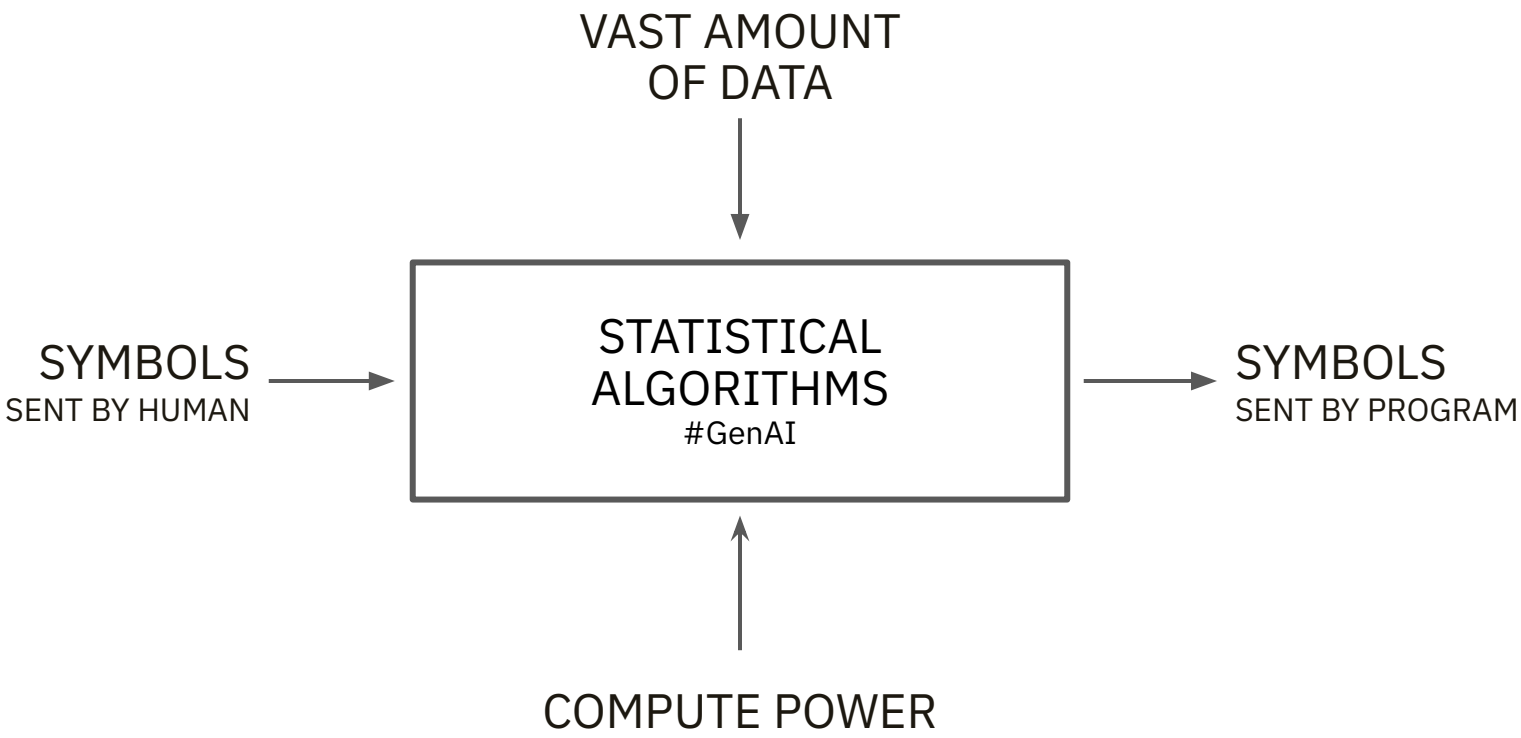
cognitive sciences
↓ artificial intelligence
↓ ~computational intelligence
↓ machine learning
↓ neural networks
↓ large language models
↓ generative systems

June 2025, Thomas Gerbaud


VAST AMOUNT
OF DATA
SYMBOLS
SENT BY HUMAN
STATISTICAL
ALGORITHMS
#GenAI
SYMBOLS
SENT BY PROGRAM
COMPUTE POWER

> Programming computers to learn from experience should eventually eliminate the need for much of this detailed programming effort.
>
> Arthur L. Samuel (1959)

> Our results show that a large, deep convolutional neural network is capable of achieving record breaking results on a highly challenging dataset [ImageNet] using purely supervised learning.

Geoffrey Hinton (2012)

What can I help with?

Ask anything

+ Tools

> ChatGPT is a fascinating technology that has the potential to transform the way we communicate with machines.

Andrew NG (attributed)

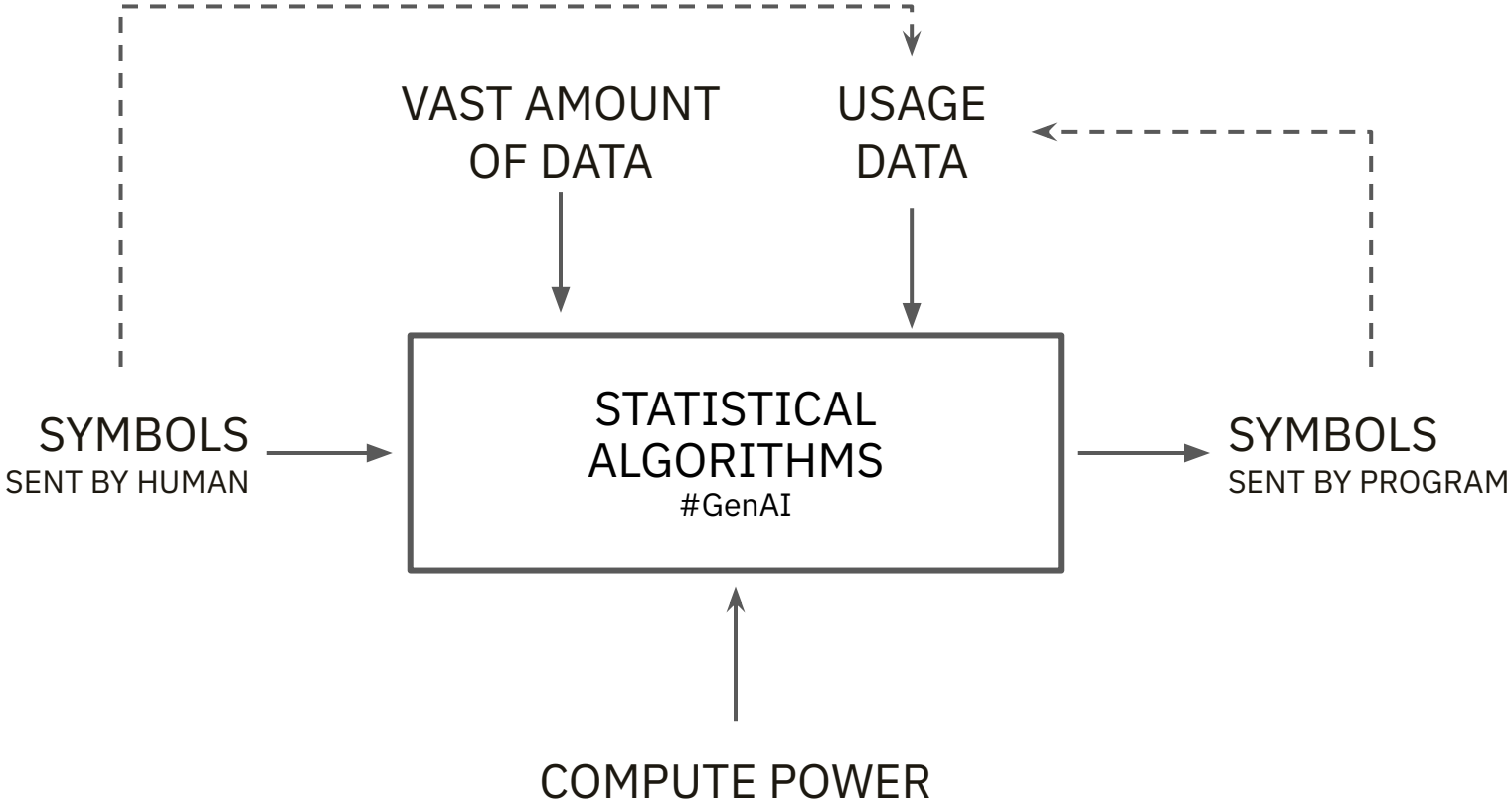
“
We are now confident
we know how
to build AGI
as we have
traditionally
understood it.
Sam Altman (2025)

> ChatGPT just makes up stuff that sounds good.

Rodney Brooks (2023)

> What large language models are good at is saying what an answer should *sound like*, which is different from what an answer should *be*.
>
> It gives an answer with complete confidence. And half the time, it's completely wrong.

Rodney Brooks (2023)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“

Technically speaking,
neural networks are
function approximators.

Large Language Models are
approximating the function
of how humans use language.
They’re extremely good at that.

But approximating a function
is not the same thing
as learning a function.

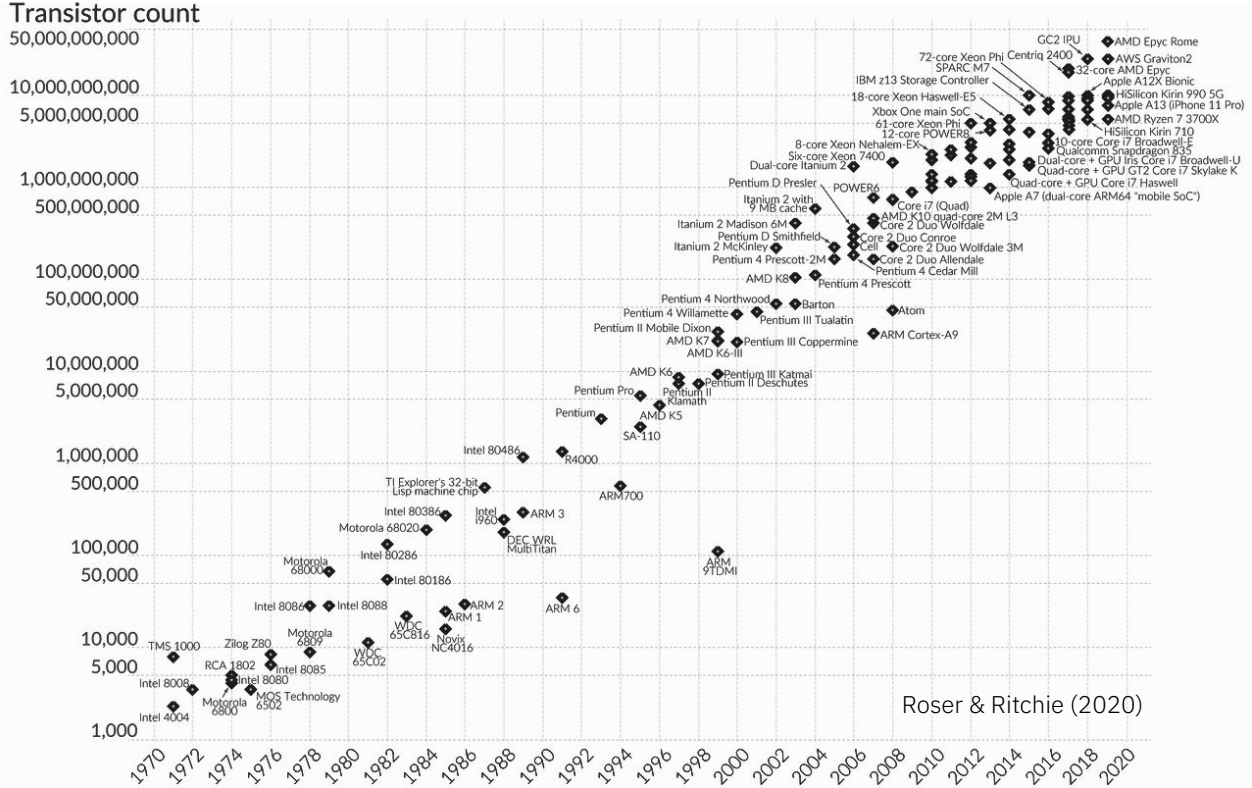
Gary Marcus (2025)

> LLM have been trained on huge amounts of human-generated text, where the training objective is to predict the next token in a text sequence.
>
> The base model is then *post-trained*, that is, further trained but with a different objective.

Melanie Mitchell (2025)
DOI: 10.1126/science.adw5211

> Such research is difficult to do on models such as those of OpenAI, Google, and Anthropic, because these companies do not release their models or many details of their workings.

Melanie Mitchell (2025)
DOI: 10.1126/science.adw5211



“

The biggest lesson that can be read from 70 years of AI research is that general methods that leverage computation are ultimately the most effective, and by a large margin.

Richard Sutton (2019)
http://incompleteideas.net

> Neural networks with large numbers of parameters can potentially encode huge collections of heuristics, which produce behavior that looks like the kind of world model a human might have.
>
> But that ends up being brittle when encountering sufficiently novel situations

Melanie Mitchell (2025)

> The term 'reasoning' seems to be equated with generating plausible-sounding natural-language steps to solving a problem.

Melanie Mitchell (2025)

ELIZA is a natural language conversation program, created by Joseph Weizenbaum in 1966-68.

It was written in MAD-SLIP on a IBM 7094 at MIT.

“

ELIZA effect

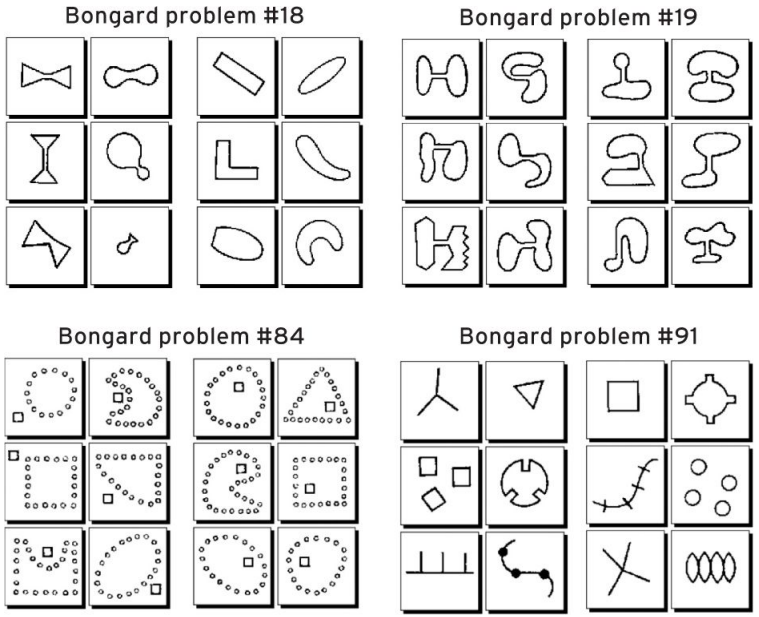
= susceptibility of people to read far more understanding than is warranted into strings of symbols (especially words) strung together by computers.

Douglas Hofstadter (1986)

“ ELIZA effect

What I had not realized is that extremely short exposures to a relatively simple computer program could induce powerful delusional thinking in quite normal people.

Joseph Weizenbaum (1976)



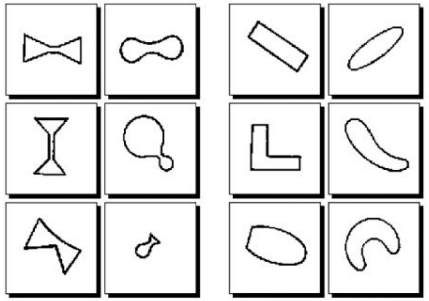
“

Several surveys given to AI practitioners, asking when general AI or 'superintelligent' AI will arrive, have exposed a wide spectrum of opinion, ranging from 'in the next ten years' to 'never'.

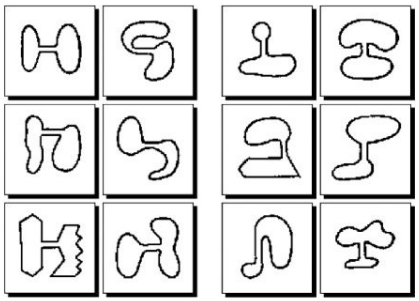
In other words,
we don’t have a clue.

Melanie Mitchell (2019)

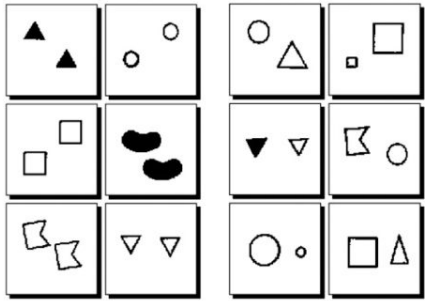
Bongard problem #18



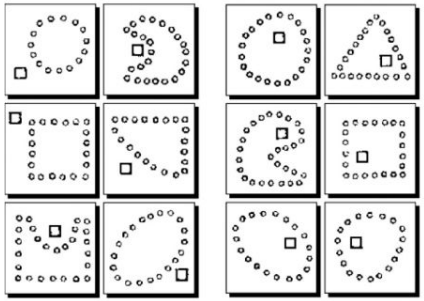
Bongard problem #19



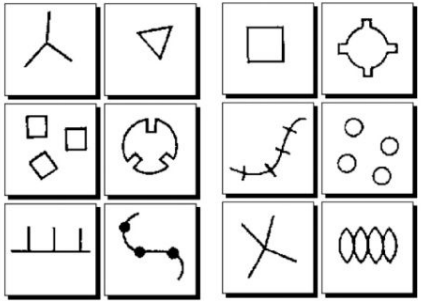
Bongard problem #57



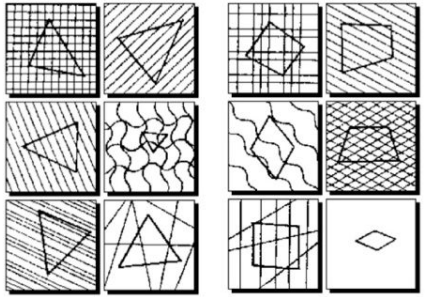
Bongard problem #84



Bongard problem #91



Bongard problem #98



commentary in snack-sized mouthfuls

"I want AI to do my laundry and dishes so that I can do art and writing, not for AI to do my art and writing so that I can do my laundry and dishes."

Author and videogame enthusiast **Joanna Maciejewska** nails it (although bathroom cleaning goes ahead of laundry and dishes)

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ALGONAUTE

ENGLISH VERSION

Nous ne sommes toujours pas des machines.

Les données font désormais la loi. Elles bouleversent nos schémas de pensée. Les penseurs habituels sont perdus devant ces nouvelles technologies, trop complexes pour pouvoir être appréhendées rapidement. L'information et les algorithmes remplacent aujourd'hui l'energie, la matière, et les ondes. Les impacts sociaux sont majeurs.

LE BONHEUR EST DANS LE PROMPT (NON)
24/02/2025

LES PROGRAMMES APPRENNENT BIEN MAIS NE COMPRENNENT RIEN
24/02/2025

C'EST MALIN, UNE LOUTRE, BEAUCOUP PLUS QU'UN LLM
04/02/2025

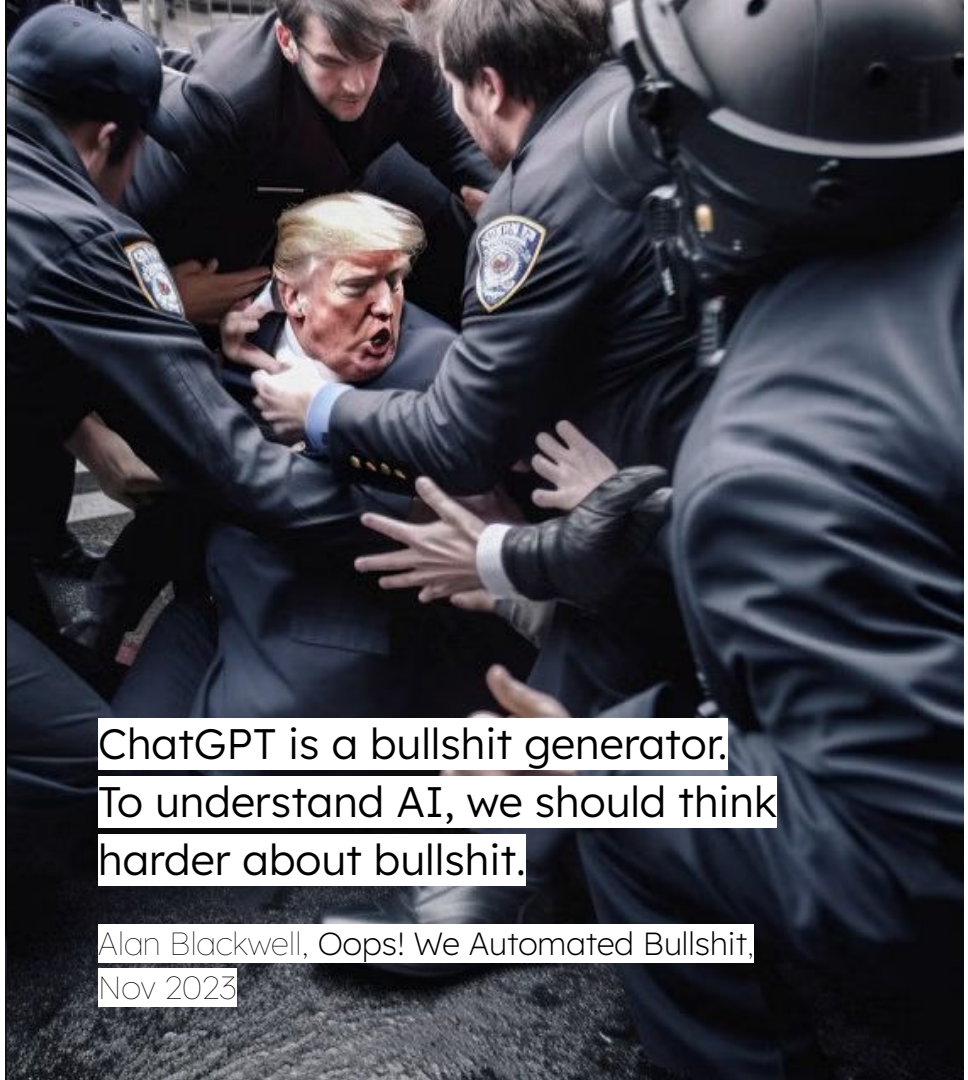
RETOUR D'EXPÉRIENCE : DIX ANS, LES MAINS DANS LES DONNÉES
29/01/2025

QUAND LES *REGEXES* NE SUFFISENT PLUS, IL FAUT SORTIR SA GRAMMAIRE
15/04/2024

LA REGEX EST LE MARTEAU DU TRAITEMENT DE TEXTE
02/04/2024

Bullshit is a greater enemy of the truth than lies are.

Harry G. Frankfurt, On Bullshit, 1986



ChatGPT is a bullshit generator. To understand AI, we should think harder about bullshit.

Alan Blackwell, Oops! We Automated Bullshit, Nov 2023

ANNALS OF ARTIFICIAL INTELLIGENCE

WHAT KIND OF MIND DOES CHATGPT HAVE?

Large language models seem startlingly intelligent. But what's really happening under the hood?

By Cal Newport

April 13, 2023

> ChatGPT copies, manipulates, and pastes together text that already exists, originally written by human intelligences, to produce something that *sounds* like how a real person would talk about these topics.

> Deep learning
> isn’t the answer.
>
> Its aficionados admit that 'new paradigms are needed' to combine it with complex reasoning, scholarly code for 'we haven’t got a clue'.

Margaret Boden (2016)

> In the end, the meaning and consequences of “AGI” will not be settled by debates in the media, lawsuits, or our intuitions and speculations but by long-term scientific investigation of such principles

Melanie Mitchell (2025)

> Making predictions about something that has never been seen and might not even exist, whether that is extraterrestrial life or superintelligent machines, will require theories grounded in general principles.

Melanie Mitchell (2025)

> It's difficult to be rigorous about whether a machine really 'knows', 'thinks', etc, because we're hard put to define these things.
>
> We understand human mental processes only slightly better than a fish understands swimming.

John McCarthy (1983)