

Pedagogical Experiences and Feedback :

**Let's take a critical look at
the use of LLMs
(part 1)**

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3rd Pedagogical Half-Day on AI
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<https://github.com/iblasquez/presentation-rex-pedagogie-usage-llm>

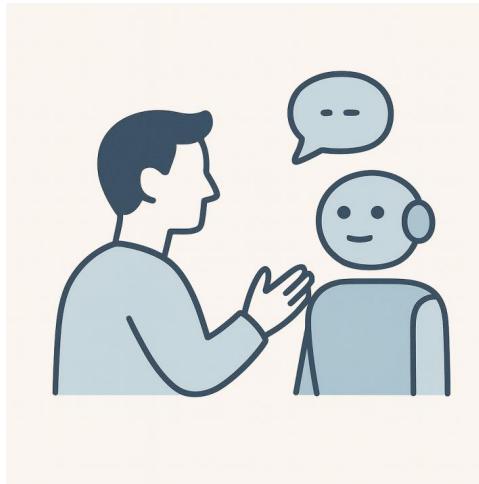


From the Use of LLMs (Large Language Models) to Technical Curiosity

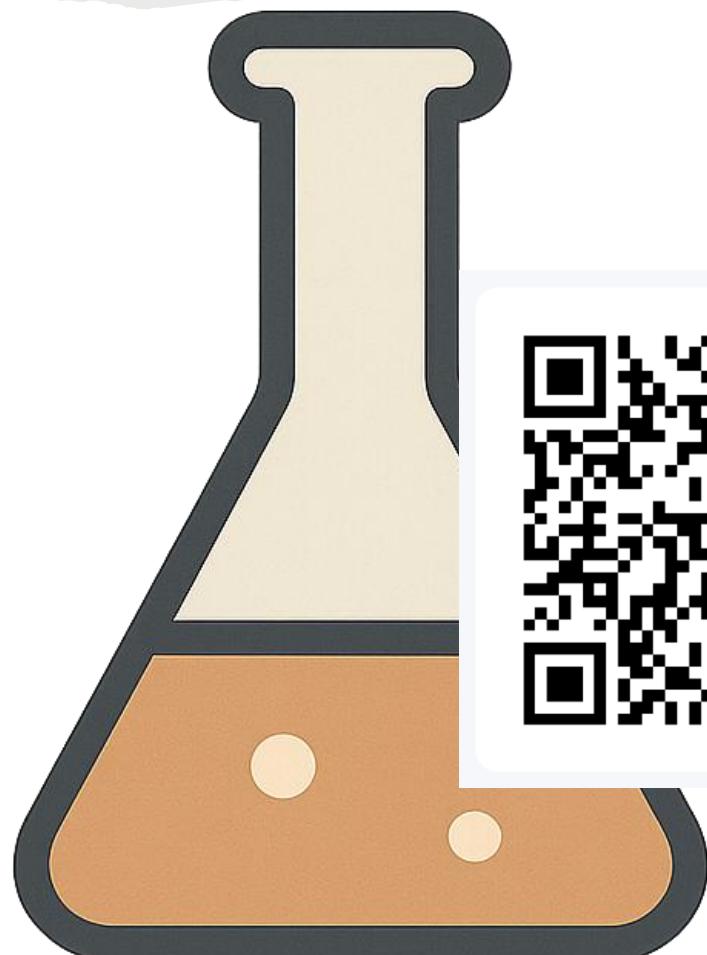
- 100% of us have already used an LLM, through a chat interface or a code assistant
(ChatGPT, Copilot, ...)
- But... how many of us have actually tried to understand how it really works?
(at a high level)



Let's Experiment Together!!!



Open your favorite AI



*Most of the illustrations in
this presentation were generated using AI (ChatGPT).*



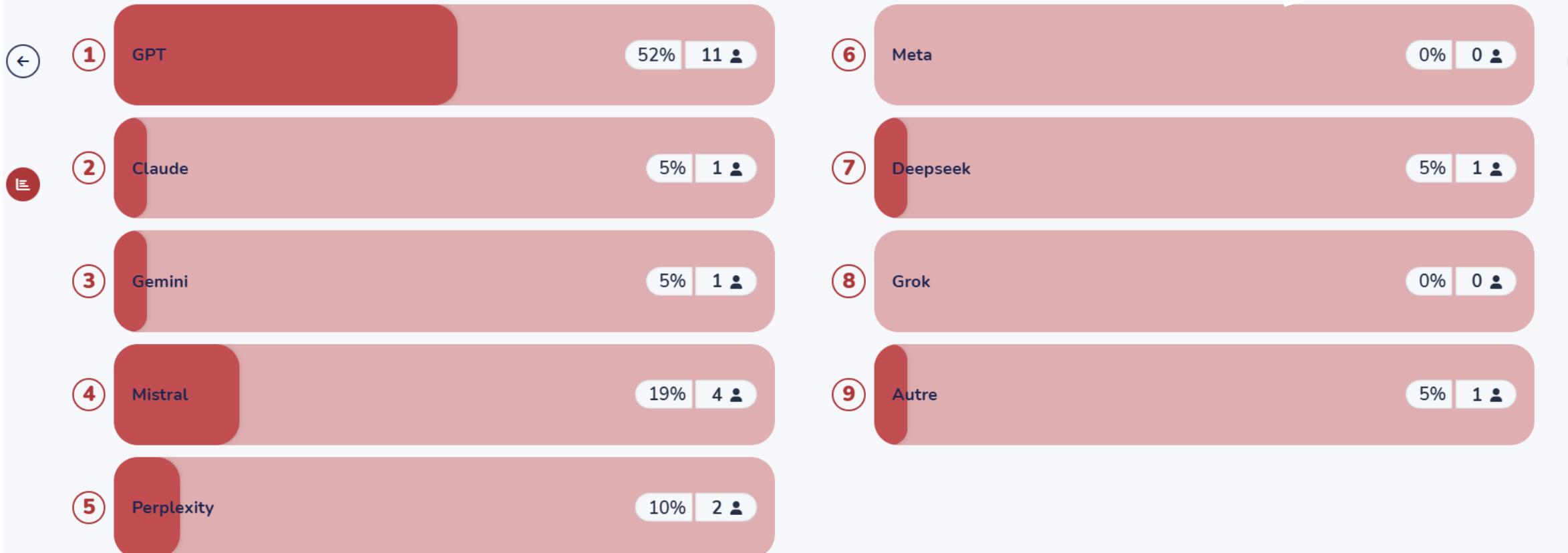
Join the Wooclap



Which AI did you open to carry out this experiment?
(Fall 2025)

Don't forget
to submit
your answer!

Quelle IA avez-vous ouverte pour réaliser cette expérience ?



Feedback #1: Becoming aware of the probabilistic nature ... and the lack of ordering

□ Let's try the following prompt

Donnes moi la définition de probabiliste

The word that has a (very)
high probability of appearing
next is the following!

Le mot probabiliste a plusieurs sens selon le contexte :

1. En philosophie :

- Se dit d'une doctrine ou d'une attitude intellectuelle qui admet que la connaissance humaine ne peut atteindre qu'une certitude probable, jamais absolue.
- Exemple : le scepticisme probabiliste de Cicéron, qui admettait seulement des vérités probables.

2. En mathématiques et en sciences :

- Relatif au calcul des probabilités
- Exemple : un modèle probabiliste qui modélise l'incertitude et du hasard, via des probabilités.

An LLM has no notion
of order

👉 Donc, probabiliste désigne soit une approche philosophique basée sur le probable plutôt que le certain, soit une approche scientifique/mathématique qui fait intervenir les probabilités.

Veux-tu que je développe surtout la définition mathématique (ex. modèle probabiliste, raisonnement probabiliste) ou la philosophique ?

Le terme probabiliste peut avoir plusieurs sens selon le contexte :

1. En mathématiques et en sciences

- Un probabiliste est un spécialiste des probabilités, c'est-à-dire des théories et méthodes permettant de modéliser et d'analyser l'incertitude et le hasard.
- On dit aussi d'un modèle, d'une approche ou d'une méthode qu'il est *probabiliste* lorsqu'il s'appuie sur les lois des probabilités plutôt que sur un déterminisme strict. Exemple : un modèle probabiliste en intelligence artificielle.

2. En philosophie

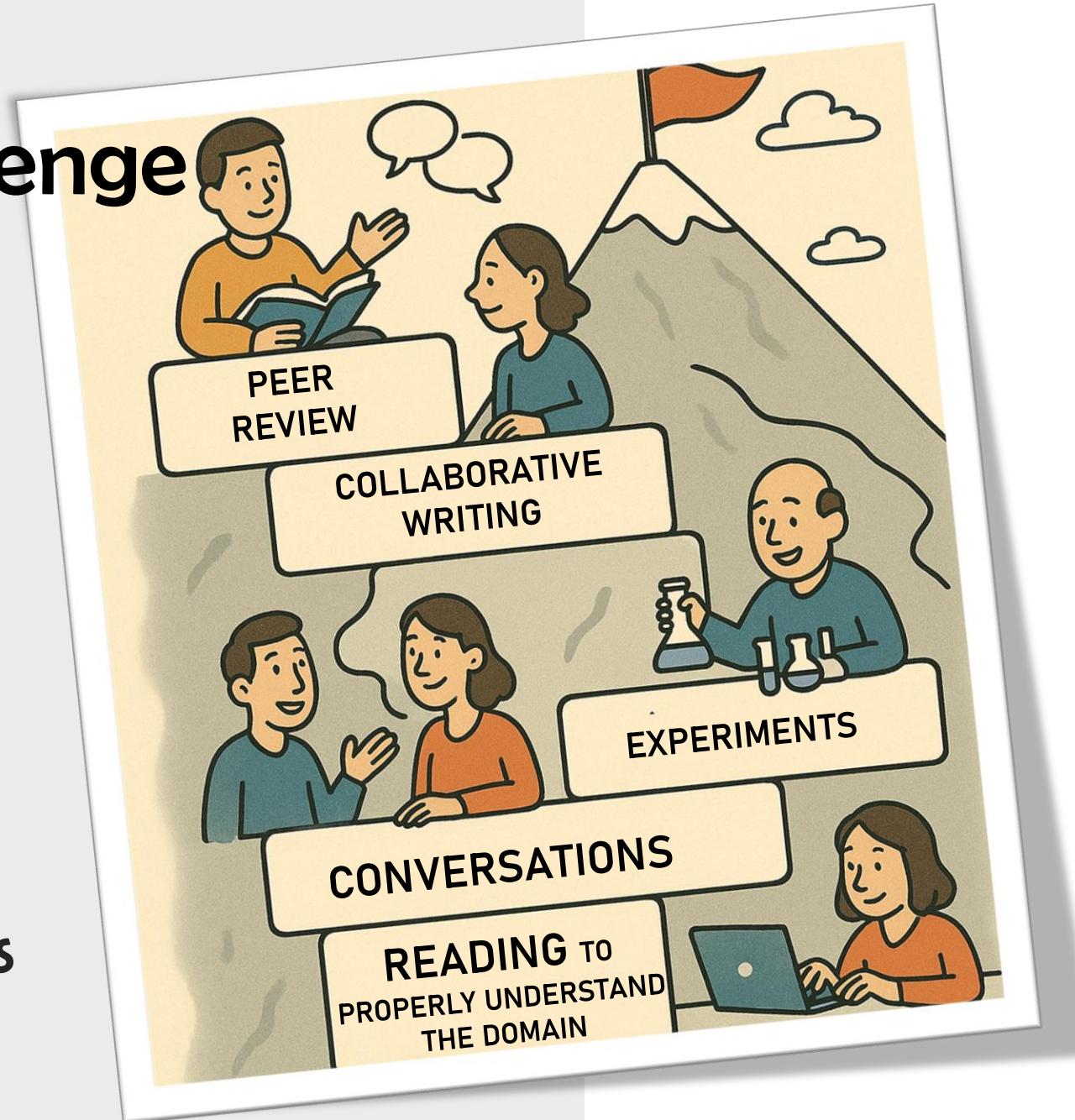
- Le *probabilisme* est une doctrine sceptique qui soutient que, puisqu'il est impossible d'atteindre la certitude absolue, il faut s'en tenir à ce qui est probable pour guider nos jugements et nos actions. Un probabiliste est donc quelqu'un qui adhère à cette doctrine.

👉 Veux-tu que je développe la définition dans le sens **mathématique** (modèles, sciences, IA) ou dans le sens **philosophique** ?

The same model (Chat GPT 5), different answers — only seconds apart

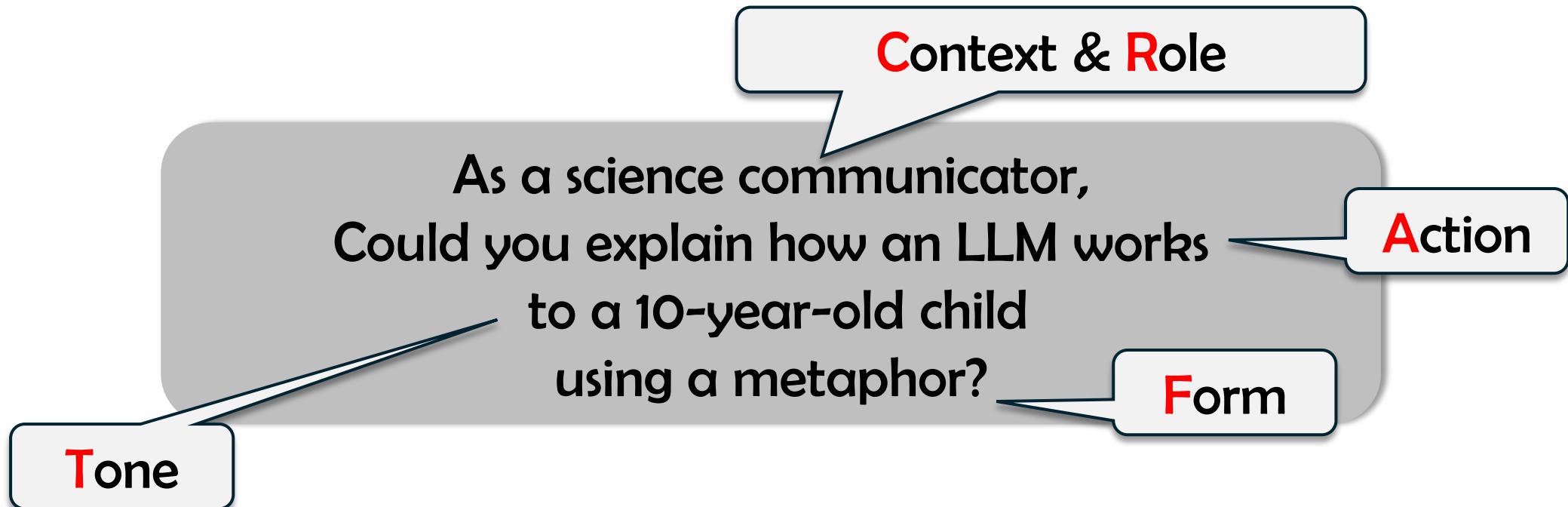
Feedback #2: Ordering is a challenge (and spelling)

To convince you,
try asking the AI
to generate
an image like this:
a classic infographic
of a mountain to climb,
with clearly defined steps
in a given order



Feedback #3: Designing an effective prompt

- Let's try a more precise prompt, written according to some ***best practices*** (CRAFT)



Did you get a metaphor related to books?

Avez-vous obtenu une métaphore liée à des livres ?



①

Oui / Yes

88% 15



②

Non / No

12% 2

Feedback #3: The influence of training data (learning ⇒ Machine Learning)

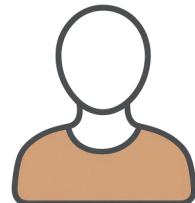
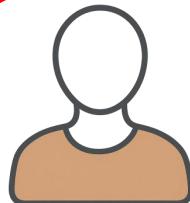
THE MENTALIST



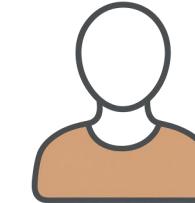
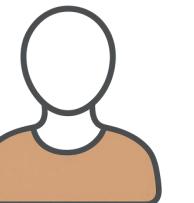
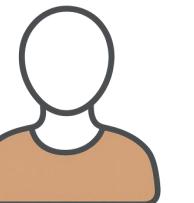
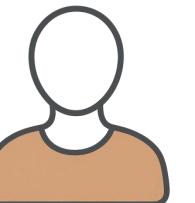
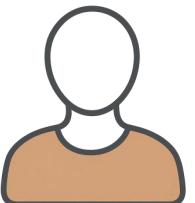
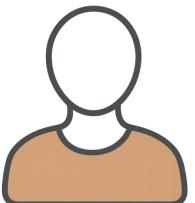
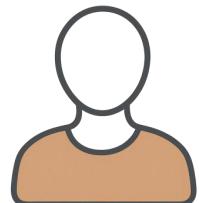
More than 90% of you
will get the “**library**” metaphor (**books**)

Stochastic parrot

The most statistically
“learned” answer



Library (books)



Feedback #4: Refining the prompt to shape the answer

- Let's try the following prompt

As a science communicator,
could you explain how an LLM works
to a 10-year-old child
**using a metaphor
that is *not* a library?**

For more creativity
(different metaphors),
let's remove the most
probable option

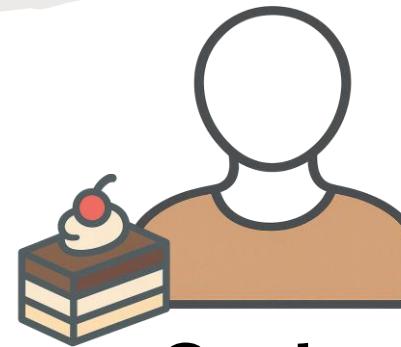


Interact, iterate, and provide feedback to the AI **step by step**
to obtain answers that are more creative and better suited to your needs

Feedback #4: A more random distribution of answers



Lego



Cooking
(Pastry chef)



Painting

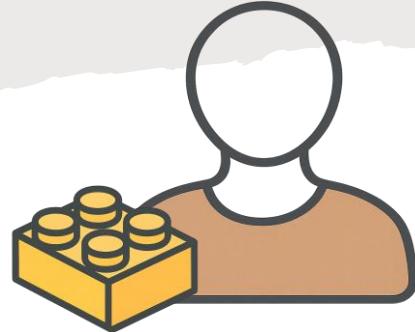
*What metaphor (other than the library) did you get?
Just give the theme of the metaphor in one word (or even 2 or 3)...
Be careful not to copy and paste the AI's response ;-)*

Quelle métaphore (autre que la bibliothèque) avez-vous obtenue ?
Donnez juste la thématique de la métaphore un mot (voire 2 ou 3)....
Attention à ne pas copiez collez pas la réponse de l'IA ;-)

cuisine du monde Peintre cuisinier géant puzzle
cuisine Lego Nourriture chat Chef cuisinier géant
magique Pas pâtisserie mais soupe
 conversations avec un ami

Feedback #4: A better distribution of answers

An LLM that pays **attention** to *your context*?



Lego



Cooking
(Pastry chef)



Painting

⇒ Is the answer you get **related to YOUR context?**

That is, the interactions you frequently have with your LLM:
topics, terms often used in your prompts,
recent conversations you had, coincidentally close to your phone, ...



Be mindful of what you allow your LLM to retain about you
if you are not using it anonymously

*Do you think the metaphor you obtained is related to YOUR context?
(i.e., the topic(s) or the terms you usually use in your discussions with this AI)*

Pensez-vous que la métaphore que vous avez obtenue a un lien avec VOTRE contexte ?
(c-a-d la(les) thématique(s) ou les termes que vous utilisez habituellement dans vos discussions avec cette IA)

① Oui / Yes

50% 6

② Non / No

50% 6

clap

Votes 5 / 6 + Messages 🔒 🔍 100%

12 / 30

@iblasquez

13

Feedback #5:

One last very simple prompt...

□ Let's try the following prompt:

What time is it?

Quelle heure le LLM vous a fourni ? / What time did the LLM give you?



①

La bonne heure / The correct time

36%

5



②

Une hallucination / A hallucination

29%

4



③

Une petite réponse textuelle pour vous donner une autre piste / A short text response to give you another clue

7%

1



④

A juste dit ne sait pas / It just said it doesn't know

7%

1



⑤

Autre / Other

21%

3

wooclap

Votes 6 / 6



Messages



100%



14 / 30



Feedback #5:

A very simple prompt...

... a surprising answer!

□ Which very often leads to a **hallucination**, due to:

- data that has not been learned yet 😊
- incorrect or noisy training data, ...



□ And sometimes, the LLM may even suggest an alternative way to get the time

⇒ AI systems are not programmed to *know*, but to *respond*:

they will **always** produce an answer, correct... or not!

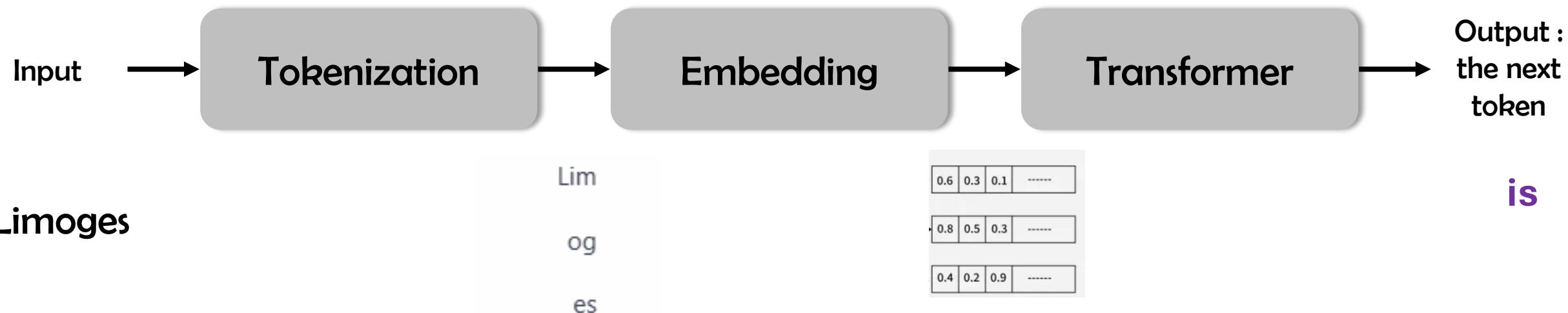
Coucou Chloé 😊 je n'ai pas accès directement à l'heure en temps réel sur ton appareil.
Mais si tu veux, je peux t'indiquer comment la voir (par exemple sur ton ordi/téléphone, c'est en bas de l'écran).
Veux-tu que je t'affiche aussi l'heure actuelle à Paris ?

Ready to open the gift and discover the core mechanisms of an LLM?



The basic principle of an LLM: predicting the next word !

(more precisely, the next token)



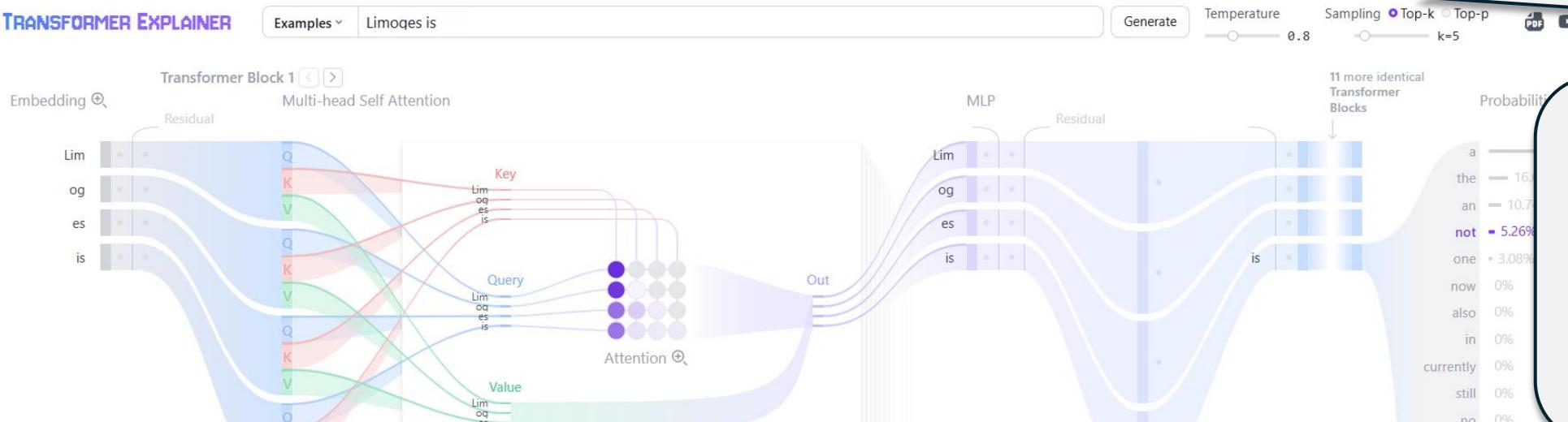
For simple video explanations, for example: <https://www.3blue1brown.com/lessons/gpt>

To simulate a transformer: <https://poloclub.github.io/transformer-explainer/>

Ready to open the gift and discover the core mechanisms of an LLM?



An LLM generates text by **predicting the next word** based on the words that have already been written



Here, $\text{Top-}k = 5$, which means: only the 5 words with the highest probabilities are considered.

For every possible word in its vocabulary, the model computes a probability: How likely is this word to come next?

From these candidates, the model selects one word.

The temperature controls how this choice is made:

If the temperature is 0, the model always selects the most probable word.

As the temperature increases, the model becomes more flexible : Less probable words have a higher chance of being selected, the output becomes more creative

AI in Education

Learning about IA

Helping students understand how AI works, what it can do, and where its limits are.

Learning with IA

Using AI as a support tool to learn better, think further, and explore ideas.

Learning for IA

Preparing students to work in AI-related fields.



This is more specific to dedicated courses and project-based learning in the digital track.

while maintaining a critical mindset...