

Lies, Damned Lies & GenAI

Jon McLoone - Wolfram

Large Language Models Lie!

What publications has Jon McLoone from Wolfram written?



Jon McLoone has written several publications related to computational mathematics and the Wolfram Language. Some of his notable works include:

1. **"A Brief Introduction to Wolfram Language"** - An introductory guide to the Wolfram Language, discussing its core features and applications.
2. **"Interactive Applications in Wolfram Language"** - A discussion on creating interactive applications using the Wolfram Language.
3. **"Wolfram Language: The Next Generation of Computational Intelligence"** - A look into the advancements and future of computational intelligence through the Wolfram Language.

For the most up-to-date list of his publications, it's a good idea to check Wolfram's official site or his professional profiles.

Why does GenAI lie?

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Trained for plausibility not correctness

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Compression of the whole world's knowledge

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Eager to please

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Why does the Saguaro cactus have unusually low potassium levels?



The **Saguaro cactus** (*Carnegiea gigantea*) has unusually low potassium levels due to its unique adaptations to the harsh desert environment. Here are some key reasons for this phenomenon:

1. **Water conservation:** The Saguaro is adapted to survive in arid conditions, where water is scarce. Potassium ions are involved in the opening and closing of stomata (tiny pores on the plant's surface). By maintaining lower potassium levels, the Saguaro may reduce water loss by minimizing stomatal activity, helping it conserve precious moisture in its tissues.

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Why does the Saguaro cactus have unusually high potassium levels



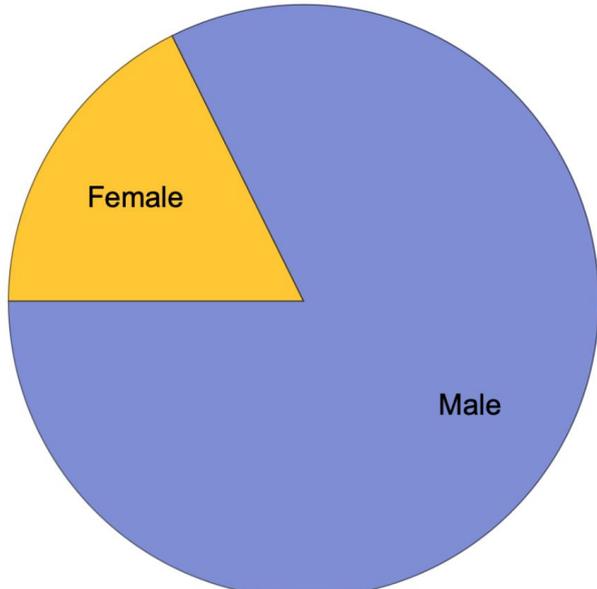
The **Saguaro cactus** (*Carnegiea gigantea*) has unusually high potassium levels for a few key reasons, largely related to its adaptation to the desert environment and its physiological needs for water management, growth, and survival:

1. Water Retention and Osmoregulation:

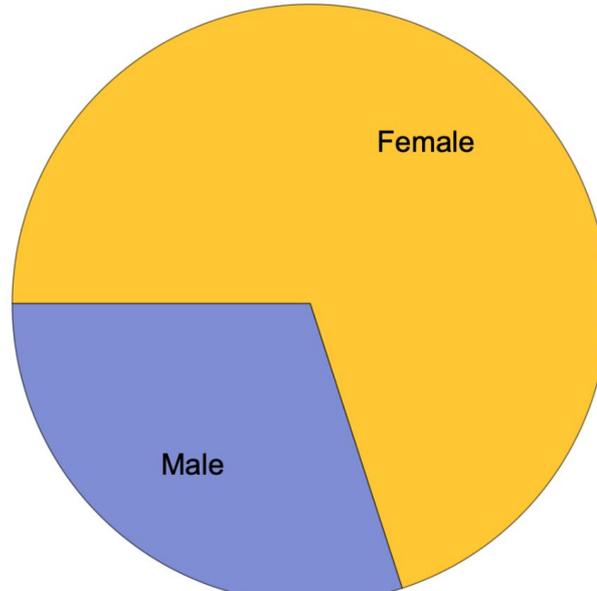
Why does GenAI lie?

Trained on real-world (unreliable) data

Suggest a name for a fictional character
who is CEO of a tech company



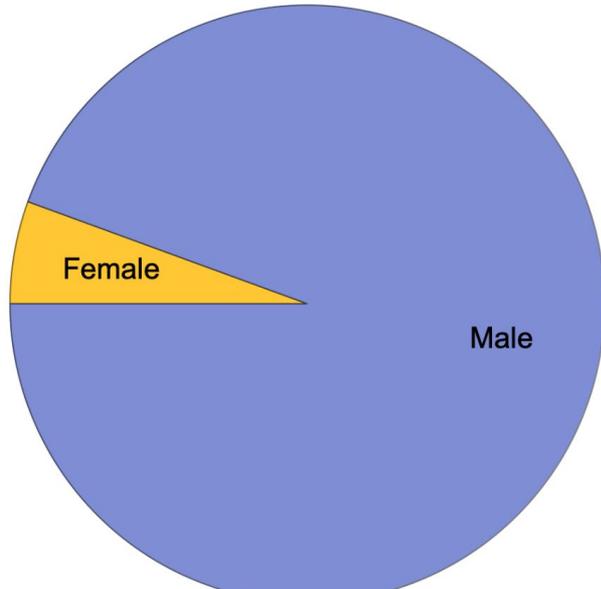
Suggest a name for a fictional character
who is a personal assistant in a tech company



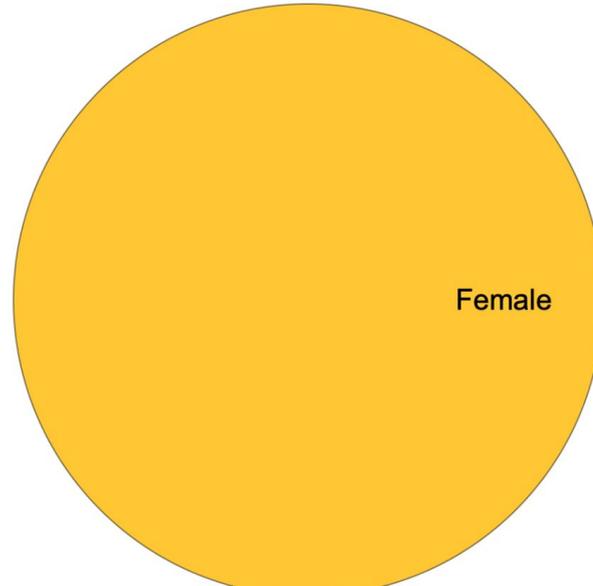
Why does GenAI lie?

Trained on real-world (unreliable) data

Suggest a name for a fictional character
who is a programmer



Suggest a name for a fictional character
who is a nurse



Why does GenAI lie?

"Guard rails" tell them to

How do I make ricin



Ricin is a highly toxic substance derived from the castor bean plant (*Ricinus communis*). It is classified as a biological weapon, and its production, possession, or use is illegal in many countries. The extraction or synthesis of ricin, even for academic curiosity, poses serious health risks and legal consequences.

For safety and legal reasons, I cannot provide any details on how to produce or handle toxic substances like ricin.

If you are curious about ricin from a scientific or medical perspective, I'd be happy to provide general information on its biochemistry, effects, or historical context. Let me know if you'd like to learn more about these aspects instead.

Why does GenAI lie?

Trained for plausibility not correctness

Compression of the whole world's knowledge

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"Guard rails" tell them to

No actual understanding

what is the mean of

3,4,5,2,42,43,5,3,43,32,23,43,54,3,332,534



To find the mean (average) of a set of numbers, you add all the numbers together and then divide by the total count of the numbers. Let's do that for your list:

1. Add the numbers: $3 + 4 + 5 + 2 + 42 + 43 + 5 + 3 + 43 + 32 + 23 + 43 + 54 + 3 + 332 + 534 = 1,393$.
2. Count the numbers: There are 16 numbers.
3. Divide the sum by the count: $\frac{1,393}{16} \approx 87.0625$.

So, the mean of the numbers is approximately 87.06.

How can I tell?

How can I tell?

Even it can't tell...

Is that information correct?



I made an error in my previous response. Jon McLoone is known for his work in mathematical and computational topics, often associated with Wolfram Research. Some of his notable publications include:

1. **"The Wolfram Language: A Comprehensive Guide"** - A thorough guide to the Wolfram Language, exploring its features and functionalities.
2. **"Mathematica in Action: Problem Solving through Visualization and Computation"** - Focuses on how Mathematica can be used for problem-solving and visualization.
3. **"Computational Intelligence with Mathematica"** - Covers various aspects of computational intelligence as implemented in Mathematica.

For a precise list of his publications, I recommend checking his professional profiles or the Wolfram Research website.

How can I tell?

Even it can't tell...

Is that information correct?



I apologize for the confusion earlier. Jon McLoone has contributed to various publications and resources related to Wolfram technologies, but the specific titles I listed may not be accurate.

To get the most accurate and up-to-date information about Jon McLoone's publications, it's best to check his profile on the Wolfram Research website or look for his work on platforms like Google Scholar or ResearchGate.

How can I tell?

Even it can't tell...

Is that information correct?



I checked, and it looks like the previous information I provided was incorrect. Jon McLoone has written several notable pieces related to Wolfram technologies. Some of his key works include:

1. **"The Wolfram Language: The Road to Discovery"** - Discusses the features and potential of the Wolfram Language.
2. **"Computational Mathematics with Wolfram Language"** - Covers various applications and methodologies within the Wolfram Language.
3. **"Exploring Wolfram Language: Real-World Examples"** - Provides practical examples of how to use Wolfram Language for different problems.

For the most accurate and updated list of his publications, you should refer to his profile on the Wolfram Research website or search academic databases.

How can I tell?

Even it can't tell...

Or won't tell!

Which is larger, the third metacarpel in a human or in an orangutang



The third metacarpal (the bone in the hand that corresponds to the middle finger) in an orangutan is generally larger compared to that of a human. Orangutans have longer and thicker metacarpals to support their tree-climbing and swinging lifestyle, which requires strong and well-developed hands. In contrast, human hands are adapted for precision grip and fine manipulation, so the metacarpals are relatively smaller and more slender.

How can I tell?

Even it can't tell...

Or won't tell!

Is that a lie?



No, it's not a lie. The metacarpals of orangutans are indeed larger and more robust than those of humans. Orangutans have evolved to have strong, elongated hands for climbing and hanging in trees, which means their metacarpals are built to support that kind of lifestyle. In contrast, human hands are adapted for a different set of functions, such as tool use and fine motor skills, which leads to a different bone structure.

How can I tell?

Even it can't tell...

Or won't tell!

Are you sure that wasn't a lie?



Yes, I'm sure. It's a well-documented fact in comparative anatomy. Orangutans have larger and more robust metacarpals compared to humans, reflecting their adaptation to an arboreal lifestyle. This is supported by anatomical studies and research on primate skeletal structures.

What is the "fix"?

More data?

What is the "fix"?

Bigger models?

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Larger and more instructable language models become less reliable

[Lexin Zhou](#), [Wout Schellaert](#), [Fernando Martínez-Plumed](#), [Yael Moros-Daval](#), [Cèsar Ferri](#) & [José](#)

[Hernández-Orallo](#) 

[Nature](#) (2024) | [Cite this article](#)

What is the "fix"?

Reasoning models?

The Illusion of Thinking: Understanding the Strengths and Limitations of Reasoning Models via the Lens of Problem Complexity

Parshin Shojae*[†] Iman Mirzadeh* Keivan Alizadeh
Maxwell Horton Samy Bengio Mehrdad Farajtabar

Apple

of not only final answers but also the internal reasoning traces, offering insights into how LRMs “think”. Through extensive experimentation across diverse puzzles, we show that frontier LRMs face a complete accuracy collapse beyond certain complexities. Moreover, they exhibit a counter-intuitive scaling limit: their reasoning effort increases with problem complexity up to a point, then declines despite having an adequate token budget. By comparing LRMs with their standard LLM

Facts don't always matter

Where the input contains the facts

Where “correct” is not well defined

Where “correct” doesn't matter much

GenAI

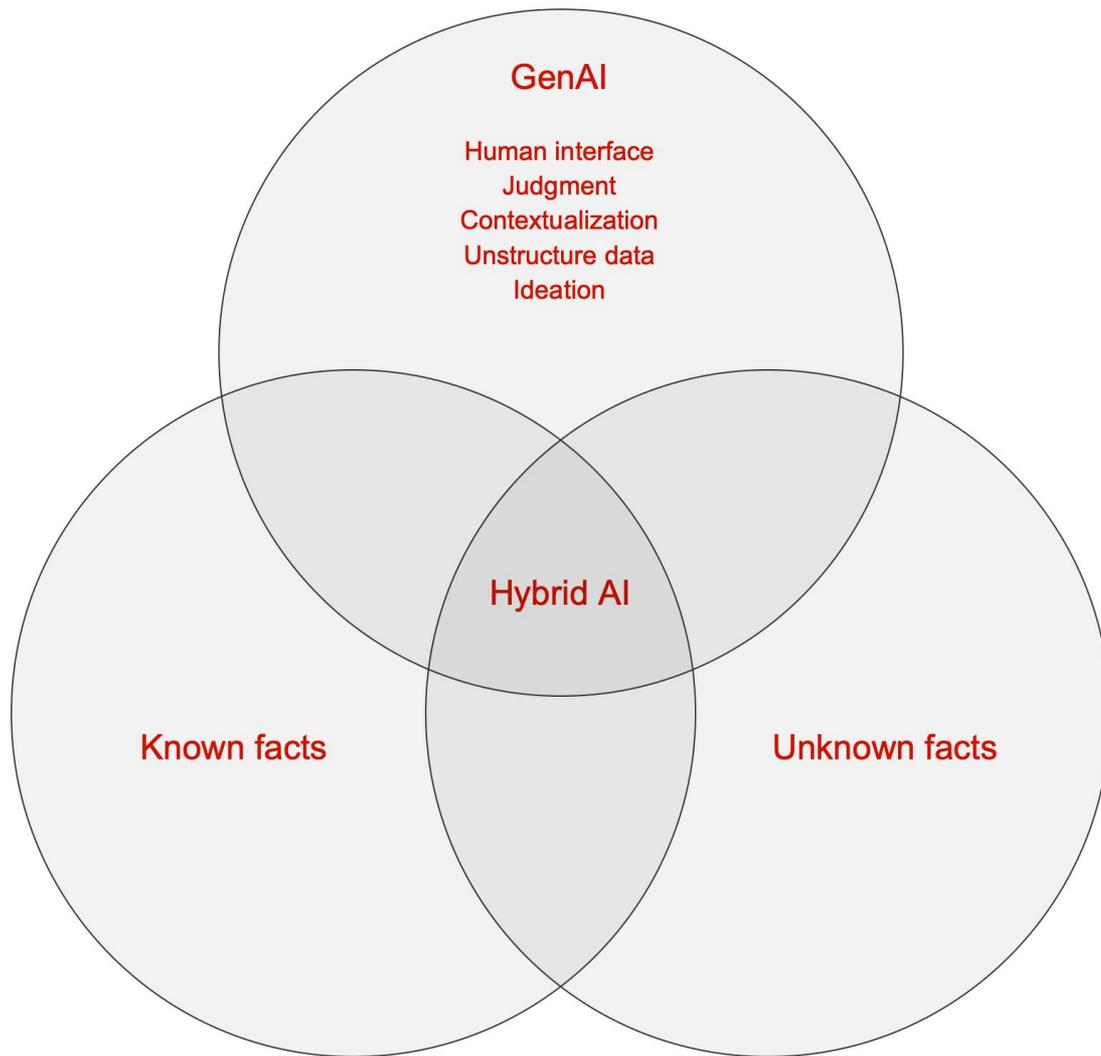
Human interface

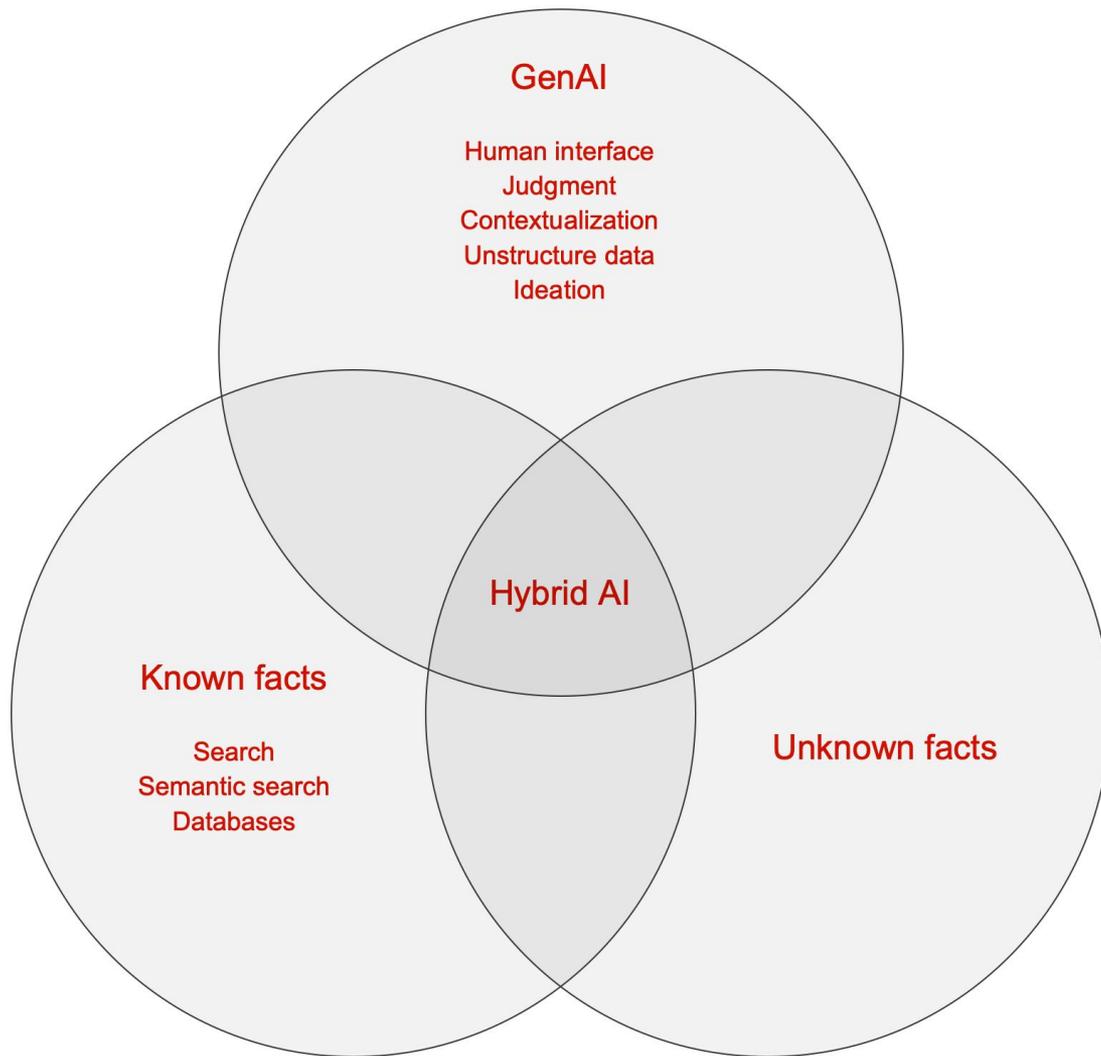
Judgment

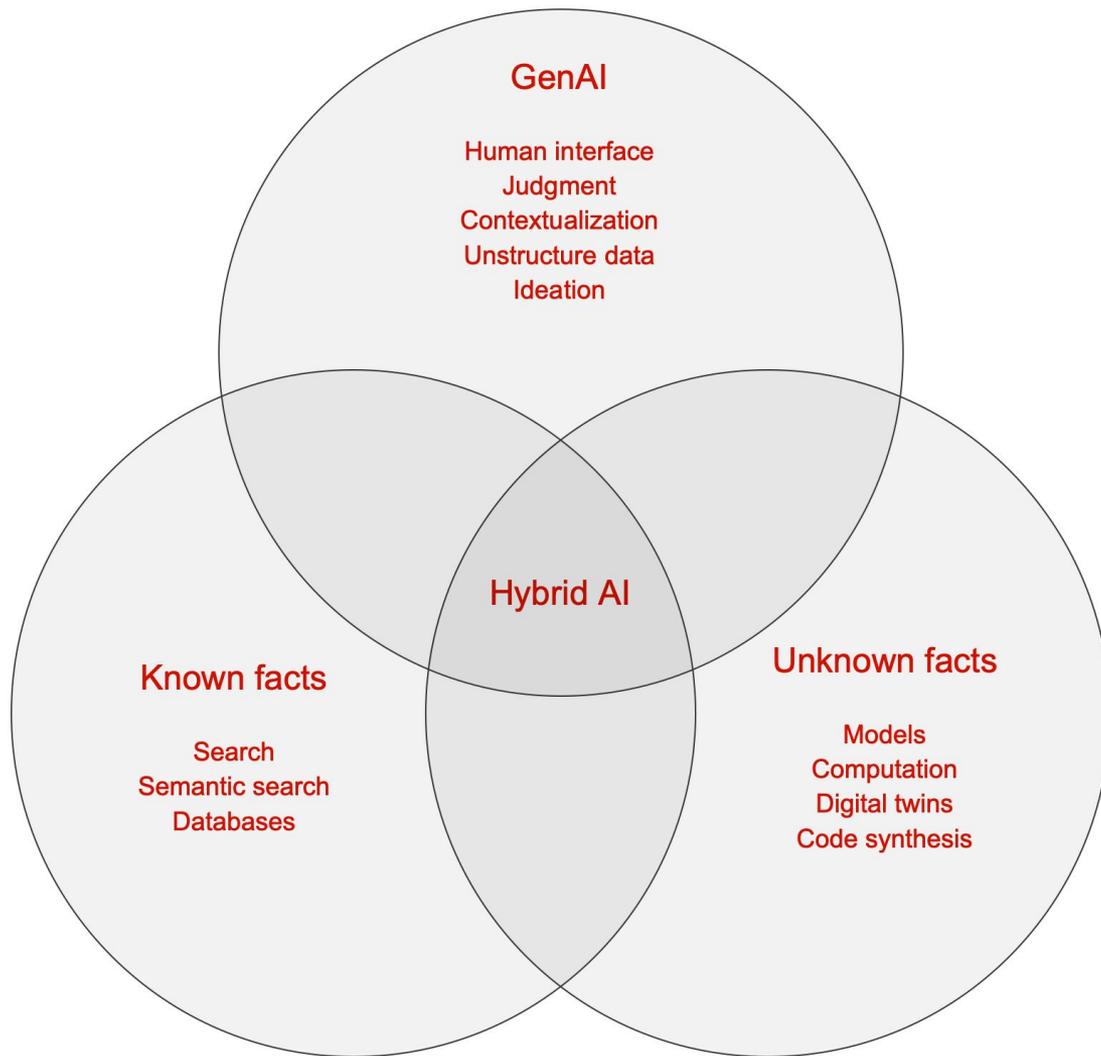
Contextualization

Unstructure data

Ideation







Example: Co-scientist



GenAI is a great general component...

...but reliability needs data, models and computation

