

Creativity, AI, and Computer-Generated Art: *Margaret Boden's Perspective*

MARGARET BODEN

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Linguistics

Cognitive science

Artificial Intelligence

Computer science

Creative Studies

History of ideas

psychology

philosophy

MARGARET BODEN

What is creativity?

Can computational systems be creative?

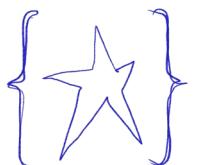
How does creativity rely to the mind
and cognition?



Creativity In A Nutshell - 2004



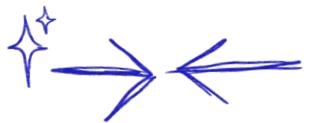
Creativity And Artificial Intelligence - a contradiction in Terms? - 2010



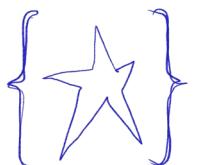
Skills and the appreciation of computer art - 2016



Creativity In A Nutshell - 2004



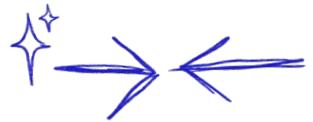
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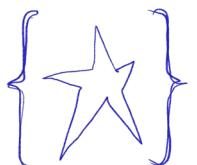
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Skills and the appreciation of computer art - 2016

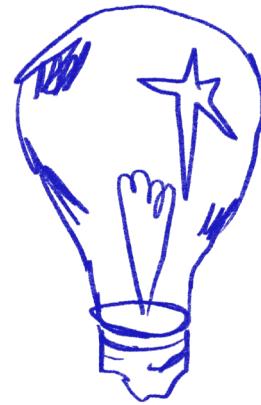


CREATIVITY IN A NUTSHELL - 2004



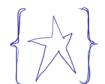
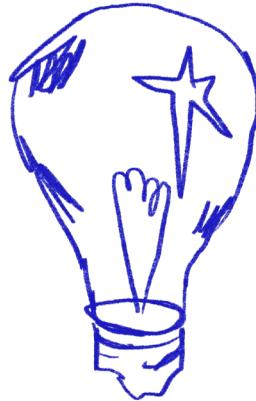
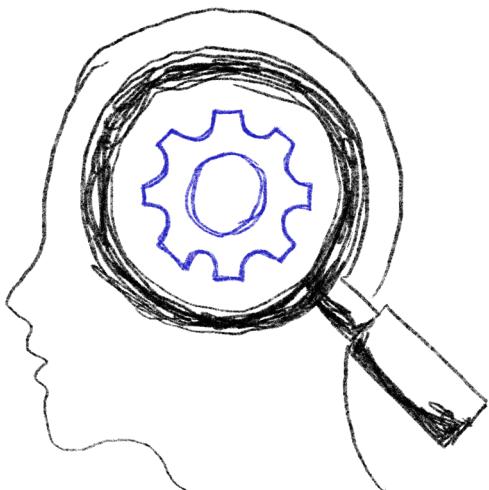


CREATIVITY IN A NUTSHELL - 2004





CREATIVITY IN A NUTSHELL - 2004





CREATIVITY IN A NUTSHELL - 2004

„Creativity is the Ability to generate ideas that are novel, surprising and valuable“





CREATIVITY IN A NUTSHELL - 2004

novel

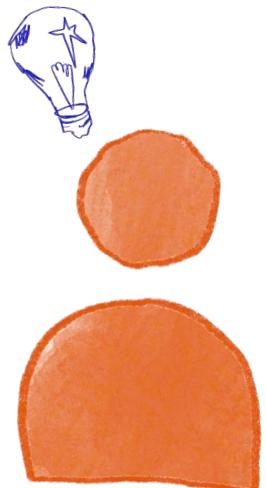




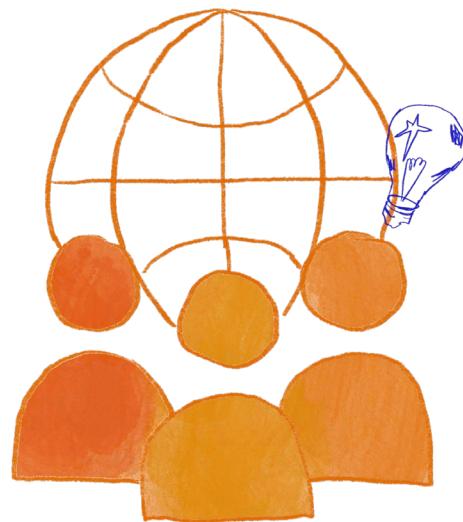
CREATIVITY IN A NUTSHELL - 2004

novel

Psychological
P-Creativity



Historical
H-Creativity





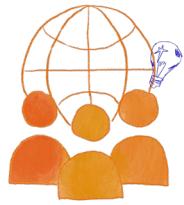
CREATIVITY IN A NUTSHELL - 2004

„Creativity is the Ability to generate ideas that are novel, surprising and valuable“

P-Creativity



H-Creativity





CREATIVITY IN A NUTSHELL - 2004

surprising



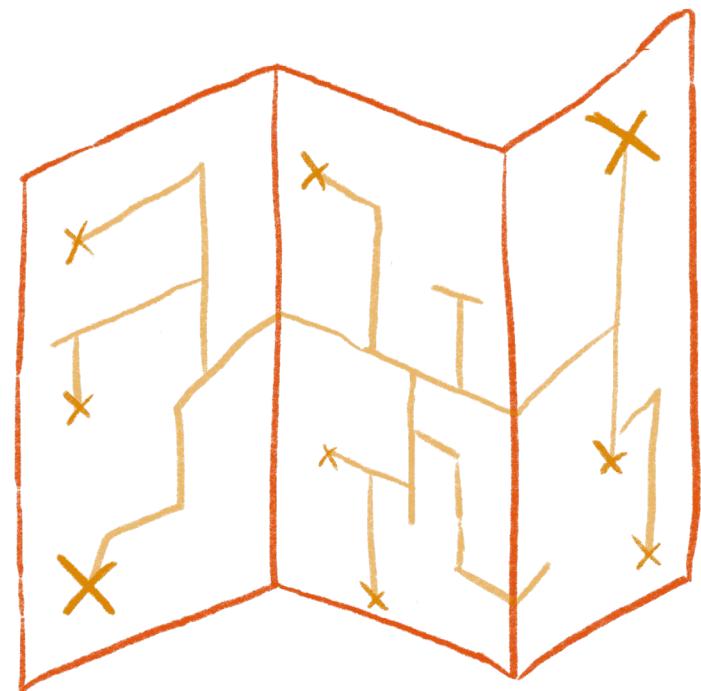


CREATIVITY IN A NUTSHELL - 2004

surprising

Statistically unusual

COMBINATIONAL
CREATIVITY





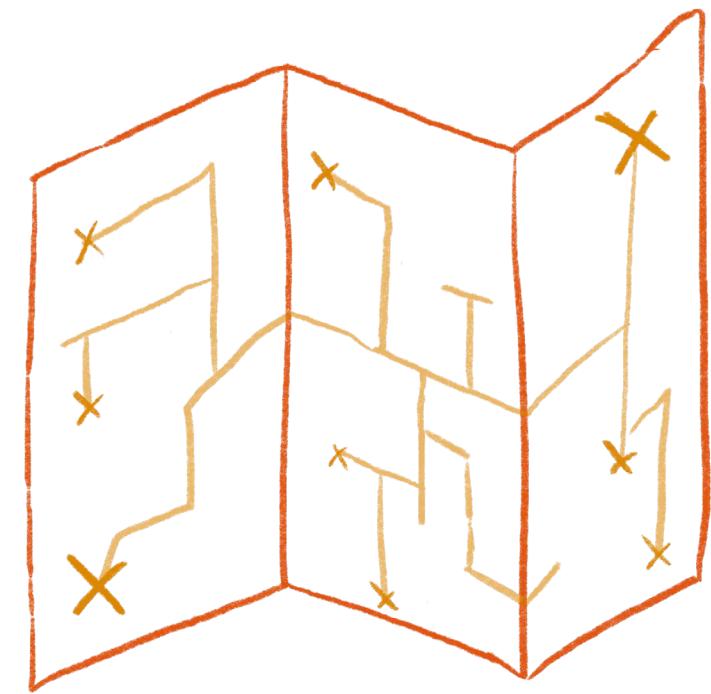
surprising

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COMBINATIONAL
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Unexpected but
fitting

EXPLORATORY
CREATIVITY





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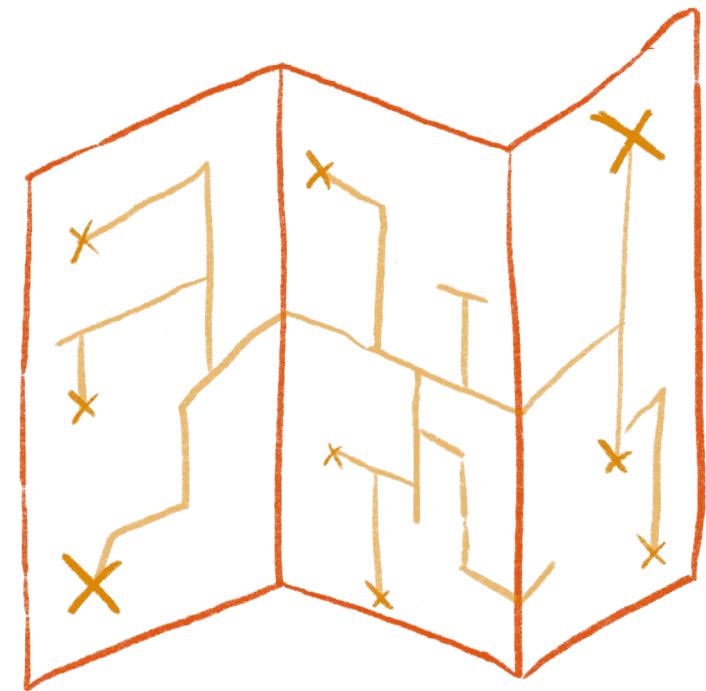
**COMBINATIONAL
CREATIVITY**

Unexpected but fitting

**EXPLORATORY
CREATIVITY**

Apparently impossible

**TRANSFORMATIONAL
CREATIVITY**





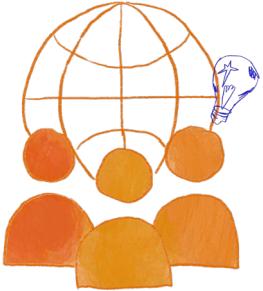
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H-Creativity



Statistically unusual

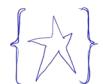
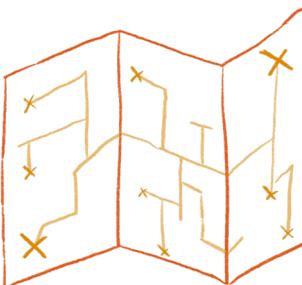
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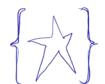
**TRANSFORMATIONAL
CREATIVITY**





CREATIVITY IN A NUTSHELL - 2004

valuable





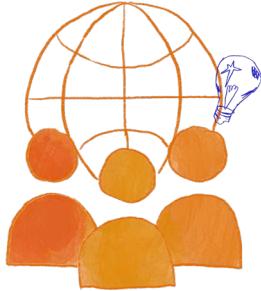
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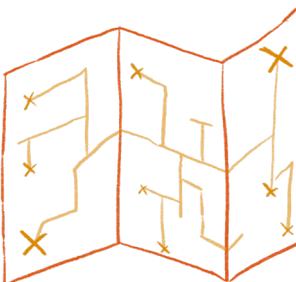
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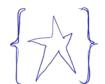
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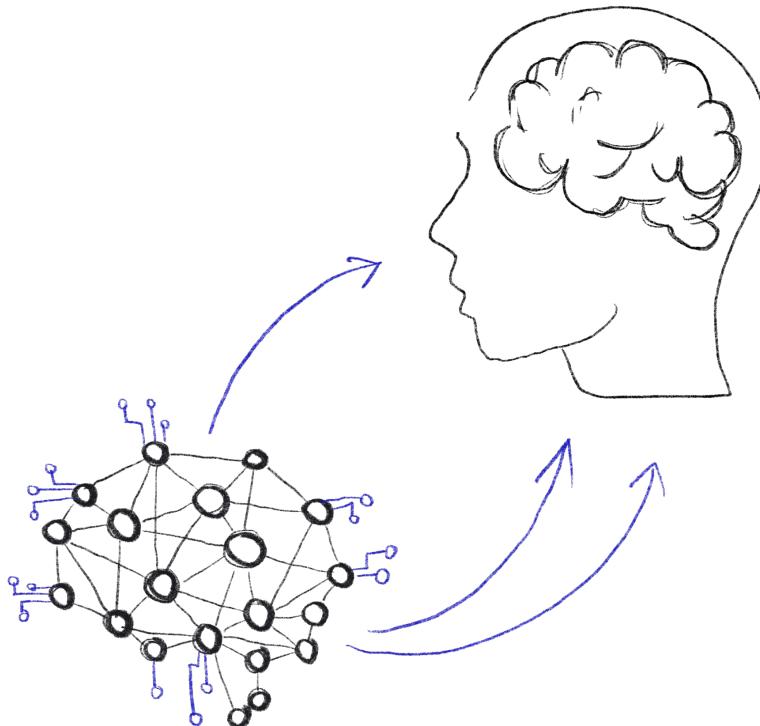
So can a computer be creative?





CREATIVITY IN A NUTSHELL - 2004

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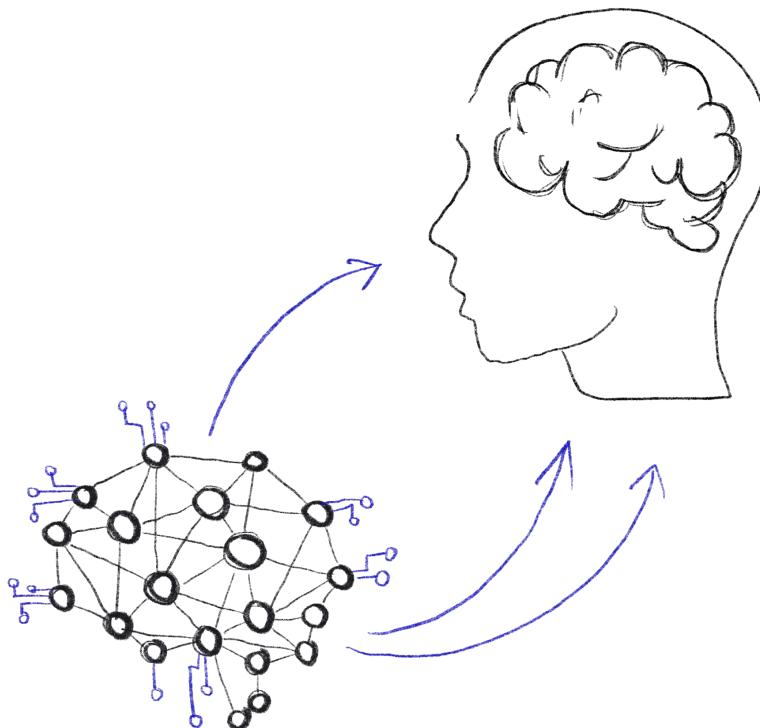




CREATIVITY IN A NUTSHELL - 2004

So can a computer be creative?

Consciousness
Intentions
human experience





CREATIVITY IN A NUTSHELL - 2004

So can a computer be creative?

Statistically unusual

COMBINATIONAL CREATIVITY

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Apparently
impossible

TRANSFORMATIONAL CREATIVITY





CREATIVITY IN A NUTSHELL - 2004

So can a computer be creative?

Statistically unusual

COMBINATIONAL CREATIVITY

Q: What is the difference between leaves and a car?

A: One you brush and rake, the other you rush and brake.

Example of JAPE

https://en.wikipedia.org/wiki/Computational_humor

Apparently
impossible

TRANSFORMATIONAL CREATIVITY





CREATIVITY IN A NUTSHELL - 2004

The screenshot shows a dark-themed AI interface. At the top left is the "ChatGPT" logo with a dropdown arrow. On the right are icons for "Gemeinsam nutzen" (Share) and three dots for more options. In the center is a large input field containing the text "Tell me a funny joke". Below it, the AI has generated a response: "Why do programmers prefer dark mode? Because light attracts bugs." At the bottom of the interface are five small interaction icons: a square, a thumbs up, a thumbs down, an upward arrow, a circular arrow, and three dots.

ChatGPT ▾

↑ Gemeinsam nutzen ...

Tell me a funny joke

Why do programmers prefer dark mode?

Because light attracts bugs.

□ ⌘ ⌘ ⌘ ⌘ ...

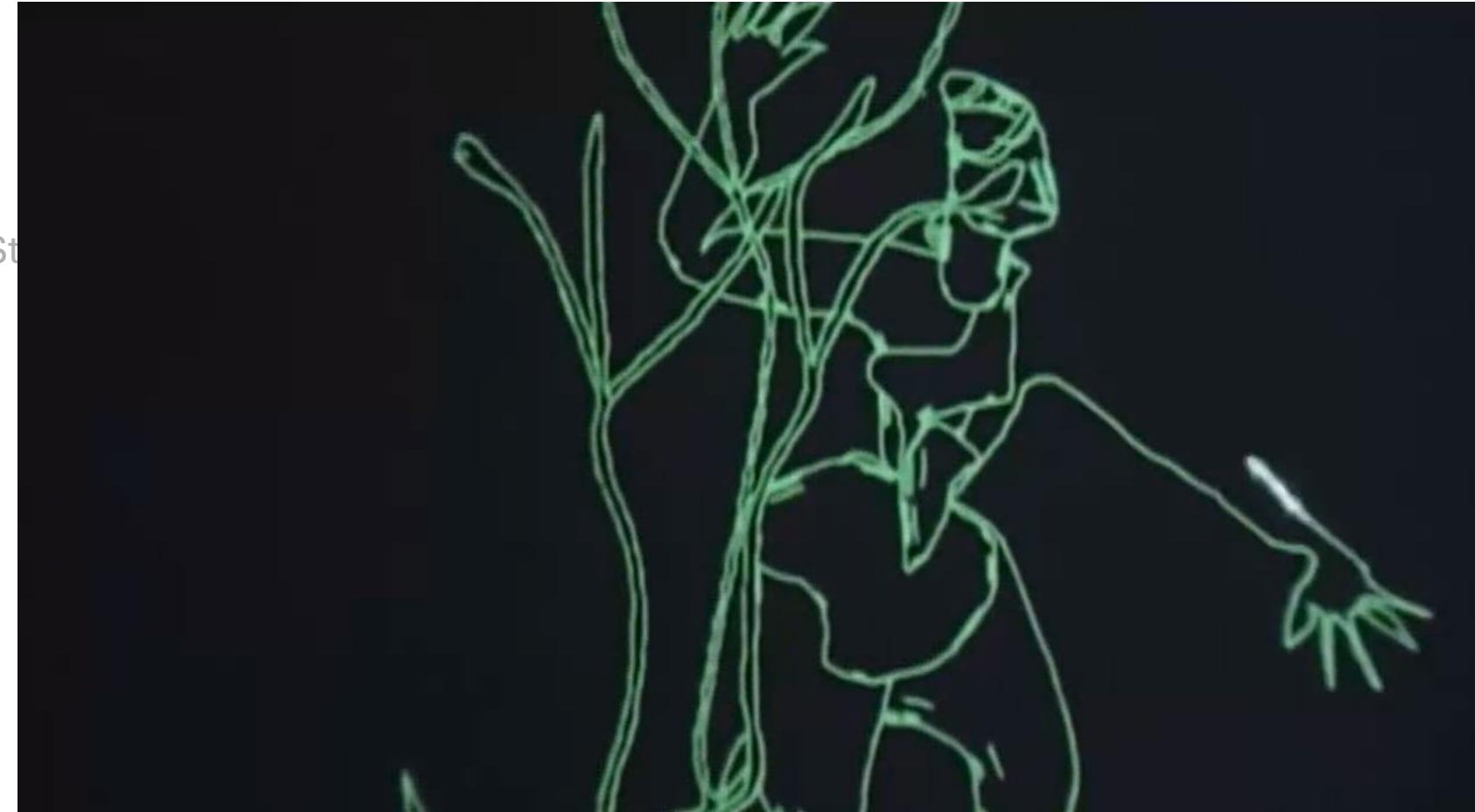




CREATIVITY IN A NUTSHELL - 2004

AARON

Harold Cohen - The Age of Intelligent Machines - 1987 (Clip)



<https://www.youtube.com/watch?v=IPczQgCuOOc>



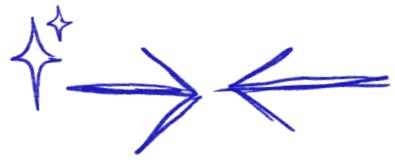


CREATIVITY IN A NUTSHELL - 2004

So can a computer be creative?

valuable





Creativity and Artificial Intelligence - a contradiction in Terms? - 2010





Creativity and Artificial Intelligence - a contradiction in Terms? - 2010

EMPIRICAL CLAIM

Computers can not produce creative looking outputs

PHILOSOPHICAL CLAIM

Regardless of outputs, computers can not be creative





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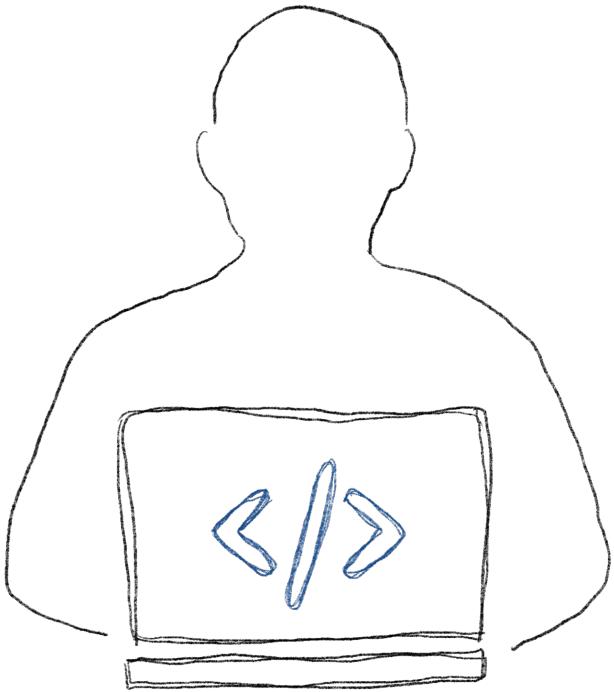
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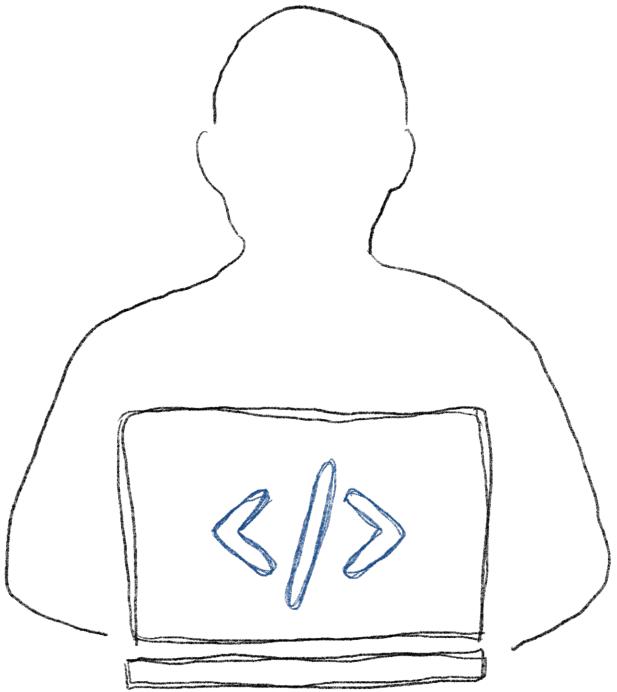


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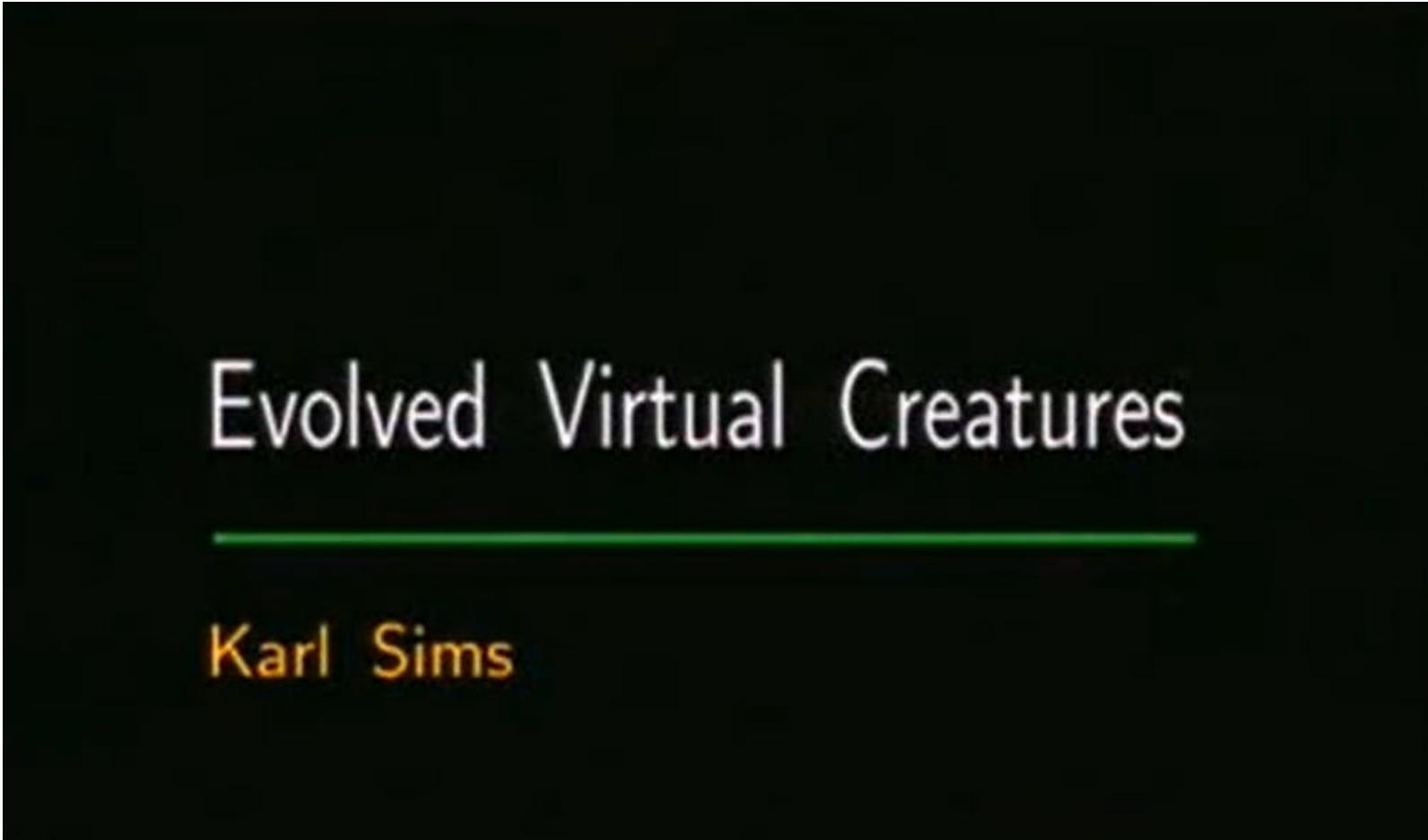
GENETIC ALGORITHMS





Creativity and Artificial Intelligence - a contradiction in Terms? - 2010

Karl Sims - Evolving Virtual Creatures With Genetic Algorithms



<https://www.youtube.com/watch?v=bBt0imn77Zg&t=27s>





Creativity and Artificial Intelligence - a contradiction in Terms? - 2010

AUTONOMY

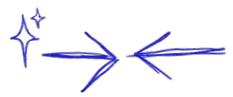
INTENTIONALITY

CONSCIOUSNESS

VALUE

EMOTION

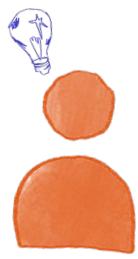




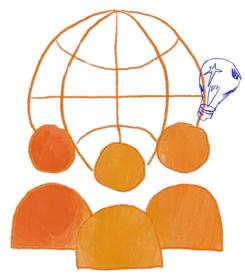
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AUTONOMY

P-Creativity



H-Creativity

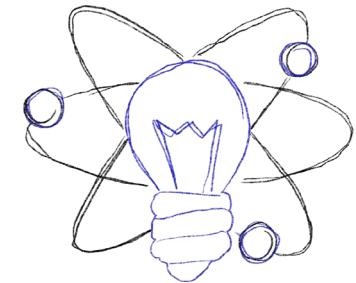
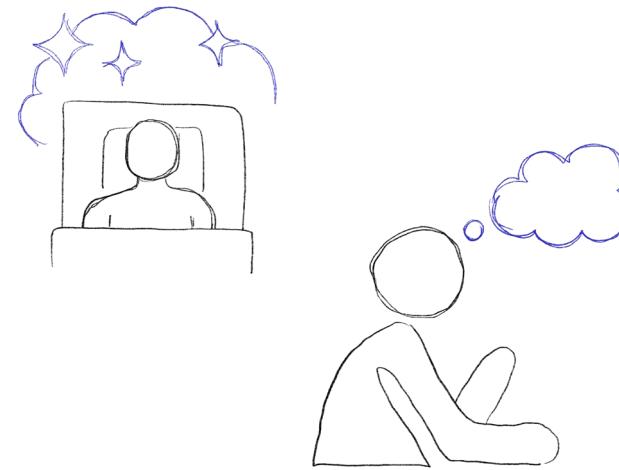


INTENTIONALITY

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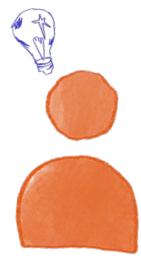




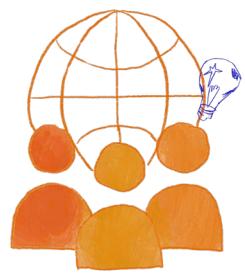
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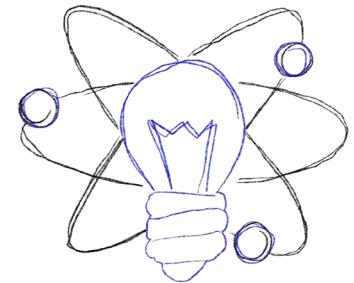


INTENTIONALITY

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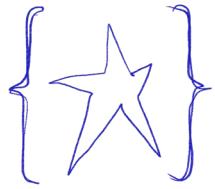


novel

surprising

valuable

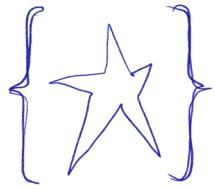




Skills and the appreciation of computer art - 2016

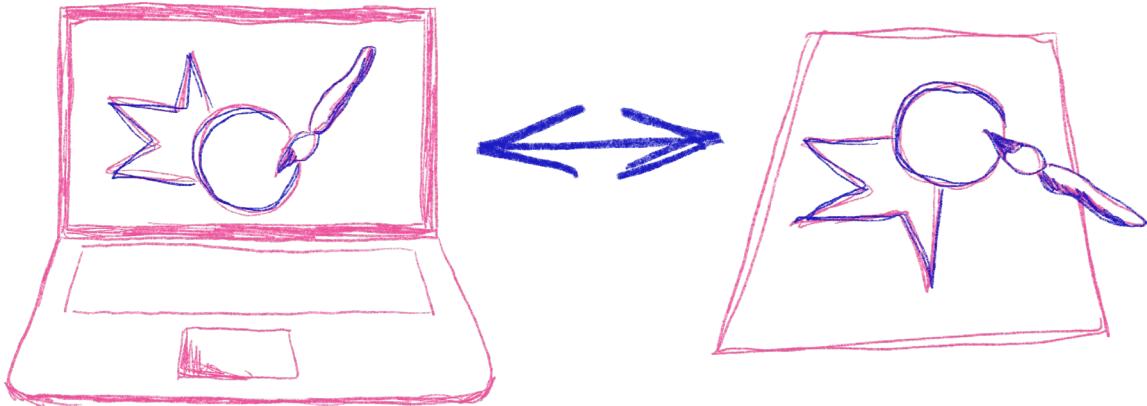
Computer-assisted Art

Computer-generated Art

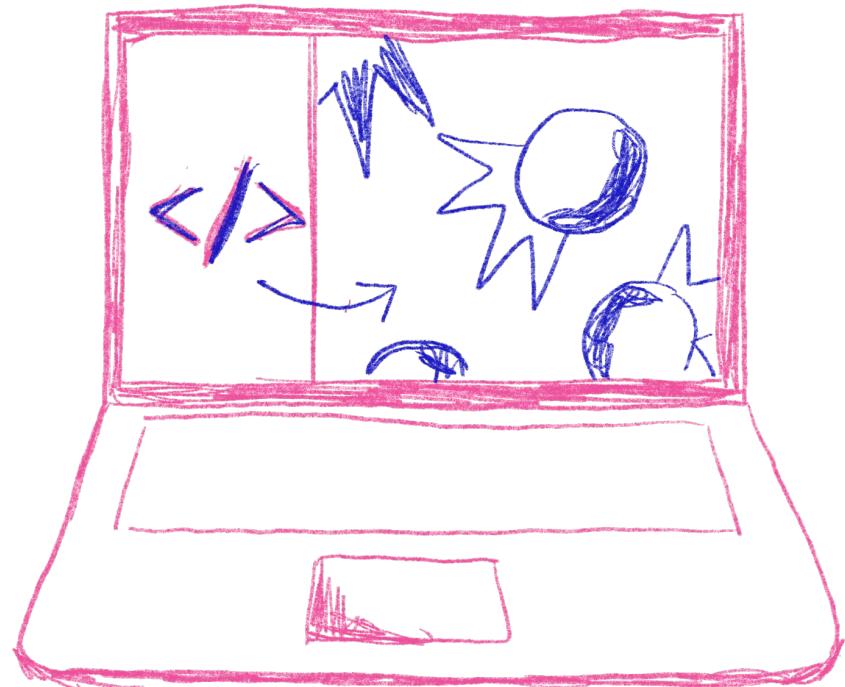


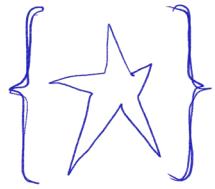
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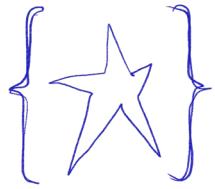




Skills and the appreciation of computer art - 2016



Mark Rothko, „Pink, Purple, Blue“
<https://indie-artdream.pixels.com/featured/pink-purple-blue-mark-rothko.html?product=framed-print>

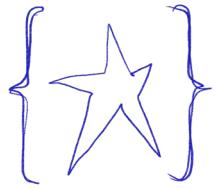


Skills and the appreciation of computer art - 2016

“My 6-year old could
have done this!”



Mark Rothko, „Pink, Purple, Blue“
<https://indie-artdream.pixels.com/featured/pink-purple-blue-mark-rothko.html?product=framed-print>



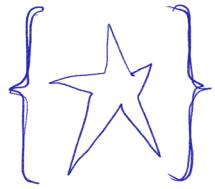
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Michelangelo, „The Last Judgement“
<https://www.britannica.com/biography/Michelangelo>



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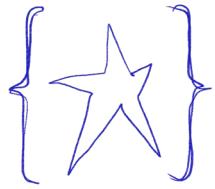
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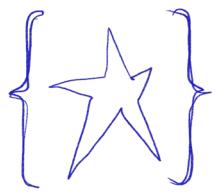
Skills and the appreciation of computer art - 2016



https://eco-cha.com/cdn/shop/products/Clay_Teapot_Lifestyle_01_-_1080px_2000x2000.jpg?v=1577463470



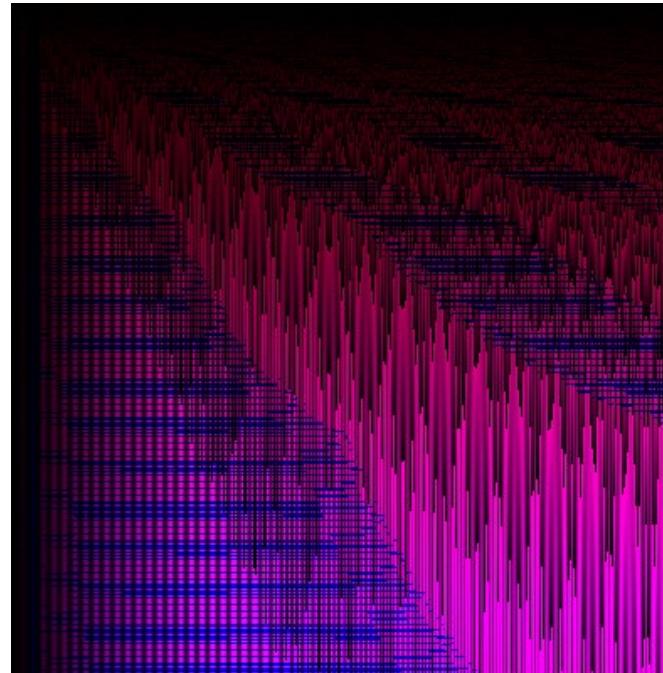
2D animated walk cycle



Skills and the appreciation of computer art - 2016

CG-ART GENRES

EVOLUTIONARY ART

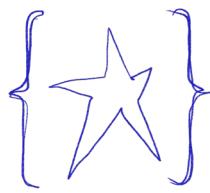


<https://www.alosome.com/articles/genetic-algorithm-evolution-art.html>

COMPUTER – INTERACTIVE ART



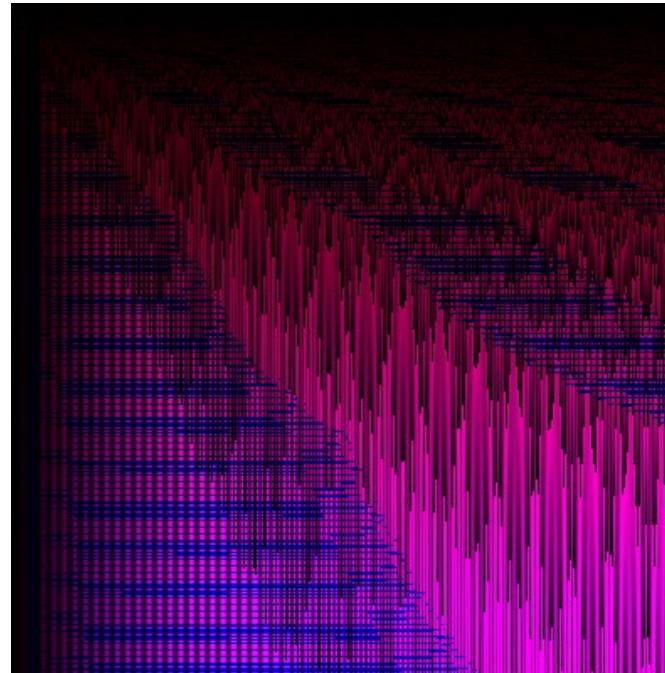
Ernest Edmons, „Shaping Space“
<https://www.interaliamag.org/interviews/ernest-a-edmonds/>



Skills and the appreciation of computer art - 2016

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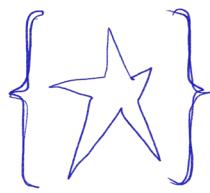


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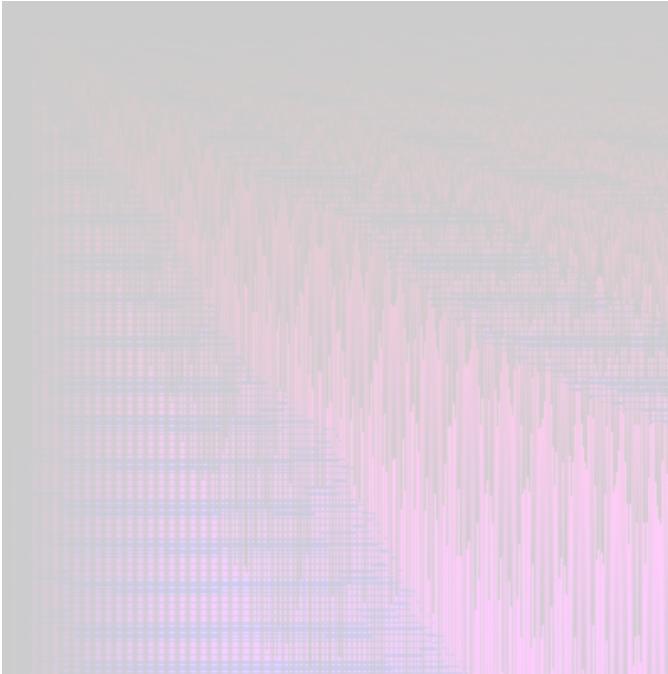
- Explain evolutionary behaviour in comparison to evolution
- Multiple generations of images
- Snippets of code

Ernest Edmons, „Shaping Space“
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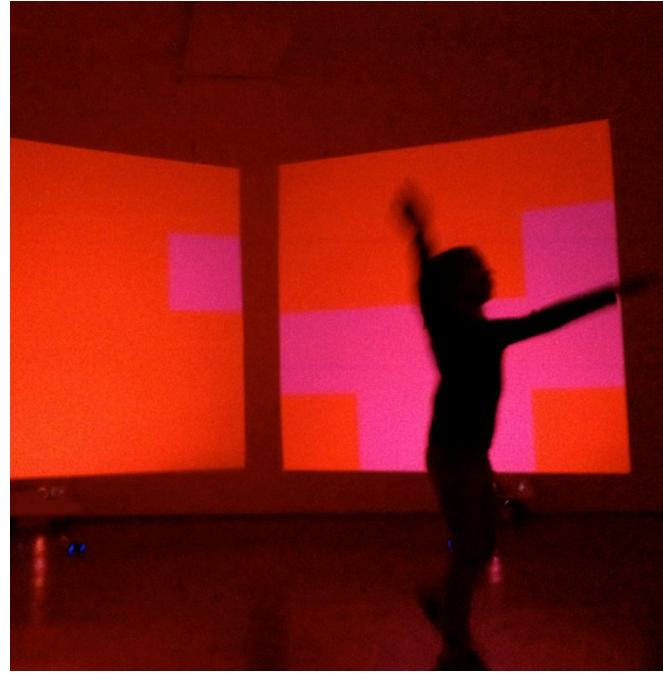
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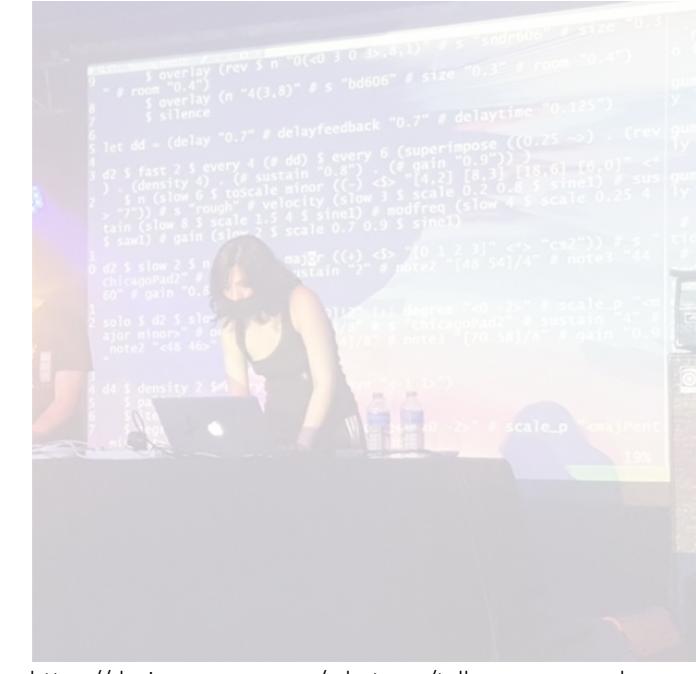
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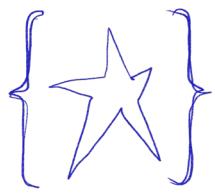


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LIVE CODING ART

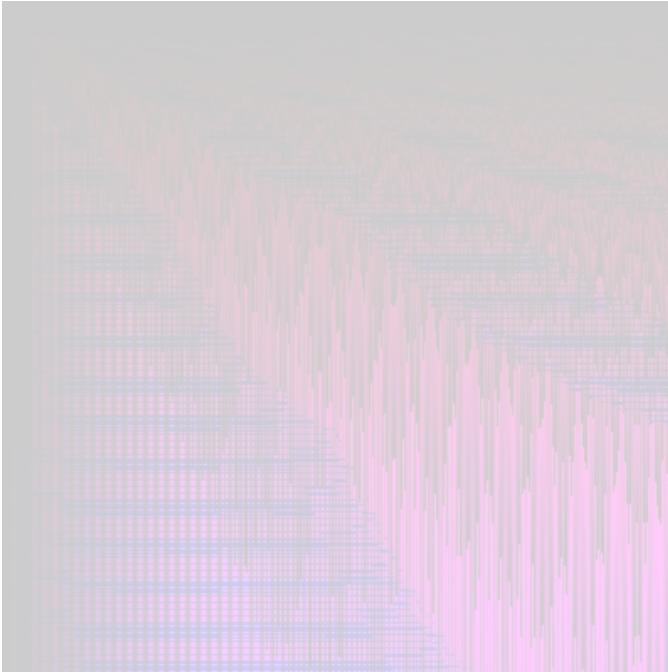


<https://designmuseum.org/whats-on/talks-courses-and-workshops/introduction-to-live-coding>



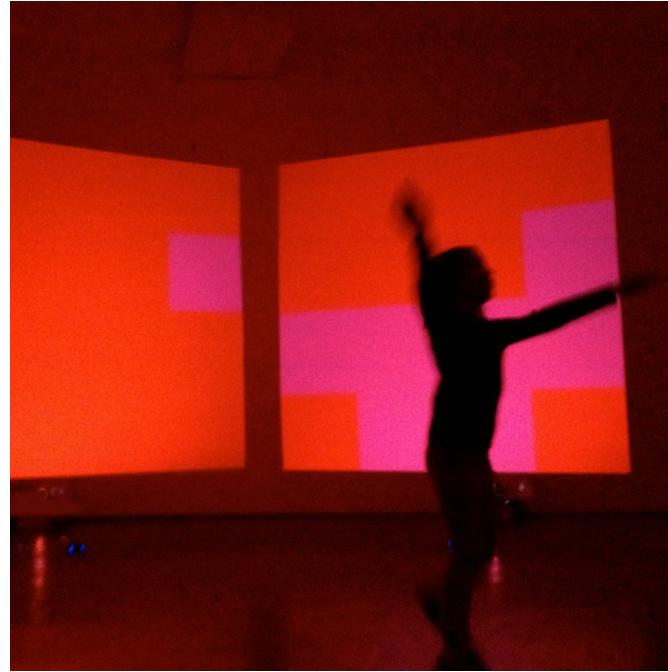
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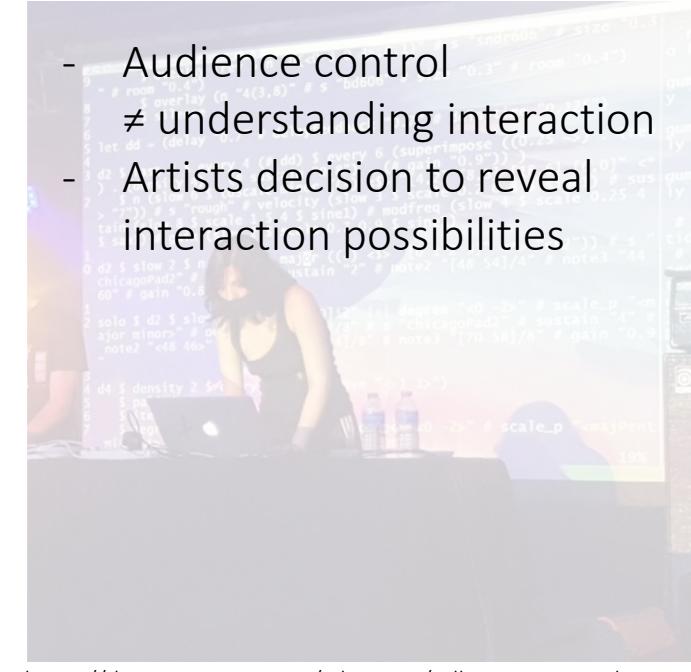
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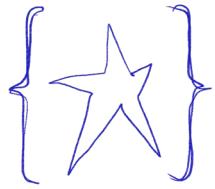


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LIVE CODING ART



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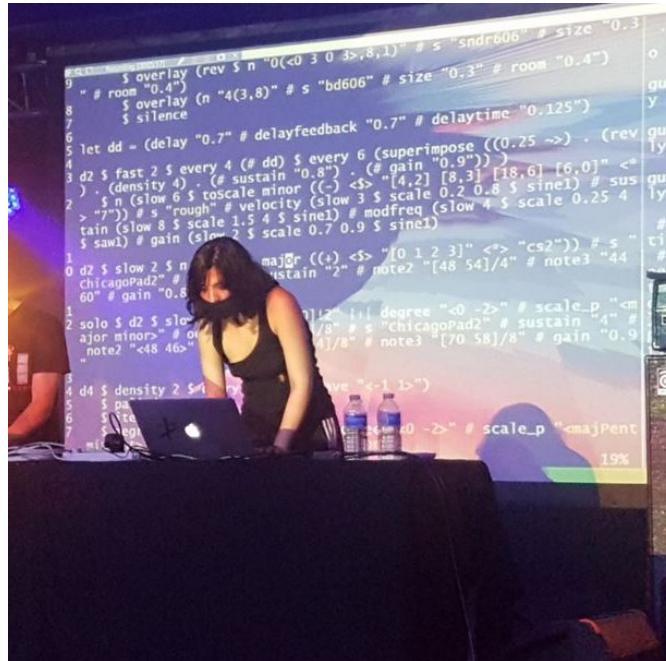
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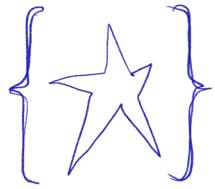
LIVE CODING ART



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VIRTUAL REALITY ART





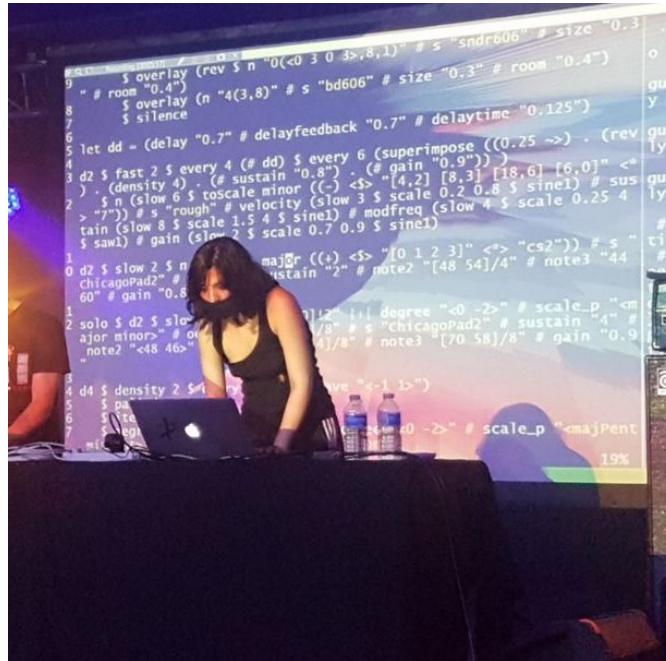
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COMPUTER – INTERACTIVE ART



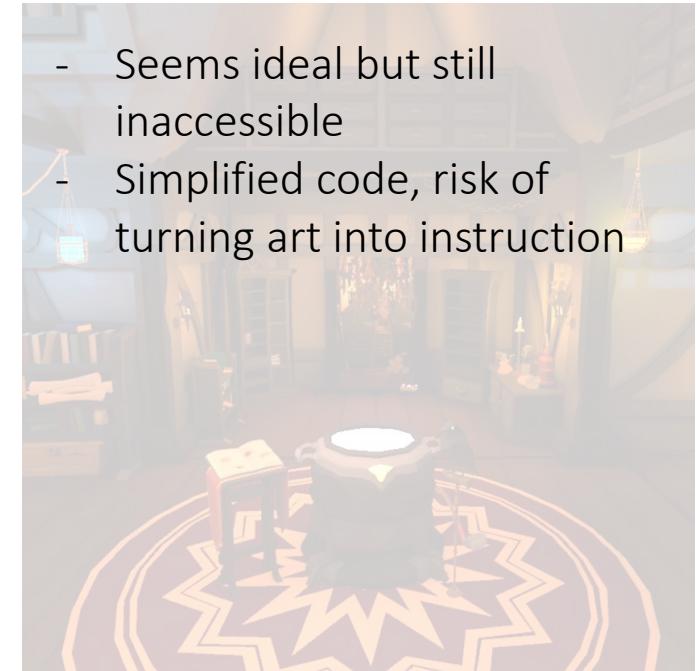
Ernest Edmons, „Shaping Space“
<https://www.interaliamag.org/interviews/ernest-a-edmonds/>

LIVE CODING ART

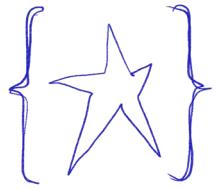


<https://designmuseum.org/whats-on/talks-courses-and-workshops/introduction-to-live-coding>

VIRTUAL REALITY ART



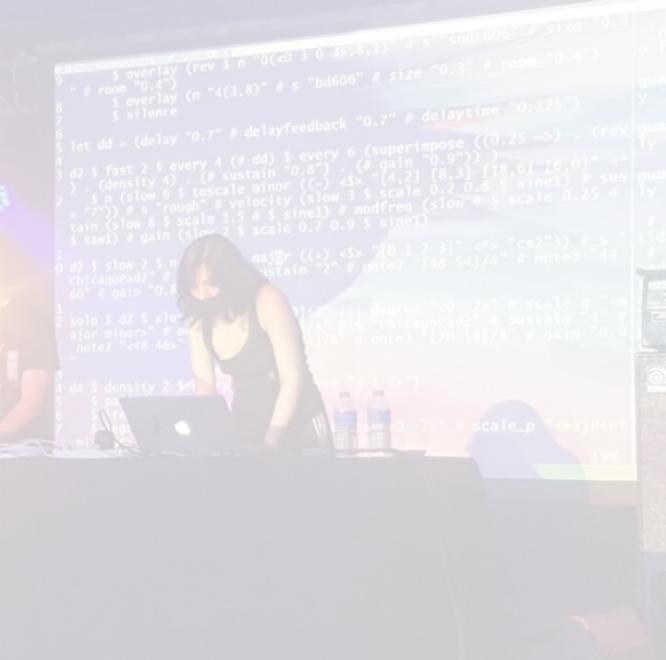
- Seems ideal but still inaccessible
- Simplified code, risk of turning art into instruction



Skills and the appreciation of computer art - 2016

VE ART

LIVE CODING ART



<https://designmuseum.org/whats-on/talks-courses-and-workshops/introduction-to-live-coding>

'ernest-a-edmonds/

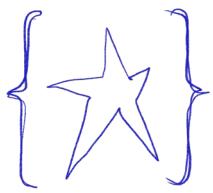
VIRTUAL REALITY ART



ROBOTIC ART

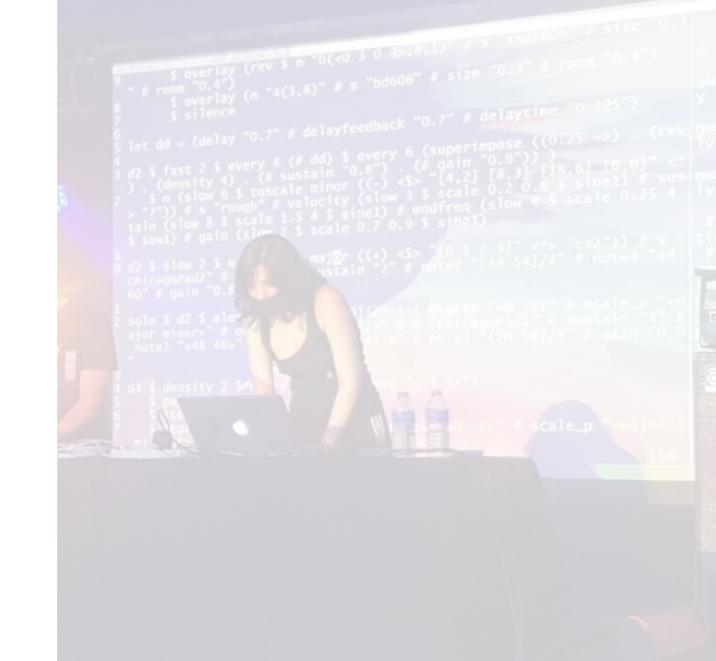


Sun Yuan and Peng Yu, “Can’t Help Myself”
<https://www.guggenheim.org/artwork/34812>



Skills and the appreciation of computer art - 2016

VE ART

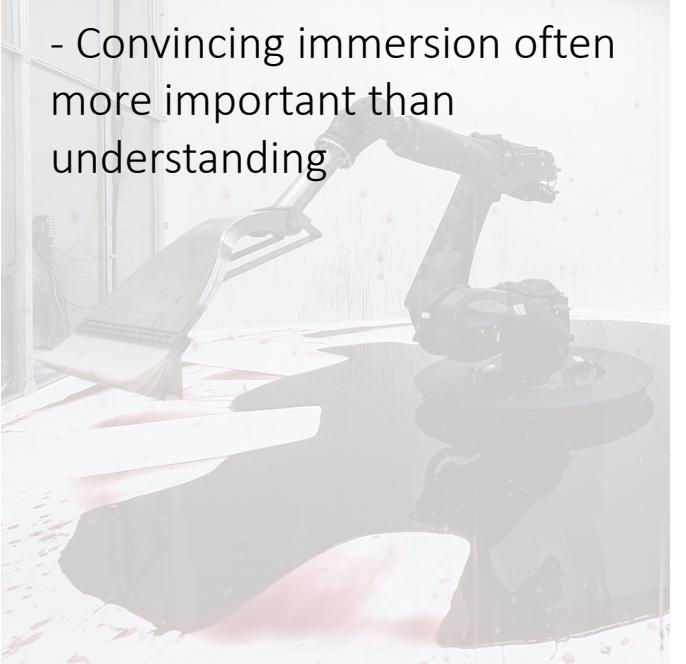


<https://designmuseum.org/whats-on/talks-courses-and-workshops/introduction-to-live-coding>

28.01.2026

LIVE CODING ART

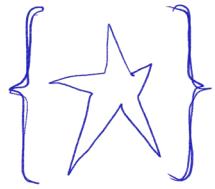
VIRTUAL REALITY ART



ROBOTIC ART

- Convincing immersion often more important than understanding

Sun Yuan and Peng Yu, “Can’t Help Myself”
<https://www.guggenheim.org/artwork/34812>



Skills and the appreciation of computer art - 2016

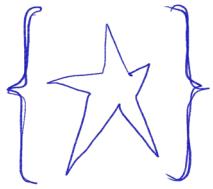
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Skills and the appreciation of computer art - 2016

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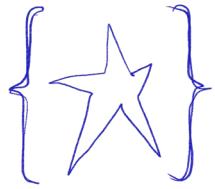


ROBOTIC ART



Sun Yuan and Peng Yu, “Can’t Help Myself”
<https://www.guggenheim.org/artwork/34812>

- Even harder because of programming AND engineering



Skills and the appreciation of computer art - 2016

- ➔ Art appreciation possible without skill recognition but one dimension is missing
- ➔ „responsibility“ lies somewhere between artists and curator
- ➔ How to solve this „problem“ remains open and is genre-dependant

CONNECTION TO CREATIVE TECHNOLOGIES

<https://www.filmuniversitaet.de/artikel/detail/creative-technologies-an-der-filmuniversitaet-die-mechanismen-hinter-der-magie-des-films>

My Judgement
of Reading

Discussion

Discussion

Boden talks about creativity and its value, but what if an AI creates something completely new that almost no human recognizes as valuable?

Is it still creative, or does creativity depend on humans noticing and appreciating it?

Discussion *

Boden argues that recognizing skill is key to fully appreciating computer-generated art, but many audiences lack the technical background.

Should creators simplify or “translate” the process for audiences, or is some level of exclusivity acceptable in art?

Discussion

Imagine a “perfect” AI in Boden’s terms of creativity, one that could generate ideas that are truly novel, surprising, and valuable.

Would you rather work with an AI that produces results that only look creative, or one that is genuinely creative?

My opinion

- She mentions a lot of aspects and open topics / questions
- I anticipated a clear „journey“ but No clear change in the articles from 2004 to 2010 -> just different aspects mentioned
- I like to think about creativity from different sides and hear different opinions also to review my own creativity
- Because the latest source was from 2016 I was kind of missing information of today -> because there were big chances made
- To understand the literature I had to do outside research in AI and history of AI to understand some Zusammenhänge right...

- Boden's concept of creativity is relevant for CTech because it makes creativity analysable and discussable, rather than treating it as something vague or purely intuitive. and I think that can help us to talk / communicate about project details important: AI outputs
 - Boden's view on AI is especially important: **AI outputs are not valuable in themselves.** AI and technical systems remain tools, while responsibility for artistic meaning and value stays with humans.
- In *Skills and Appreciation of Computer Art*, Boden highlights that in digital art much skill is **hidden in code, algorithms, and interaction design**, which makes it hard for audiences to recognise.
- This directly relates to **VR, interactive storytelling, and media art** in CTech, where students must consider not only how systems work, but also how their complexity and craftsmanship are perceived and communicated.