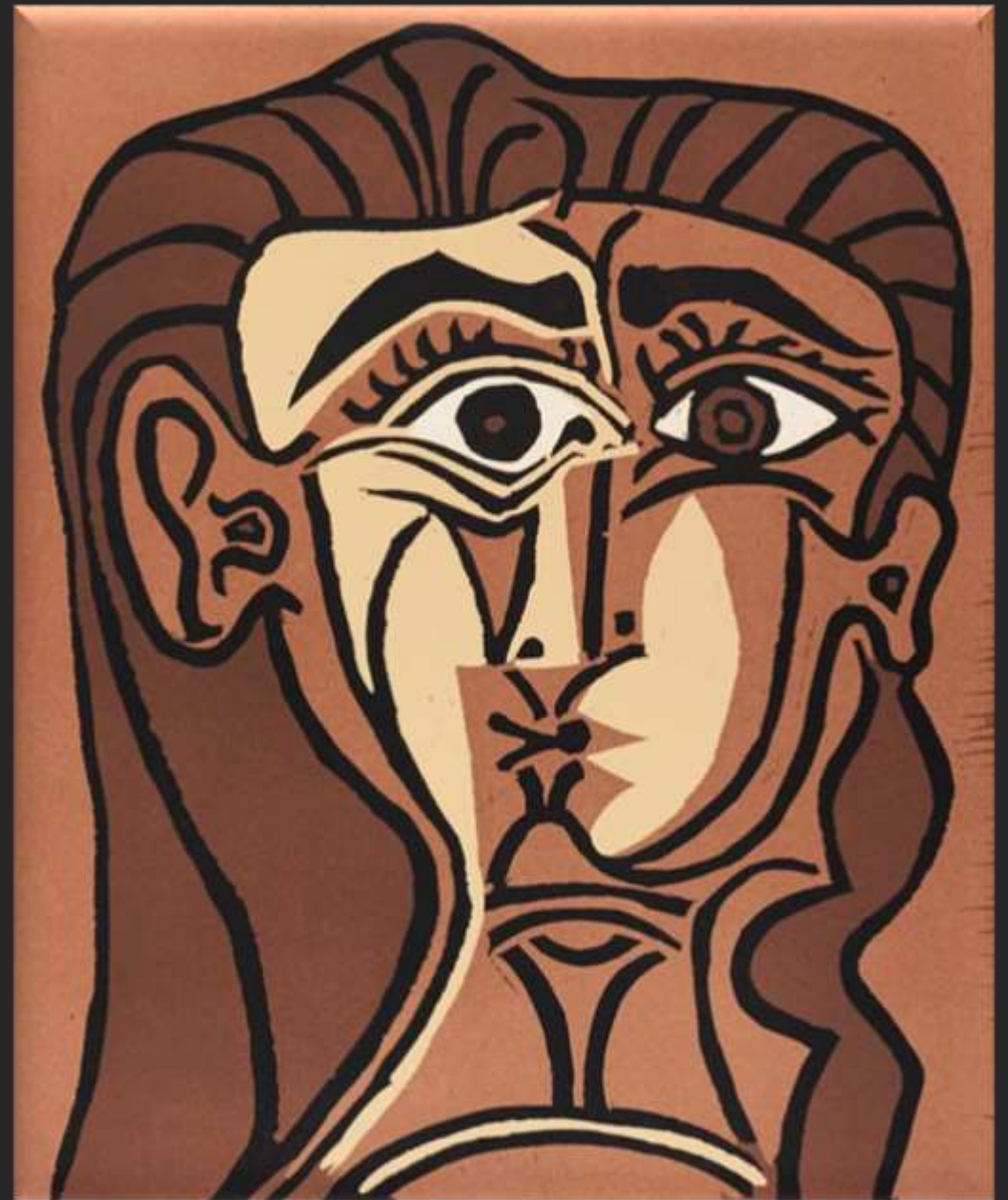


## Transformational creativity

Creating ideas that were **unthinkable** in old conceptual space

... but are **appreciated or have value.**



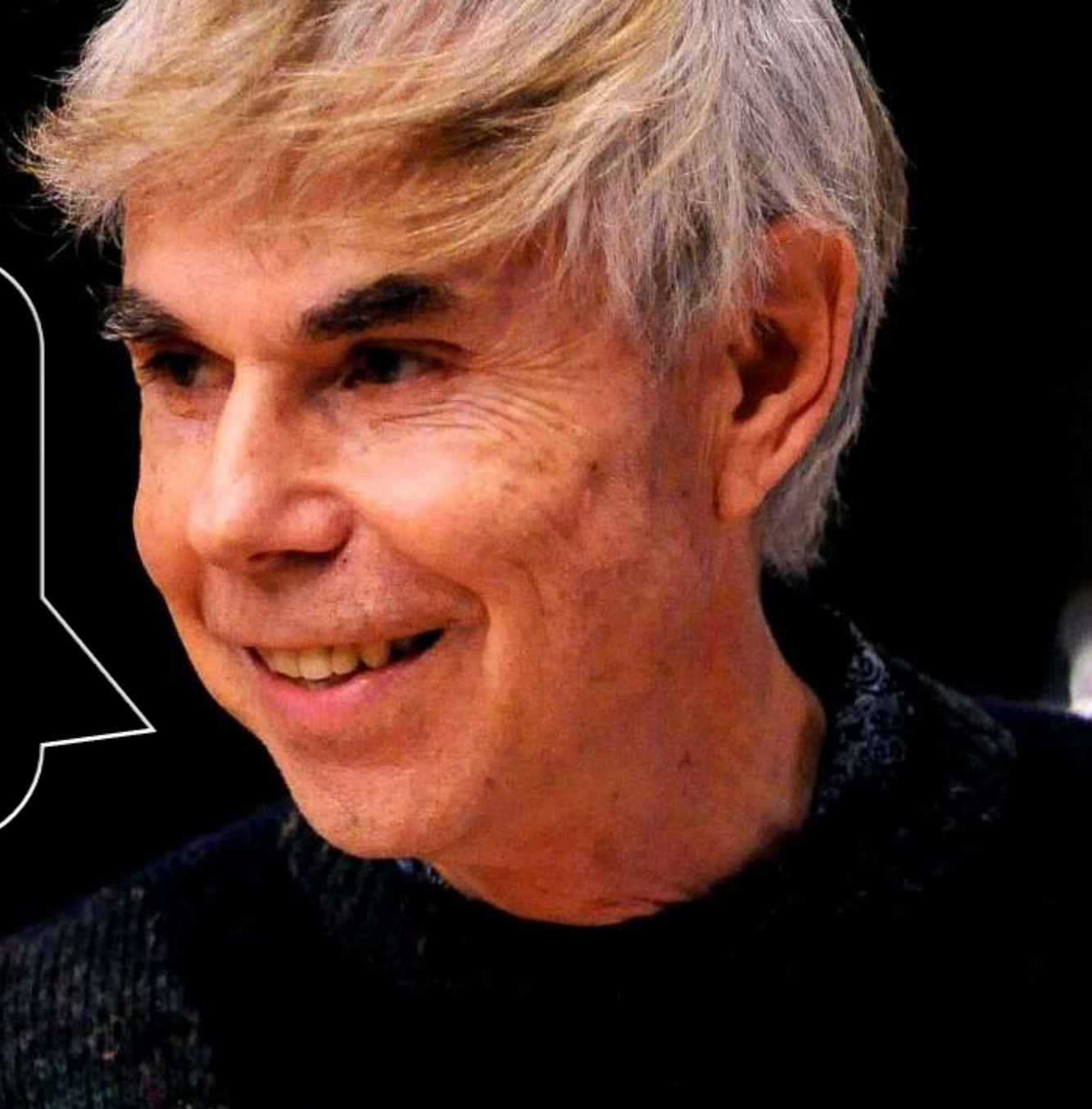




>> In 100 words explain the limitations of AI creativity

AI creativity has limitations primarily because it **lacks the intuition, experience, and emotions** that humans possess. Although AI can generate novel and creative solutions to problems, it is **limited to the data it has been trained on and lacks the ability to connect disparate ideas or think outside of the box.**

Additionally, AI lacks the ability to perceive beauty and aesthetics, which are crucial aspects of many creative fields. Finally, AI can produce outputs that are technically impressive but lack human-like authenticity or nuance, which can make it difficult for AI-generated works to resonate with audiences on an emotional level. Overall, **while AI has made great strides in the realm of creativity, it still falls short of the innate abilities of human creativity.**

A close-up portrait of Douglas Hofstadter, an older man with short, light-colored hair, smiling slightly and looking towards the left. He is wearing a dark, textured sweater. The background is dark and out of focus.

*“One need not fear that the mechanization of creativity will mark the end of art. Quite the contrary: it is a day to look forward to, because on that day our eyes will open onto entire new worlds of beauty.”*

*Thank you!*

Dr. Maarten H. Lamers  
[m.h.lamers@liacs.leidenuniv.nl](mailto:m.h.lamers@liacs.leidenuniv.nl)



Universiteit  
Leiden  
The Netherlands