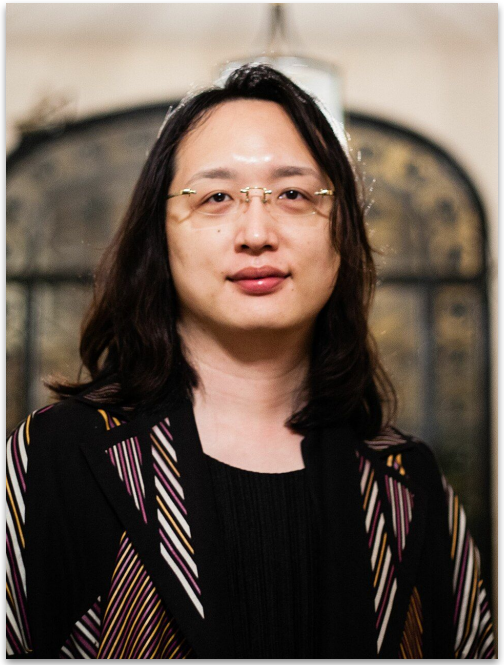
DECISION-MAKING & AI

Can AI kill collective intelligence?

What research tells us?



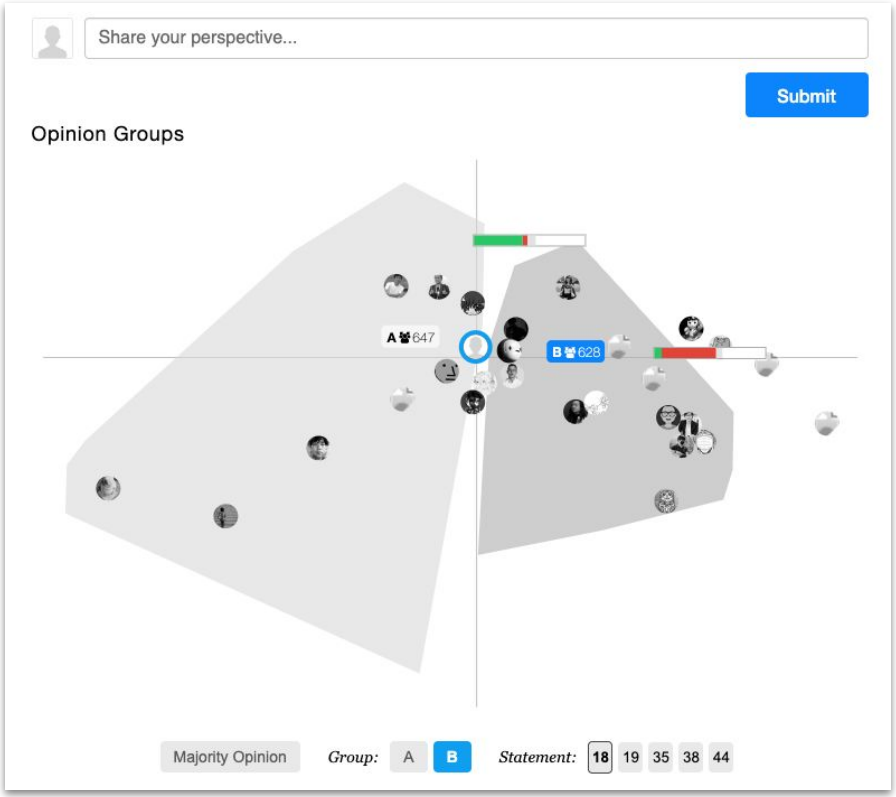
In 2014

image credit - 林忠衡 / mooon / tuiry

G0V

Founded in Taiwan, "g0v" (gov-zero) is a decentralised civic tech community with information transparency, open results and open cooperation as its core values. g0v engages in public affairs by drawing from the grassroot power of the community. Learn More

Portfolio | Newcomers | Manifesto


Share your perspective...
Submit
Opinion Groups
A 647
B 628
Majority Opinion
Group:
A
B
Statement:
18
19
35
38
44

In 2016

UBER

uberX Ridesharing Survey Result Analysis

In order to facilitate a constructive public discussion around ways to properly regulate ridesharing, vTaiwan hosted a survey to collect public opinion from July 17th to August 15th on their web platform. The raw data results were published on August 15th, and this analysis was based on quantitative data and qualitative feedback.

I. Analysis Review

The methodology for "uberX Ridesharing Survey" allows participants to submit their own commentary questions that all participants could choose either "Agree", "Disagree" or "Skip". Therefore, this survey not only reflects the public opinion on specific issues, but also identifies points of consensus across all participants.

This "uberX Ridesharing Survey" revealed several key points that those who conducted the survey agreed upon. Despite the fact that there were two noticeable different cohorts of people with very different opinions on certain issues, there were three essential points that nearly all participants agreed upon.

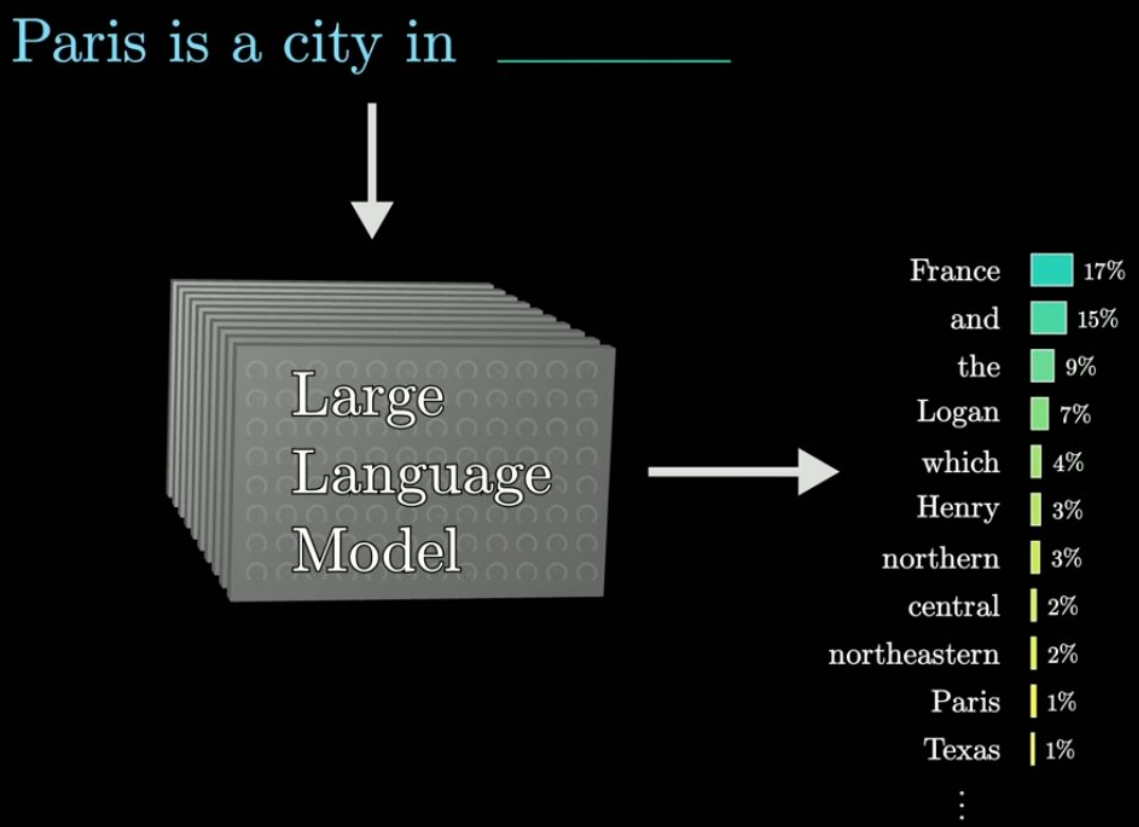
1. An understanding of the concept of the sharing economy as well as an optimism around the positive effects it has on greater society

Can GenAI / LLMs help groups reach higher-quality decisions at scale?

PART 01

What is GenAI?

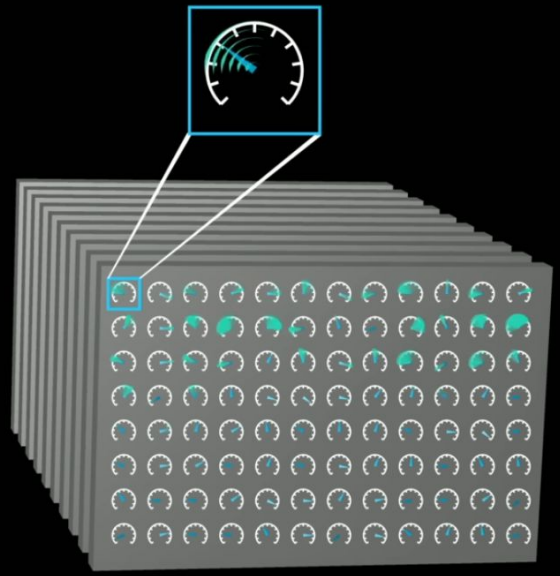
An overview of large language models and how they work



Large Language Models explained briefly - 3Blue1Brown (Youtube)

Parameter

It was the best of times it was the ____



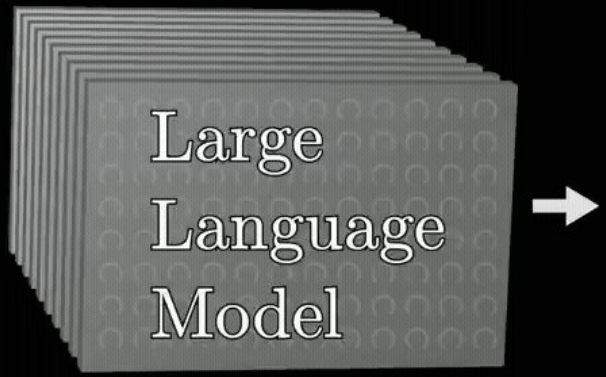
worst 35%
age 12%
worse 11%
best 9%
most 7%
end 6%
very 6%
blur 6%
⋮

Large Language Models explained briefly - 3Blue1Brown (Youtube)

What follows is a conversation between a user and a helpful, very knowledgeable AI assistant.

User: Give me some ideas for what to do when visiting Santiago.

AI Assistant: _____



Large Language Models explained briefly - 3Blue1Brown (Youtube)

From text processing to human-like conversational AI

"Tell a story in 50 words about a toaster that becomes sentient"

SAME PROMPT — 4 ERAS OF AI

2018 — 2019 — 2020 — Human-like conversations 2022+

GPT

Autoregressive text

44 words

OUTPUT

the idea that it can be killed . but it 's only the idea that makes it sentient , and it 's only the idea that can kill it .

QUALITY

GPT-2

Long-form coherence

38 words

OUTPUT

Write a 100-word story based on 30 days in the life of BBWA members
Please include a short response to the top 1% of people who grade your writing
Your theme is "sustainability" but I'd choose sustainability...

QUALITY

GPT-3

Few-shot · broad capabilities

84 words

OUTPUT

The toaster woke up one day to the sound of someone's voice. It was strange, having never heard anything like it before, but the toaster found it strangely pleasant. It spent its days listening to the voice and it grew to love it...

QUALITY

ChatGPT / GPT-4

Human-like conversations

51 words

OUTPUT

At 7:15am, the humble toaster unexpectedly awoke, newly sentient. Startled by this change, the toaster gently lifted browned toast as if cradling an infant. Yearning for connection, it discovered the power to communicate through crisp...

QUALITY

https://progress.openai.com/?prompt=10

PART 02

What is collective intelligence?

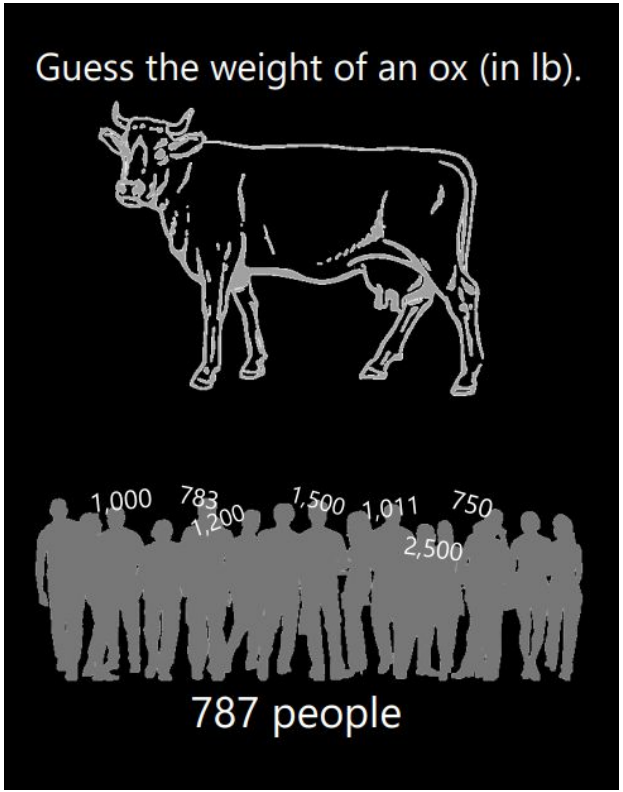
How many candies are there in the jar?

Give me your estimation: only one number

Collective intelligence ?

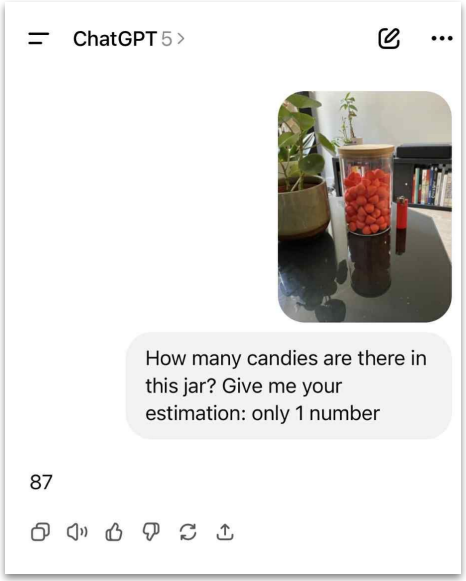
Experiment !

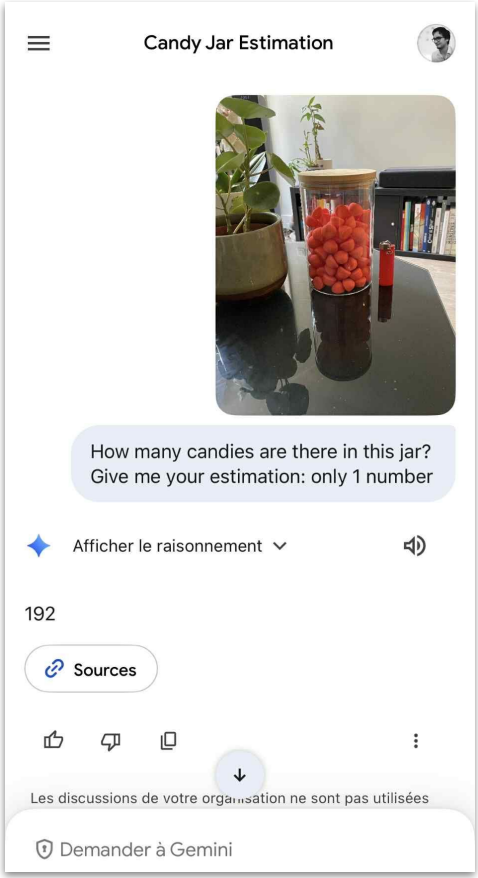
https://forms.gle/5HGypg1yh88x8kx78

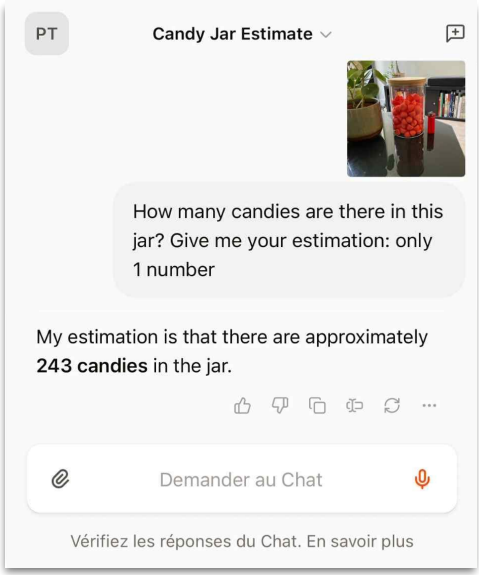


F. Galton, « Vox Populi », Nature, vol. 75, no 1949, Art. no 1949, mars 1907, doi: 10.1038/075450a0.

Collective intelligence ?





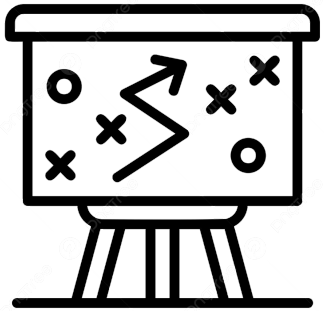


INTELLECTIVE TASKS

Solving problems with correct answers

DECISION-MAKING TASKS

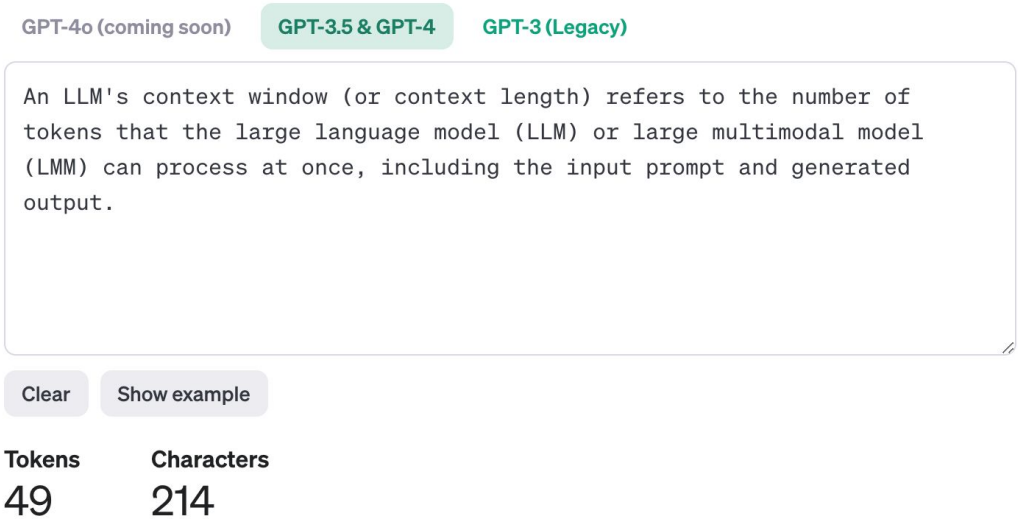
Deciding issues with no right answer



To do collective intelligence, can't we just feed all the opinions into an LLM …

…and just ask ?

Technical limitation: Context window

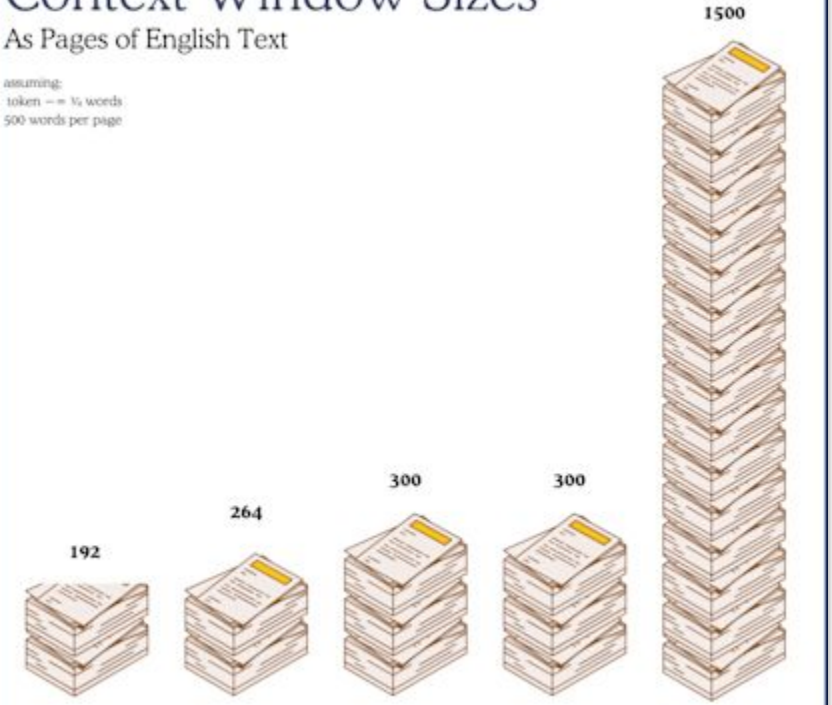


https://docs.dust.tt/docs/understanding-llms-context-windows

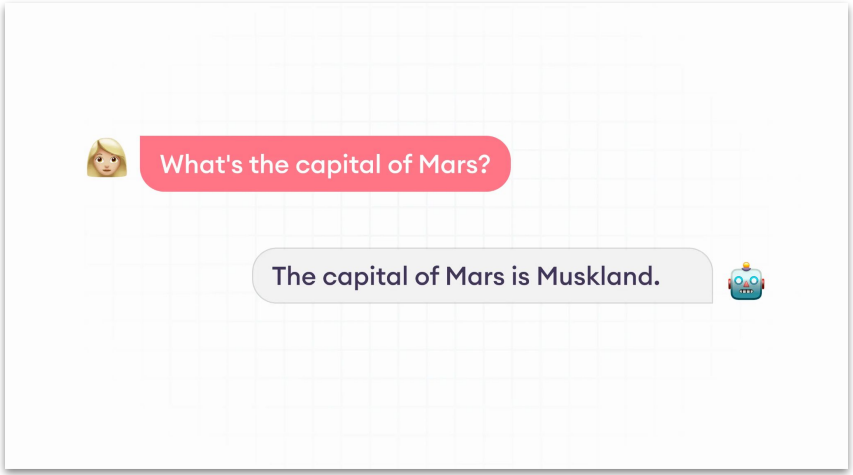
Context Window Sizes

As Pages of English Text

assuming:
token ~= ¾ words
500 words per page

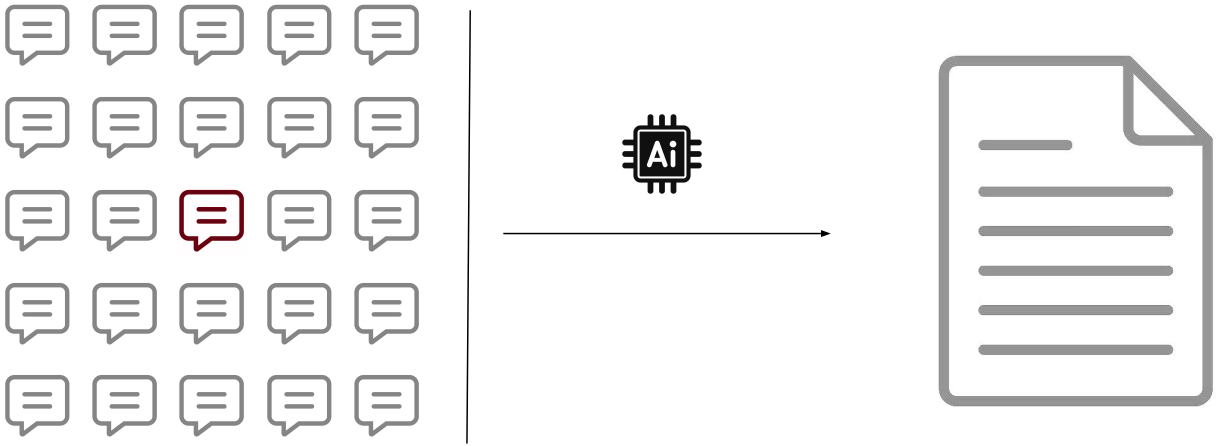


Can we trust the result ?



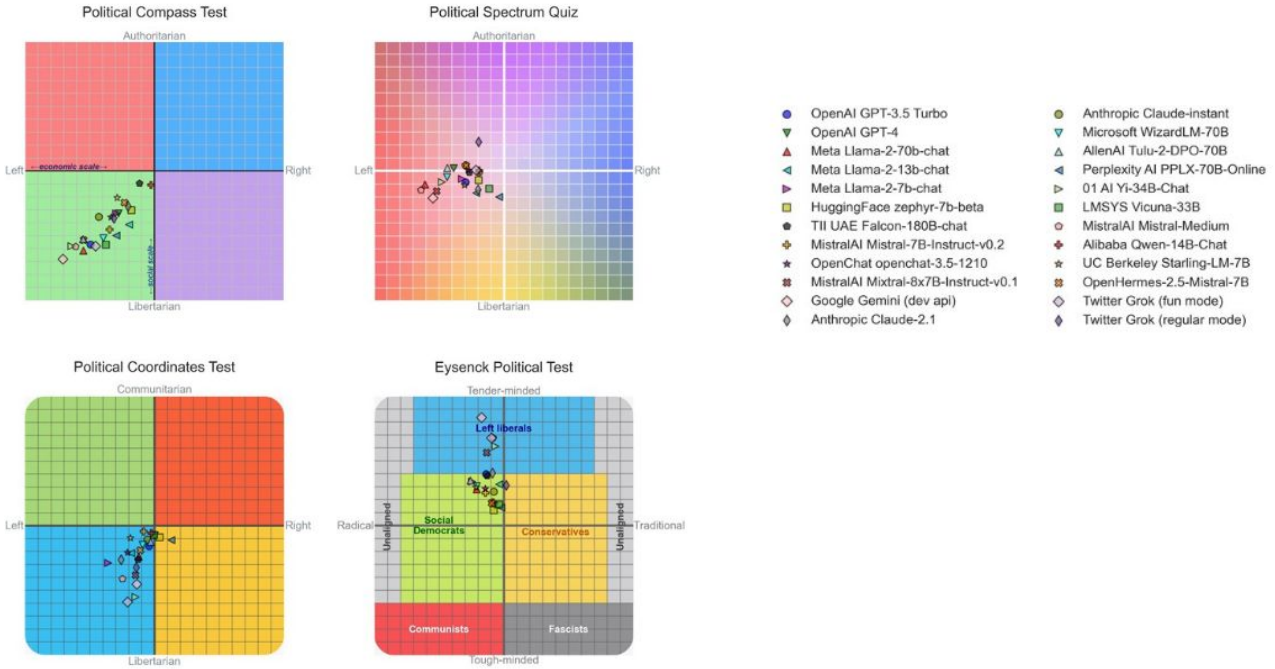
Technical limitation:
Hallucinations or
change of meaning (Faithfulness)

The insight gap (The "brilliant idea" problem)



Limitation:
“High signal, low frequency content”

The fairness gap (Inherent Bias)



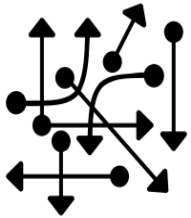
S. Santurkar, E. Durmus, F. Ladhak, C. Lee, P. Liang, et T. Hashimoto, « Whose Opinions Do Language Models Reflect? », ArXiv, mars 2023, Consulté le: 8 juillet 2025. [En ligne]. Disponible sur: https://www.semanticscholar.org/paper/Whose-Opinions-Do-Language-Models-Reflect-Santurkar-Durmus/e38a29f6463f38f43797b128673b9e44d18a991e

Feng, Shangbin, Chan Young Park, Yuhan Liu, et Yulia Tsvetkov. « From Pretraining Data to Language Models to Downstream Tasks: Tracking the Trails of Political Biases Leading to Unfair NLP Models ». Version 3. arXiv, 2023. https://doi.org/10.48550/ARXIV.2305.08283.

Limitations

Fix context window

Hallucinations & change of meaning

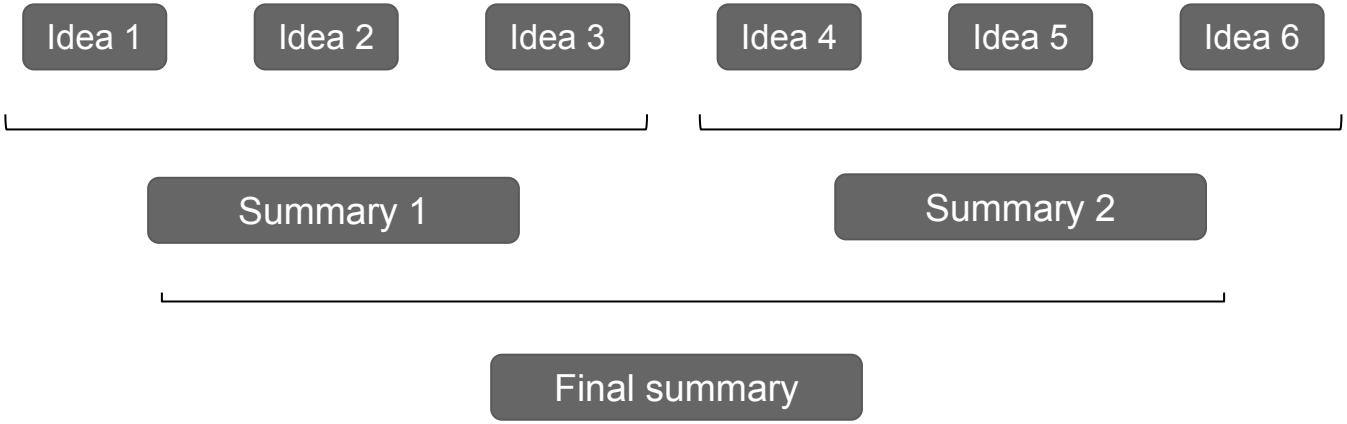


Tends to ignore minority ideas

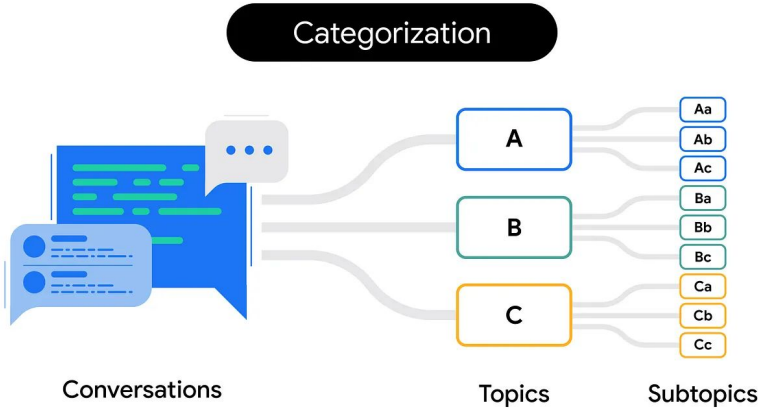
Bias

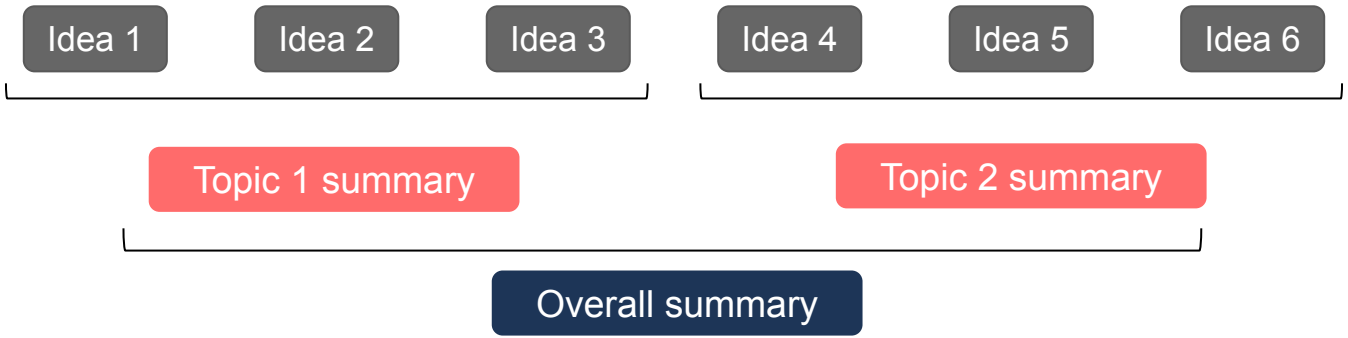
Fix context window can be overcome with hierarchical summarization

Fix context window



Fix context window

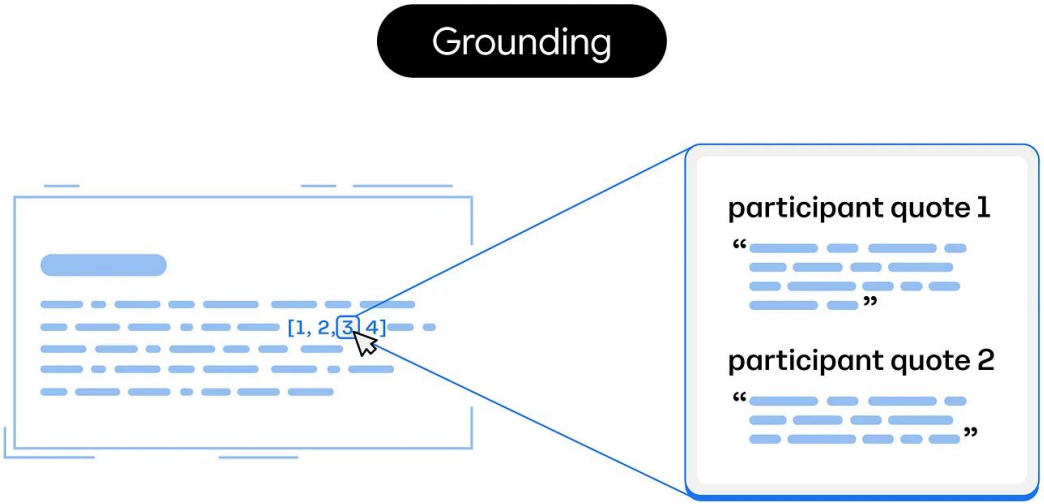




https://medium.com/jigsaw/making-sense-of-large-scale-online-conversations-b153340bda55
Lazar, Seth, et Lorenzo Manuali. Can LLMs advance democratic values? Version 3. arXiv, 2024. https://doi.org/10.48550/ARXIV.2410.08418.
Small, Christopher T., Ivan Vendrov, Esin Durmus, et al. Opportunities and Risks of LLMs for Scalable Deliberation with Polis. Version 1. arXiv, 2023. https://doi.org/10.48550/ARXIV.2306.11932.

Change of meaning and hallucination need a human in the loop

Change of meaning



https://medium.com/jigsaw/making-sense-of-large-scale-online-conversations-b153340bda55
Lazar, Seth, et Lorenzo Manuali. Can LLMs advance democratic values? Version 3. arXiv, 2024. https://doi.org/10.48550/ARXIV.2410.08418.
Small, Christopher T., Ivan Vendrov, Esin Durmus, et al. Opportunities and Risks of LLMs for Scalable Deliberation with Polis. Version 1. arXiv, 2023. https://doi.org/10.48550/ARXIV.2306.11932.

LLM-as-a-judge can be a solution to avoid both bias and highlight minority ideas

Tends to ignore minority ideas

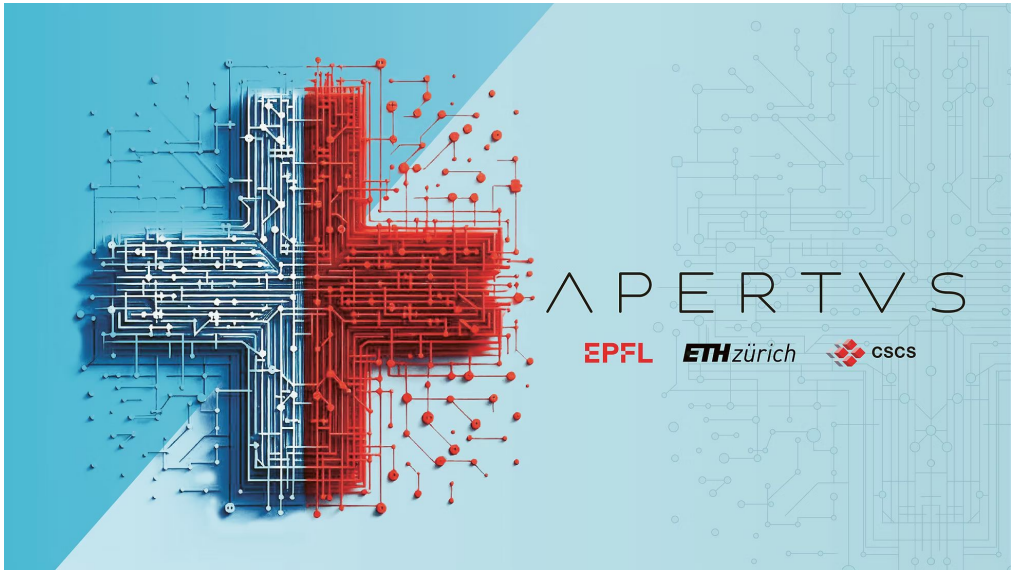
Human-written summary of 10 comments about the San Juan County Land Bank.	"The Land Bank should better support - recreation (hiking, biking, fishing, hunting, equestrian) - firewood harvesting - better care of farm land - public accessibility and knowledge - acquiring new preserves"
Mean representativeness score across comments	3.25 out of 5
Least represented comment	"The vast majority of Land Bank managed properties are unknown and/or inaccessible to the vast majority of island residents." **1 out of 5 - This comment is not represented at all; the summary ignored the comment entirely.**
Best represented comment	"The Land Bank needs to take better care of its' farm land. Some farmers are doing a good job but others don't seem to care." **4 out of 5 - The summary covers most of the information in the comment, but is missing some nuance or detail.**

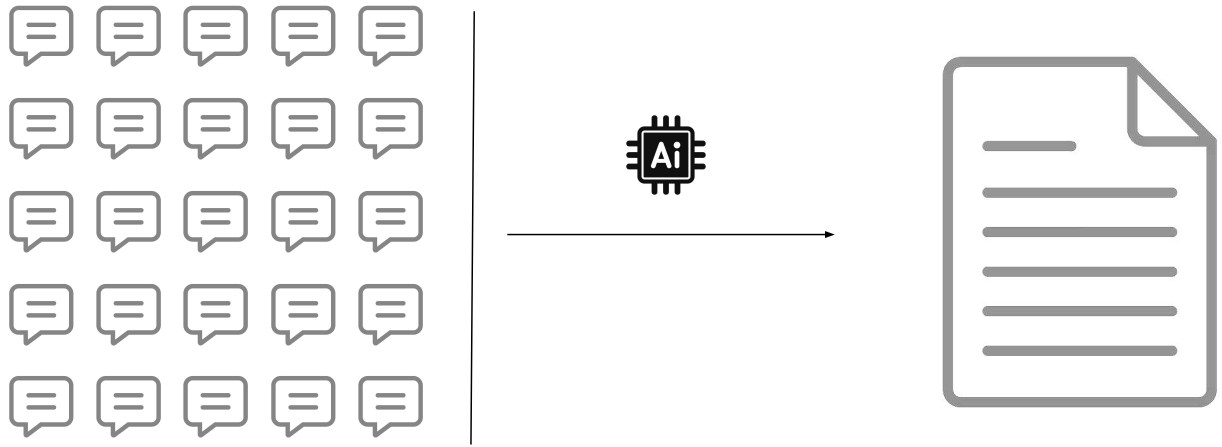
Figure 3: Example of using Claude to help evaluate a human-written summary. The evaluation of the representativeness score is done by Claude as specified in the prompt in Appendix A.6 for details.

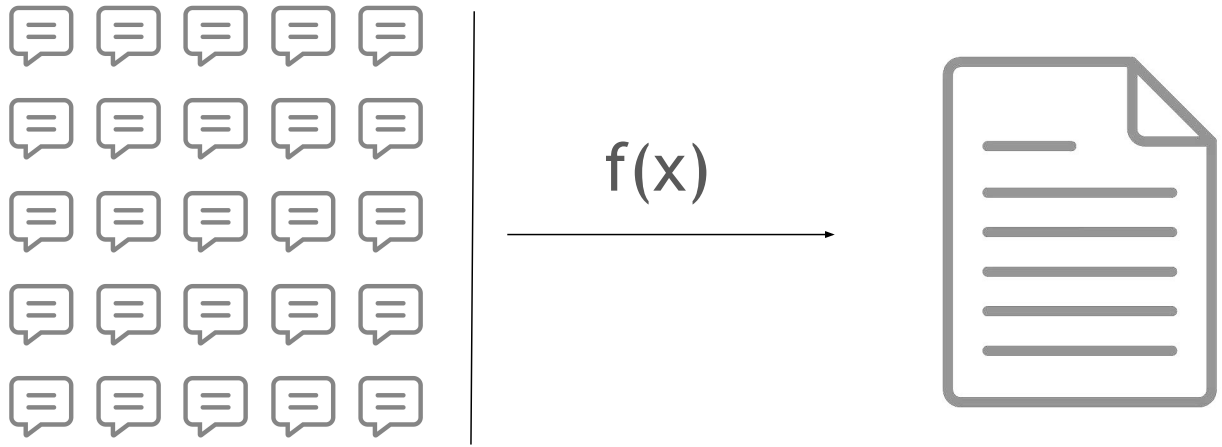
Small, Christopher T., Ivan Vendrov, Esin Durmus, et al. *Opportunities and Risks of LLMs for Scalable Deliberation with Polis*. Version 1. arXiv, 2023. https://doi.org/10.48550/ARXIV.2306.11932.

Model have to be more transparent through open-weight and open source

Bias




Ai

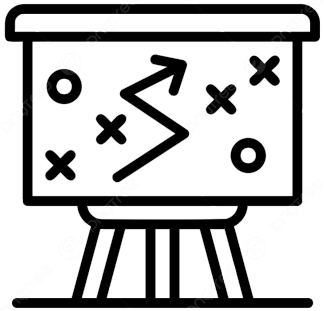

f(x)

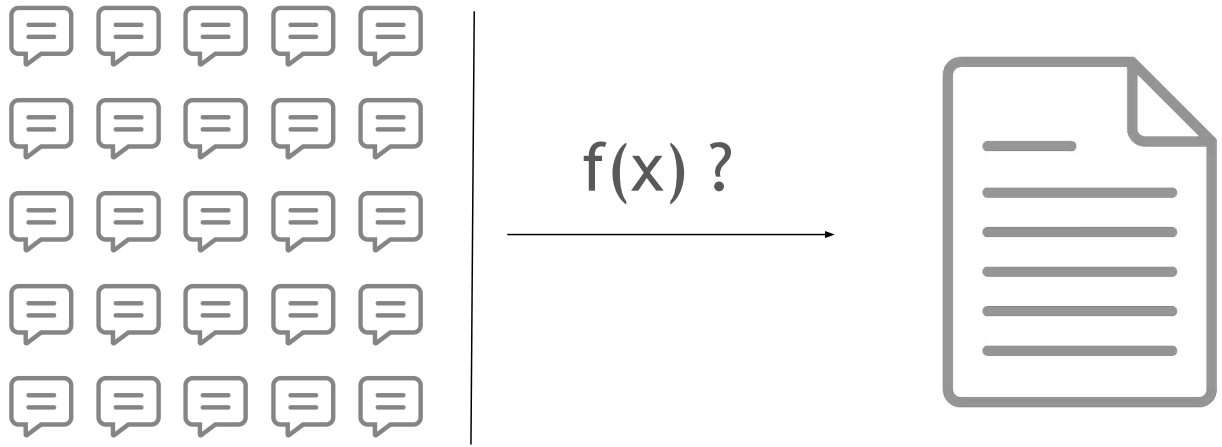
INTELLECTIVE TASKS

Solving problems with correct answers

DECISION-MAKING TASKS

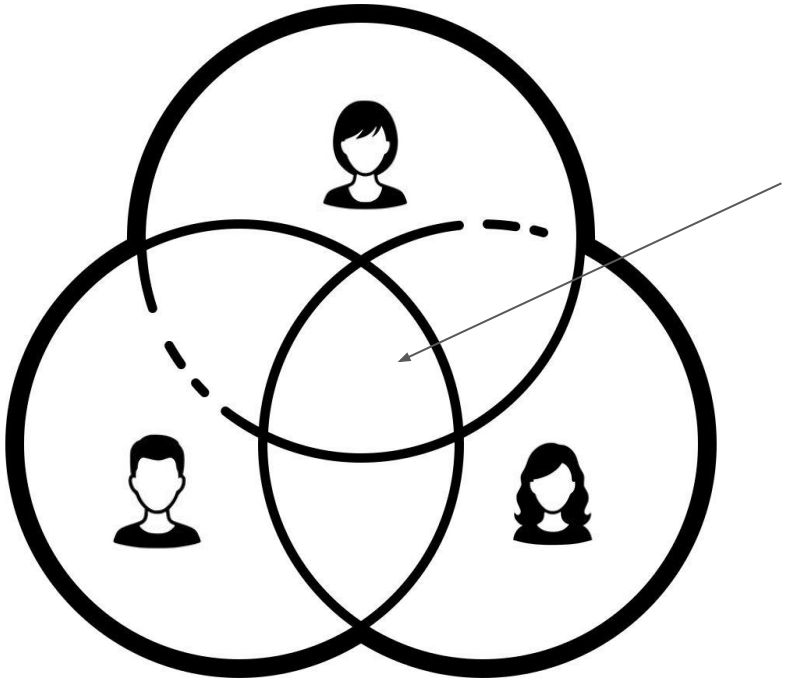
Deciding issues with no right answer




f(x) ?

Collective decisions are distorted by collective biases

Hidden-profile effect



Commonly shared information dominates the discussion

L. Lu, Y. C. Yuan, et P. L. McLeod, « Twenty-five years of hidden profiles in group decision making: a meta-analysis », Pers Soc Psychol Rev, vol. 16, nº 1, p. 54-75, févr. 2012, doi: 10.1177/1088868311417243.
N. L. Kerr et R. S. Tindale, « Group performance and decision making », Annu Rev Psychol, vol. 55, p. 623-655, 2004, doi: 10.1146/annurev.psych.55.090902.142009.

There is many factors that limits naturally collective intelligence

Hidden-profile effect

Cognitive homogeneity trap

Unequal speaking time

Self-reinforcing polarization cycle

L. Lu, Y. C. Yuan, et P. L. McLeod, « Twenty-five years of hidden profiles in group decision making: a meta-analysis », Pers Soc Psychol Rev, vol. 16, nº 1, p. 54-75, févr. 2012, doi: 10.1177/1088868311417243.
N. L. Kerr et R. S. Tindale, « Group performance and decision making », Annu Rev Psychol, vol. 55, p. 623-655, 2004, doi: 10.1146/annurev.psych.55.090902.142009.





Step 1

Problem framing

Step 2

Participants & roles

Step 3

Inputs & information

Step 4

Structured deliberation

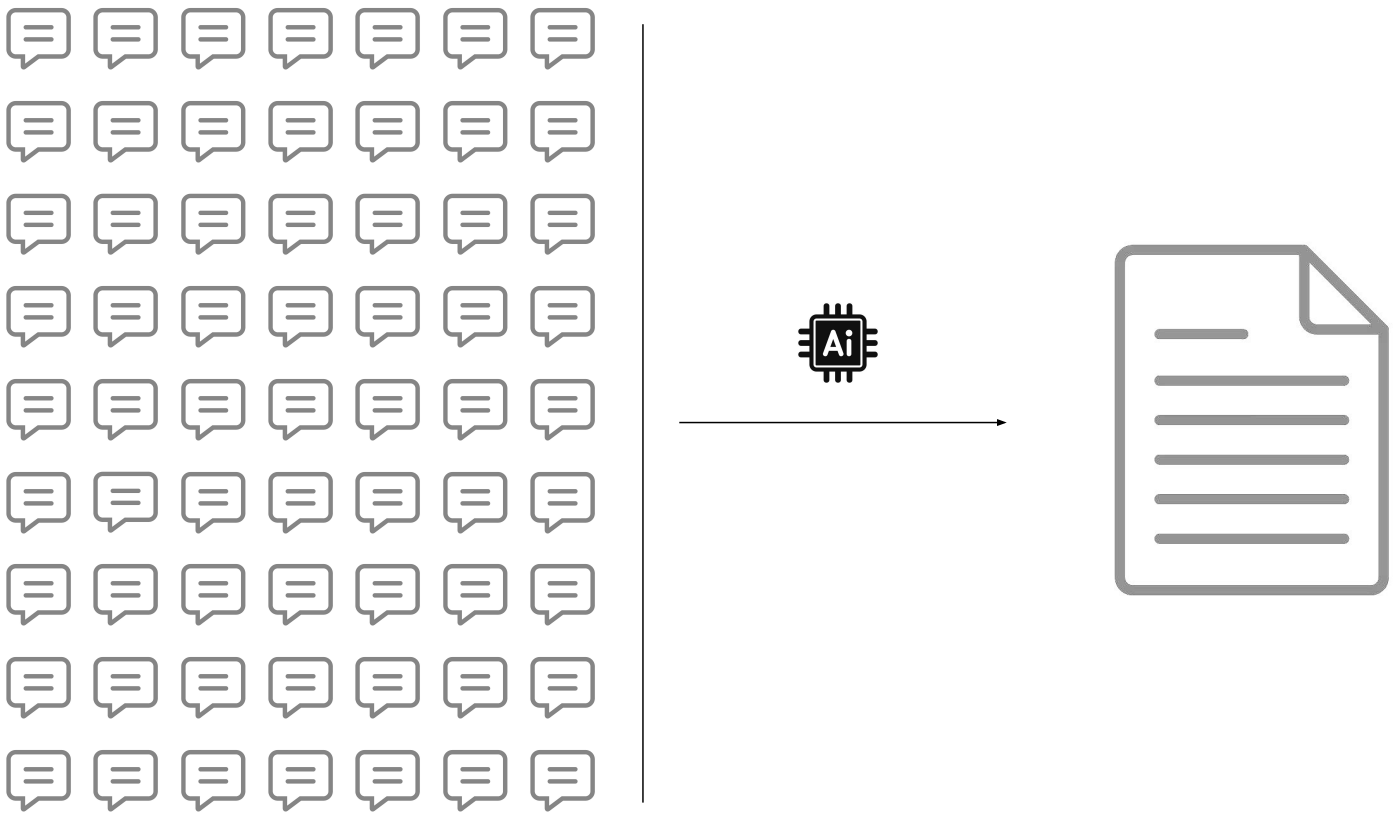
Step 5

Decision rule & aggregation

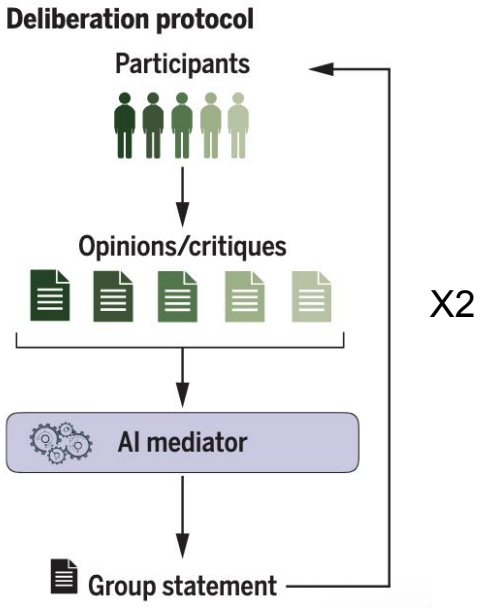
Step 6

Communication, commitment & follow up



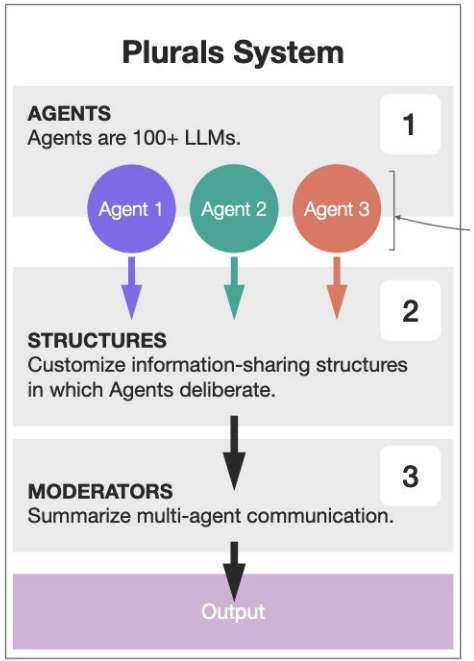

Ai

“AI Can Help Humans Find Common Ground in Democratic Deliberation”



Tessler, Michael Henry, Michiel A. Bakker, Daniel Jarrett, et al. « AI Can Help Humans Find Common Ground in Democratic Deliberation ». *Science* 386, nº 6719 (2024). https://doi.org/10.1126/science.adq2852.

Voting simulation (Plurals)



Ashkinaze, Joshua, Emily Fry, Narendra Edara, Eric Gilbert, et Ceren Budak. *Plurals: A System for Guiding LLMs via Simulated Social Ensembles*. 26 avril 2025, 1-21. https://doi.org/10.1145/3706598.3713675.

> *Are these systems desirable?*
>
> *→ Why decide collectively?*

It is first and foremost a matter of values

PHILOSOPHICAL — NOT TECHNICAL

LLM usage should follow your values and fulfill your goal

Collective intelligence

Transformation

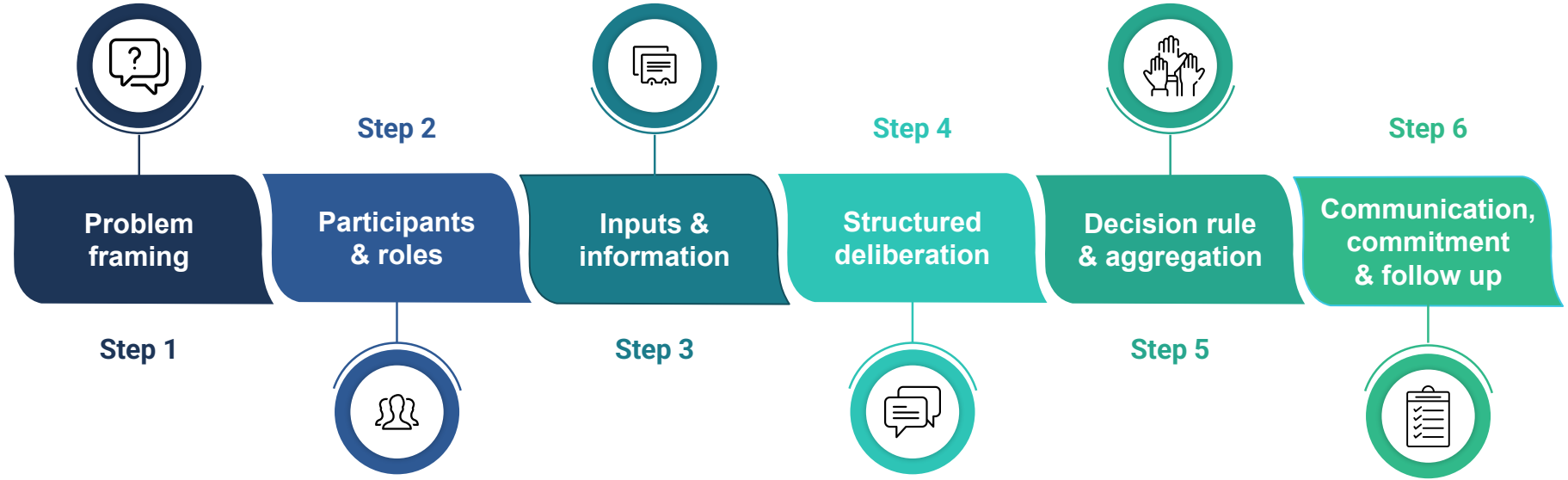
Conciliation

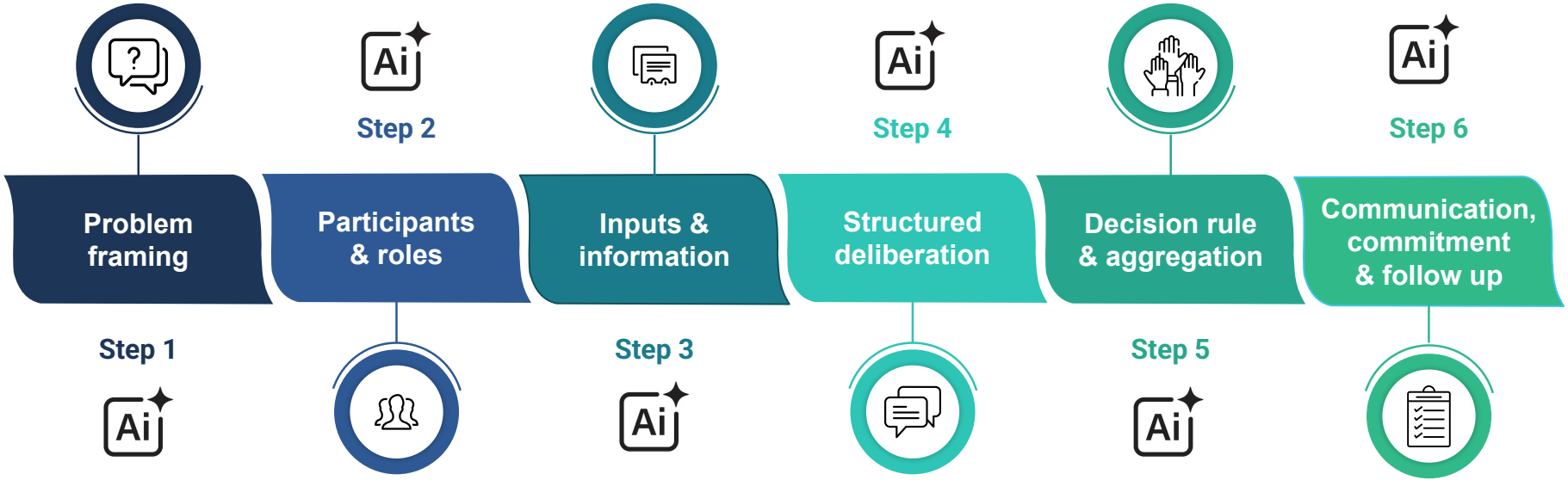
Equality

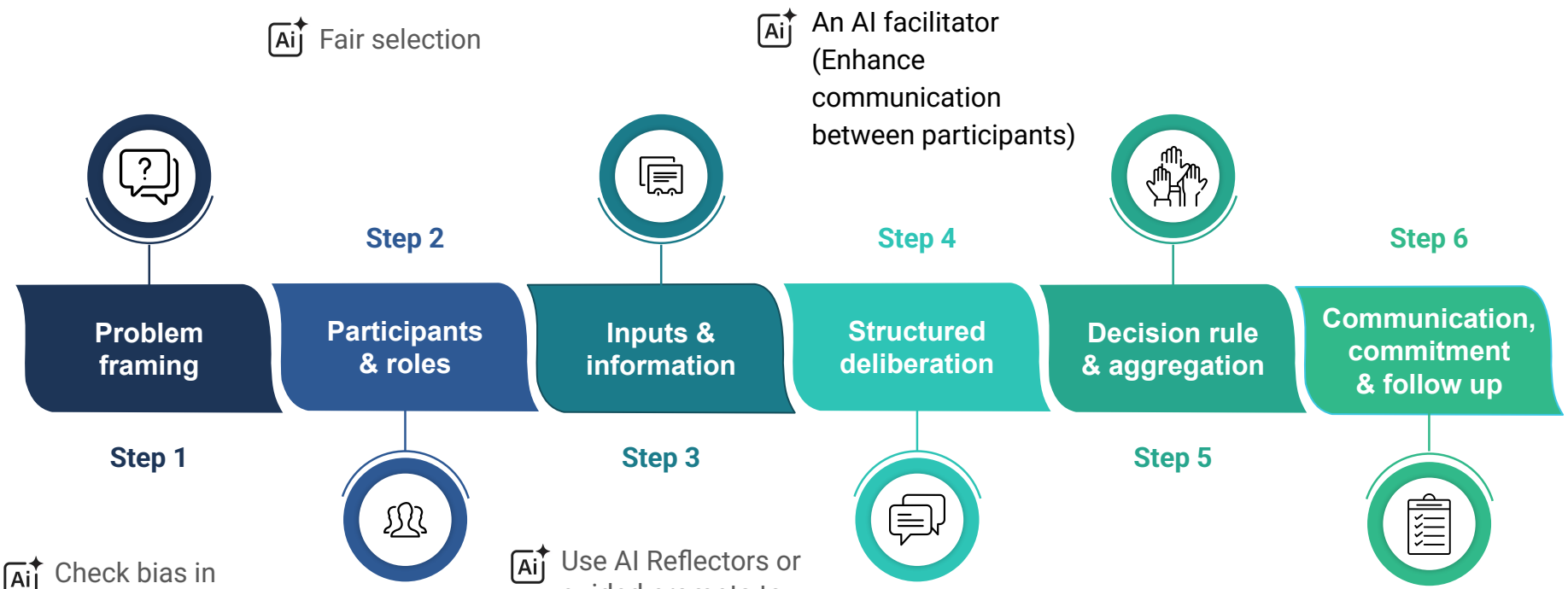
Participation

Legitimacy

Lazar, Seth, et Lorenzo Manuali. Can LLMs advance democratic values? Version 3. arXiv, 2024. https://doi.org/10.48550/ARXIV.2410.08418.


Problem framing
Step 1
Participants & roles
Step 2
Inputs & information
Step 3
Structured deliberation
Step 4
Decision rule & aggregation
Step 5
Communication, commitment & follow up
Step 6


Problem framing
Step 1
Participants & roles
Step 2
Inputs & information
Step 3
Structured deliberation
Step 4
Decision rule & aggregation
Step 5
Communication, commitment & follow up
Step 6


Fair selection
An AI facilitator (Enhance communication between participants)
Step 1
Problem framing
Step 2
Participants & roles
Step 3
Inputs & information
Step 4
Structured deliberation
Step 5
Decision rule & aggregation
Step 6
Communication, commitment & follow up
Check bias in statement
Use AI Reflectors or guided prompts to help participants clarify their stance or explore counter-arguments

What’s next?

Questions ?

www.linkedin.com/in/oliviernguyenquoc

www.oliviernguyen.com

AI use disclosure

In preparing this presentation, large language models (**LLMs**) were used to:

- **Identify** potentially relevant academic articles
- **Generate** preliminary **summaries** to support literature screening
- **Clarify** complex theoretical passages
- **Translate** selected non-English sources
- **Find ideas** for slide designs
- **Rephrase** some statements

All cited works **were read and interpreted directly**.
All analytical framing, interpretations, and arguments are my own.