IA para as ciências sociais

Dr Mary Sanford

Escola de verão Climate Change AI

22 de julho de 2026







Pergunta(s) de aquecimento

A IA deixa você ansioso?



https://partici.fi/97320810

Se sim, por quê? Se não, por que não?



https://partici.fi/97320810

O que são as ciências sociais?

Gestão/finanças

Administração pública

Ciência política

Arqueologia

Economia

Geografia

Psicologia

Educação

Direito

Sociologia

Relações internacionais

Antropologia

Comunicação

Meu foco

Pesquisa em ciências sociais sobre a mudança climática

O que as pessoas pensam?

O que as pessoas fazem?

O que influencia as pessoas?

E as organizações?

Quais as implicações sistêmicas?

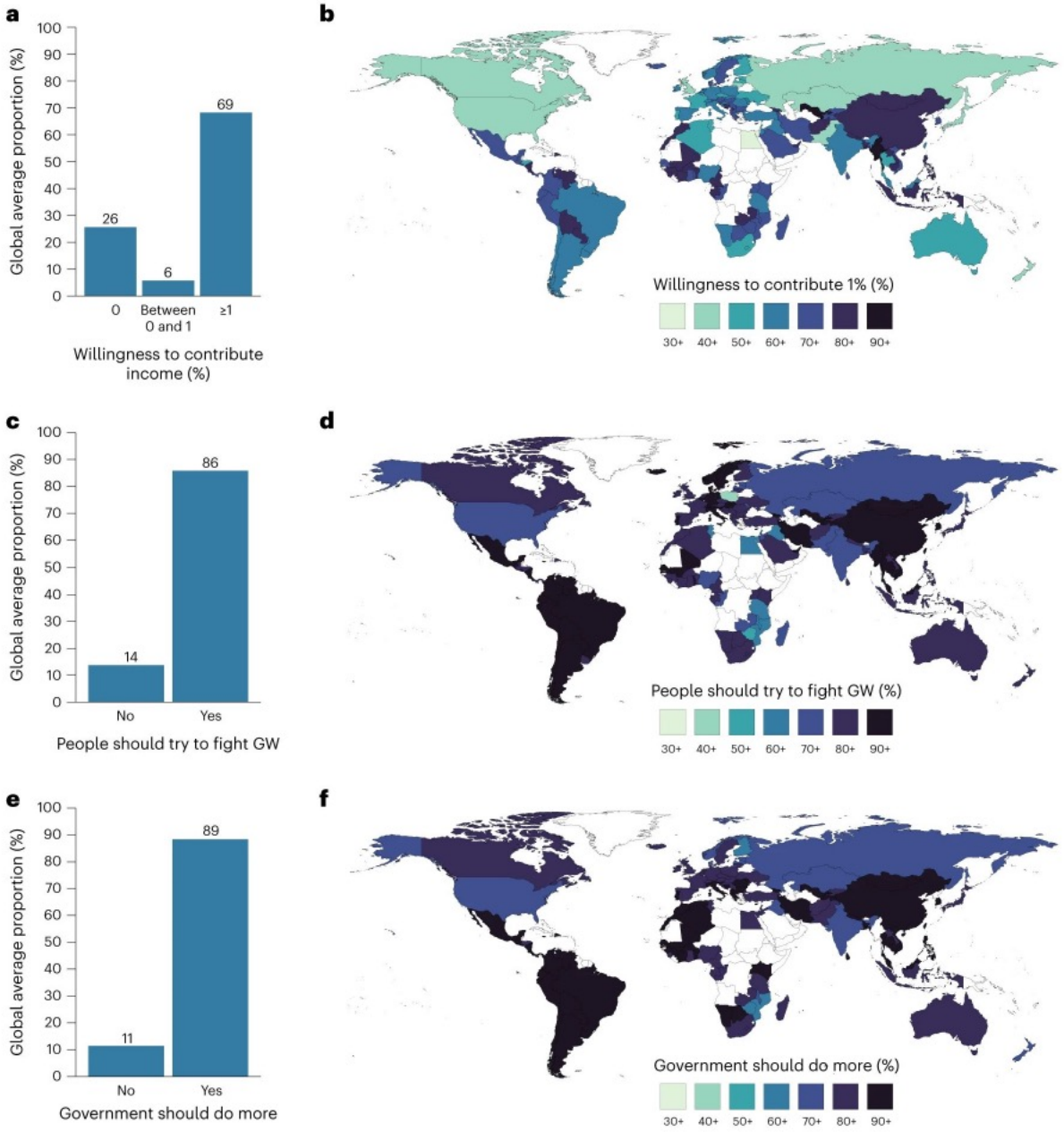
O que podemos aprender com o passado?

➔ Essencial para construir a viabilidade social e política de uma transição climática justa.
➔ Necessária para que os avanços tecnológicos alcancem todo o seu potencial.

O que as pessoas pensam?

- ➔ Grandes pesquisas multinacionais
- ➔ Apoio, oposição, atitudes, comportamentos declarados
- ➔ Em geral pontuais, às vezes longitudinais
- ➔ Muito trabalho descritivo, algum mais causal/comportamental

Amplo apoio global à ação climática



Andre et al. 2024. Nature Climate Change.

O que as pessoas fazem (ou não fazem)?

ELSEVIER

Global Environmental Change
Volume 17, Issues 3–4, August–October 2007, Pages 445-459



Barriers perceived to engaging with climate change among the UK public and their policy implications

Irene Lorenzoni [a b], Sophie Nicholson-Cole [b], Lorraine Whitmarsh [b]

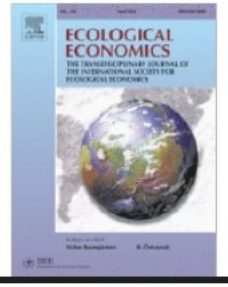
ELSEVIER

Journal of Environmental Psychology
Volume 51, August 2017, Pages 226-238



"Green to be keep down": effect of identity on pro-environmental behavior

Cameron Brick, David K. Sherman, Heejung S. Kim



Research article • Full text access Get rights and content

Do risk, time, and social preferences predict sustainable behavior? Evidence from a qualitative synthesis and meta-analysis ☆

Kristopher L. Nichols [a b], Johanna M. Matt-Navarro [a], Maxim K. Doiron [a], Giovanna d'Adda [c d], Elke U. Weber [a b e], Sara M. Constantino [e f]
Show more



The Political Consequences of Green Policies: Evidence from Italy

Published online by Cambridge University Press: **27 April 2023**

ITALO COLANTONE, LIVIO DI LONARDO, YOTAM MARGALIT and MARCO PERCOCO
Show author details

- ➔ Mais alguns experimentos
- ➔ Análise de dados secundários

O que influencia as pessoas?



What shapes public support for climate change mitigation policies? The role of descriptive social norms and elite cues

Published online by Cambridge University Press: **03 November 2020**

ADRIAN RINSCHEID, SILVIA PIANTA and ELKE U. WEBER

Show author deta

European Journal of Political Research

Research Article | Open Access

Carbon inequality and support for carbon taxation

LIAM F. BEISER-McGRATH, MARIUS R. BUSEMEYER

First published: 15 December 2023 | https://doi.org/10.1111/1475-6765.12647 | VIEW METRIC

"Fear Won't Do It": Promoting Positive Engagement With Climate Change Through Visual and Iconic Representations

Saffron O'Neill and Sophie Nicholson-Cole View all authors and affiliations

Volume 30, Issue 3 | https://doi.org/10.1177/1075547008329201

Letter | Published: 30 November 2015

Network structure and influence of the climate change counter-movement

Justin Farrell

Nature Climate Change **6**, 370–374 (2016) | Cite this article

Environment, Development and Sustainability (2025) 27:3593–3607
https://doi.org/10.1007/s10668-023-04031-0

Check for updates

How does personalized feedback on carbon emissions impact intended climate action?

Yu Luo[1] · Brynley Hanson-Wright[2] · Hadi Dowlatabadi[2] · Jiaying Zhao[1,2]

Received: 26 April 2023 / Accepted: 9 October 2023 / Published online: 25 October 2023

E as organizações?

Home > Crises and Disruptions in International Business > Chapter

The Impact of Climate Risk on Firm Performance and Financing Choices: A International Comparison

Chapter | First Online: 26 April 2022

Article | Open access | Published: 18 December 2023

Do fossil fuel firms reframe online climate and sustainability communication? A data-driven analysis

Ramit Debnath, Danny Ebanks, Kamiar Mohaddes, Thomas Roulet & R. Michael Alvarez

npj Climate Action **2**, Article number: 47 (2023) | Cite this article

JOURNAL ARTICLE

Investor Rewards to Climate Responsibility: Stock-Price Responses to the Opposite Shocks of the 2016 and 2020 U.S. Elections

Get access >

Stefano Ramelli, Alexander F Wagner ✉, Richard J Zeckhauser, Alexandre Ziegler

The Review of Corporate Finance Studies, Volume 10, Issue 4, December 2021, Pages 748–787, https://doi.org/10.1093/rcfs/cfab010

Published: 17 June 2021 **Article history** ▾

JOURNAL ARTICLE

Sectors, Pollution, and Trade: How Industrial Interests Shape Domestic Positions on Global Climate Agreements

Federica Genovese

International Studies Quarterly, Volume 63, Issue 4, December 2019, Pages 819–836, https://doi.org/10.1093/isq/sqz062

Published: 27 August 2019

Implicações sistêmicas?

RESEARCH ARTICLE | SUSTAINABILITY SCIENCE

Social tipping dynamics for stabilizing Earth's climate by 2050

Ilona M. Otto, Jonathan F. Donges, Roger Cremades, +10, and Hans Joachim Schellnhuber Authors Info & Affiliations

Contributed by Hans Joachim Schellnhuber, November 15, 2019 (sent for review January 22, 2019; reviewed by J. David Tabara and Jessika E. Trancik)

January 21, 2020 | 117 (5) 2354-2365 | https://doi.org/10.1073/pnas.1900577117

ELSEVIER

World Development

Volume 115, March 2019, Pages 246-257



Poverty and distributional effects of carbon pricing in low- and middle-income countries – A global comparative analysis

Ira Irina Dorband [a b], Michael Jakob [a], Matthias Kalkuhl [a c], Jan Christoph Steckel [a b d]

ELSEVIER

Journal of Environmental Economics and Management

Volume 127, September 2024, 103012



Climate change impacts on the within-country income distributions ☆

Martino Gilli [a b c], Matteo Calcaterra [a b d], Johannes Emmerling [a b], Francesco Granella [a b]

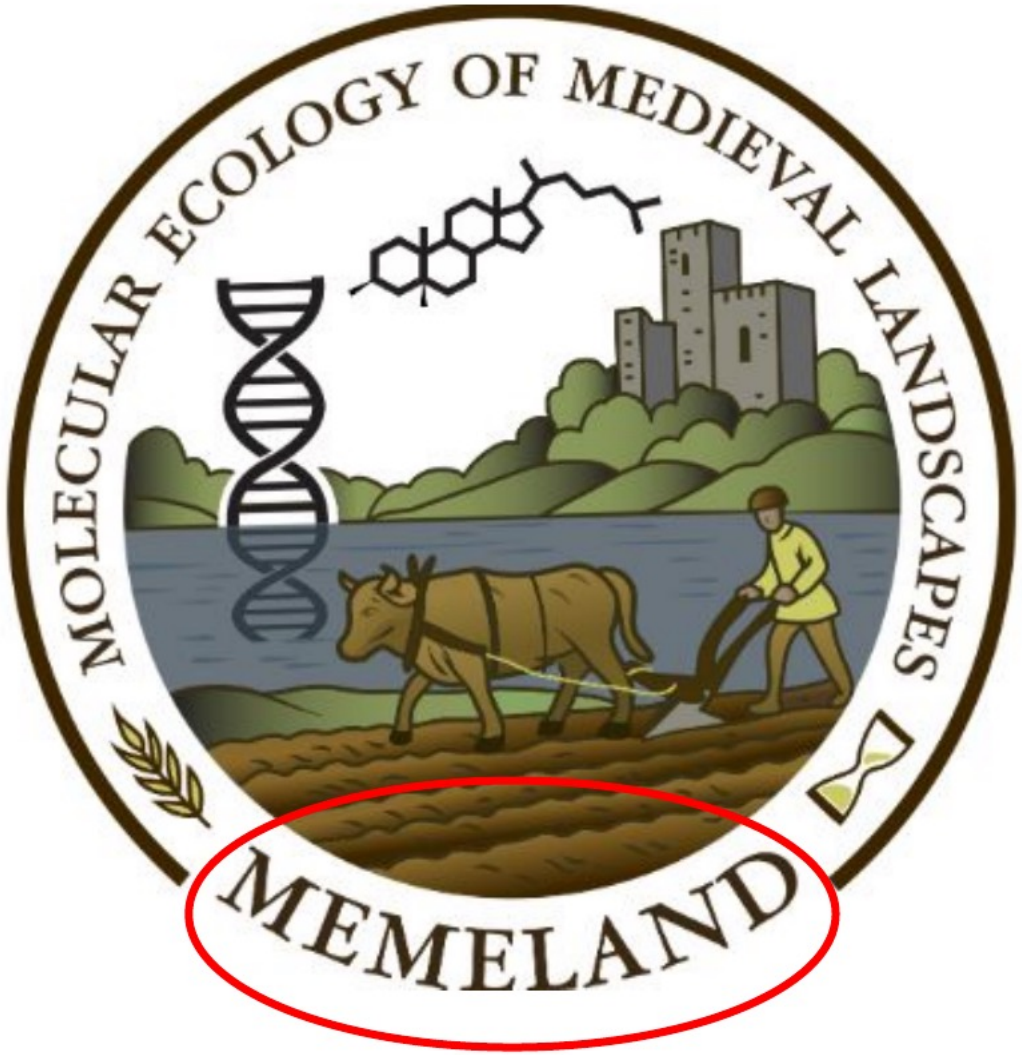
Analysis | Published: 29 November 2021

Climate action with revenue recycling has benefits for poverty, inequality and well-being

Mark Budolfson, Francis Dennig, Frank Errickson, Simon Feindt, Maddalena Ferranna, Marc Fleurbaey, David Klenert, Ulrike Kornek, Kevin Kuruc, Aurélie Méjean, Wei Peng, Noah Scovronick, Dean Spears, Fabian Wagner & Stéphane Zuber

Nature Climate Change **11**, 1111–1116 (2021) | Cite this article

Aprendendo com o passado



Mas... nem toda pesquisa em ciências sociais sobre a mudança climática é quantitativa.

O trabalho qualitativo permite uma compreensão mais profunda

- ➔ Essencial para formular hipóteses: identificar e descrever novos fenômenos
- ➔ Análise qualitativa de conteúdo: investigar detalhes e ângulos subjetivos que se perderiam na análise quantitativa.
- ➔ Entrevistas, grupos focais: fazer perguntas para obter informações que não seriam possíveis com questionários ou análise observacional
- ➔ Pode ser combinado com coletas de dados maiores para testar hipóteses em escala


Geoforum 49 (2013) 10–19

Contents lists available at SciVerse ScienceDirect

Geoforum

journal homepage: www.elsevier.com/locate/geoforum

Image matters: Climate change imagery in US, UK and Australian newspapers

Saffron J. O'Neill

Geography, College of Life & Environmental Sciences, University of Exeter, Amory Building, Rennes Drive, Exeter EX4 4RJ, UK



More than Symbols: The Effect of Symbolic Policies on Climate Policy Support

Published online by Cambridge University Press: 19 January 2026

THEODORE TALLENT, MALO JAN and LUIS SATTELMAYER

ENVIRONMENTAL COMMUNICATION
2023, VOL. 17, NO. 7, 828–843
https://doi.org/10.1080/17524032.2023.2259623

Routledge Taylor & Francis Group

OPEN ACCESS Check for updates

Article | Open access | Published: 04 August 2025

United Nations Environment Assembly attendees underestimate public willingness to contribute to climate action

Ximeng Fang, Joshua Ettinger & Stefania Innocenti

Communications Earth & Environment **6**, Article number: 622 (2025) | Cite this article

Extreme Weather Events as Teachable Moments: Catalyzing Climate Change Learning and Action Through Conversation

Joshua Ettinger [a], Peter Walton [b], James Painter [c], Susan A. Flocke [d] and Friederike E.L. Otto [e]

O trabalho conceitual e teórico também é importante

- ➔ Desenvolver e compartilhar novas perspectivas, ideias para agendas de pesquisa, posições
- ➔ Construir novas teorias
- ➔ Comunicar dentro das áreas e entre elas
- ➔ Muito importante para orientar a pesquisa



ELSEVIER

Transportation Research Interdisciplinary Perspectives

Volume 37, May 2026, 102029

Sufficient mobility and access within limits: Research agenda for bringing together corridor frameworks and transportation research

Michał Czepkiewicz [a c], Giulio Mattioli [b], Filip Schmidt [c], Elias Willberg [d], Lena Kilian [e n], Henrikki Tenkanen [f], Dick Timmer [g], Ákos Gosztonyi [h], Johanna Raudsepp [i], Sanna Ala-Mantila [h], Lisa Jacobson [j], Mònica Guillen-Royo [k], Dawid Krysiński [l c], Kevin Dillman [i], Jukka Heinonen [i], Petter Næss [m 1]



Perspective | Published: 30 September 2021

The role of high-socioeconomic-status people in locking in or rapidly reducing energy-driven greenhouse gas emissions

Dialogues on Climate Change
Volume 1, Issue 1, December 2024, Pages 23-29
© The Author(s) 2024, Article Reuse Guidelines
https://doi.org/10.1177/29768659241293215

Sage Journals

Commentaries

Are radical changes to lifestyles necessary for mitigating climate change?

Lorraine Whitmarsh[1] and Sam Hampton[2,3]

Psychological Science in the Public Interest
Volume 23, Issue 2, October 2022, Pages 50-97
© The Author(s) 2022, Article Reuse Guidelines
https://doi.org/10.1177/15291006221105279

SAGE journals

Scaling Up Change: A Critical Review and Practical Guide to Harnessing Social Norms for Climate Action

Sara M. Constantino[1,2,3], Gregg Sparkman[4], Gordon T. Kraft-Todd[4], Cristina Bicchieri[5,6,7], Damon Centola[8,9], Bettina Shell-Duncan[10], Sonja Vogt[11,12,13], and Elke U. Weber[3,14,15]

Pausa para reflexão

Pergunta

Você consegue pensar em um tema ou pergunta de pesquisa em ciências sociais ligado à mudança climática sobre o qual gostaria de saber mais?



https://partici.fi/97320810

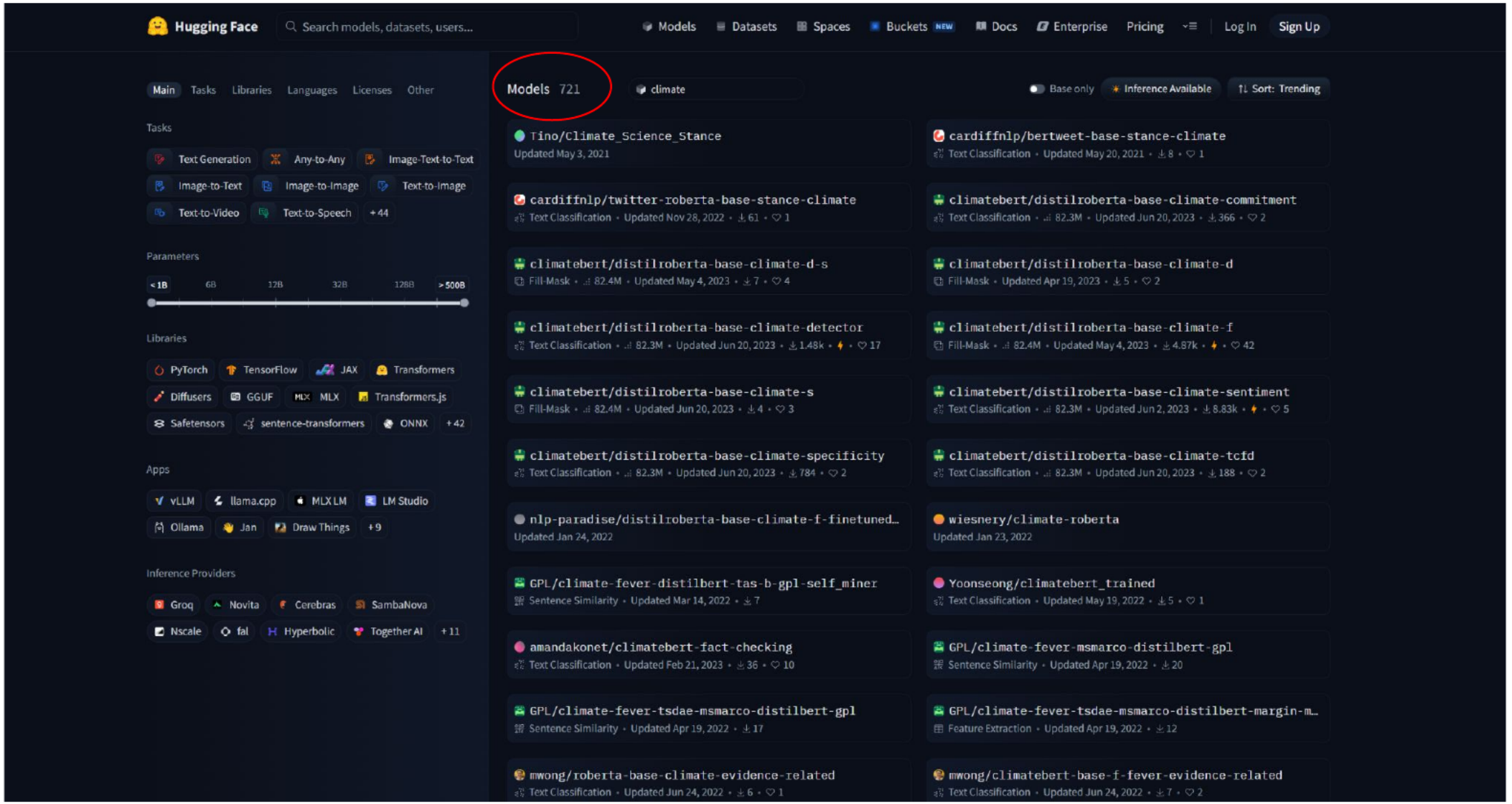
Do ponto de vista metodológico

Processo de pesquisa

Como a IA mudou o cenário?

Escopo das perguntas de pesquisa

Classificação de textos em larga escala

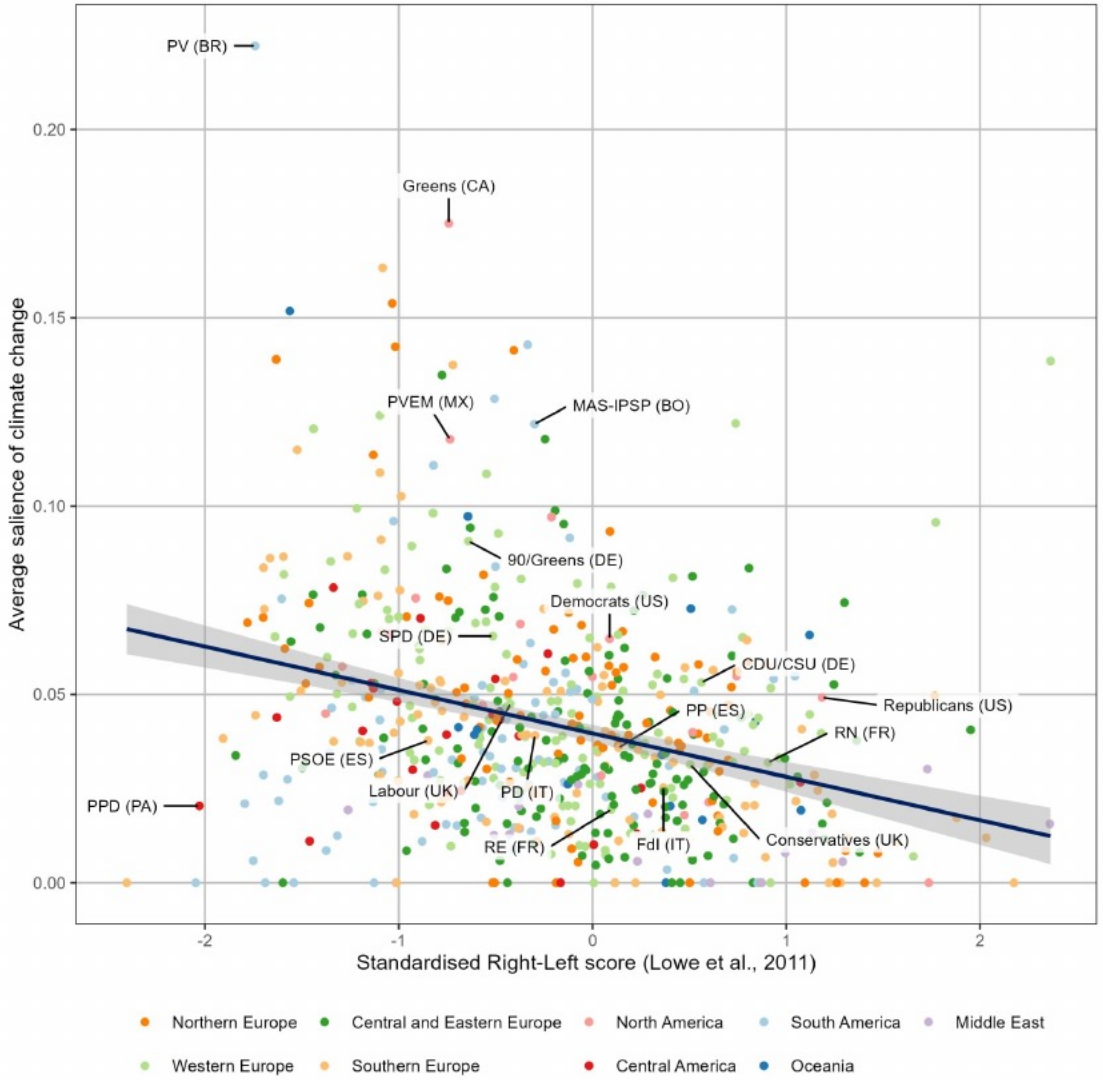


Policlim: A Dataset of Climate Change Discourse in the Political Manifestos of Forty-Five Countries from 1990 to 2022

Published online by Cambridge University Press: **23 October 2025**

Mary Sanford, Silvia Pianta, Nicolas Schmid and Giorgio Musto Show author details

- ➔ Ajusta o XLM-RoBERTa para detectar a relevância da mudança climática em programas partidários em mais de 20 idiomas
- ➔ Modelo e variável prontos para uso em outros trabalhos



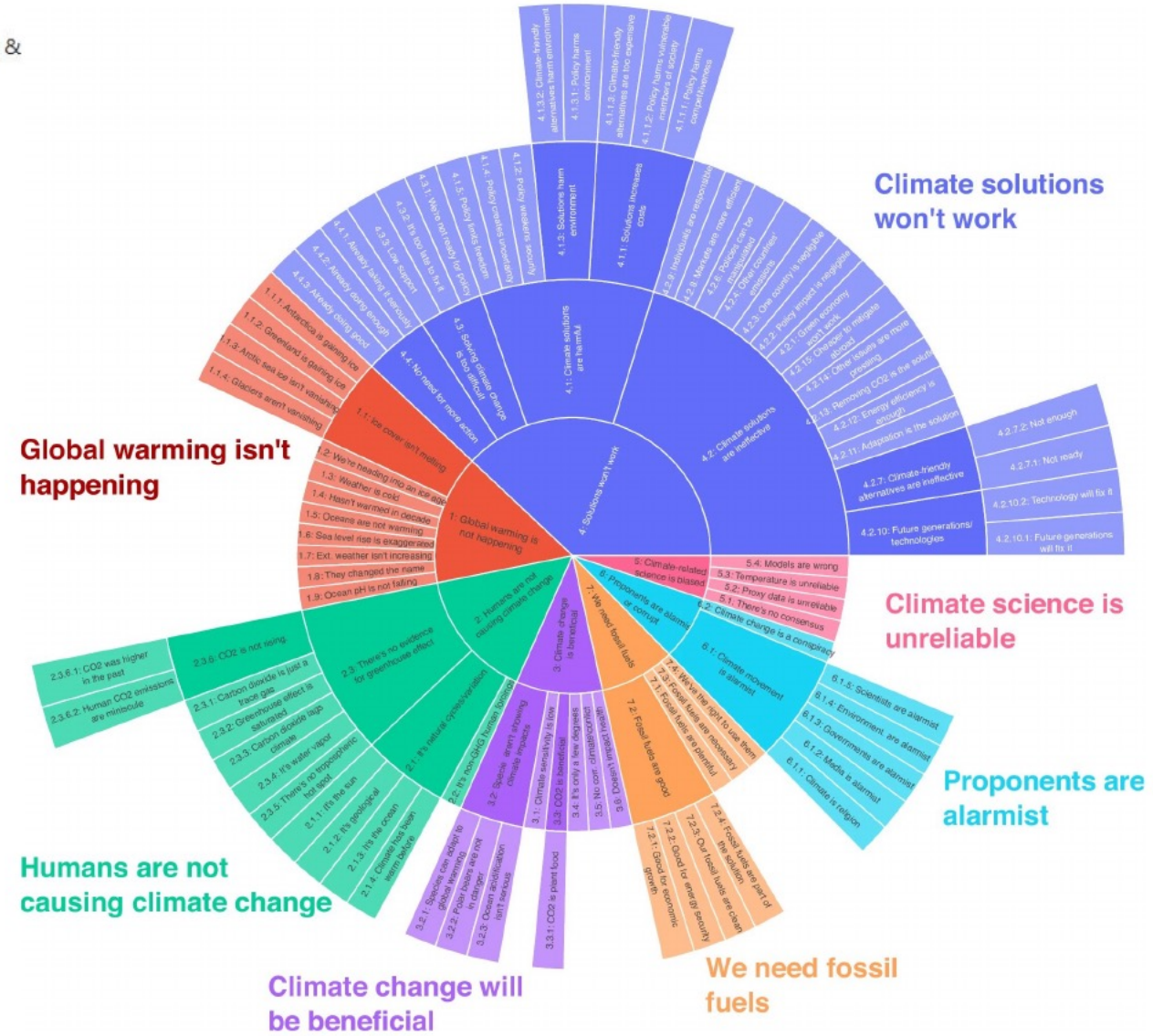
Article | Open access | Published: 27 February 2026

Large language model reveals an increase in climate contrarian speech in the United States Congress

Travis G. Coan, Ranadheer Malla, Mirjam O. Nanko, William Kattrup, J. Timmons Roberts, John Cook & Constantine Boussalis

Communications Sustainability **1**, Article number: 37 (2026) | Cite this article

➔ Parte de uma taxonomia complexa de argumentos negacionistas



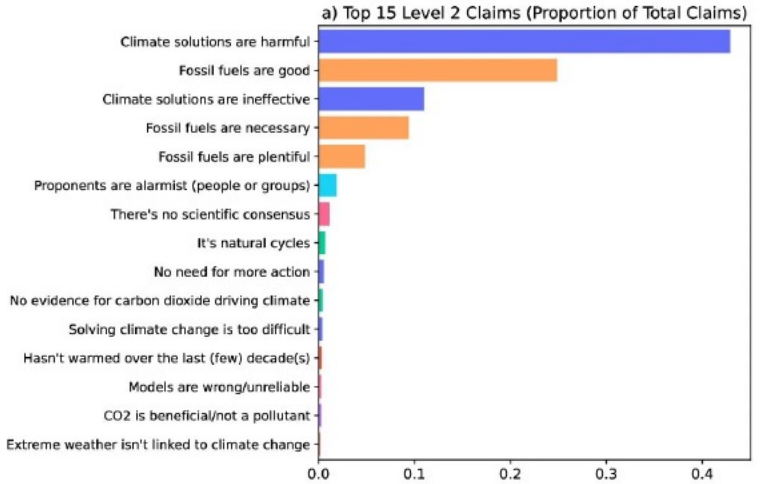
Article | Open access | Published: 27 February 2026

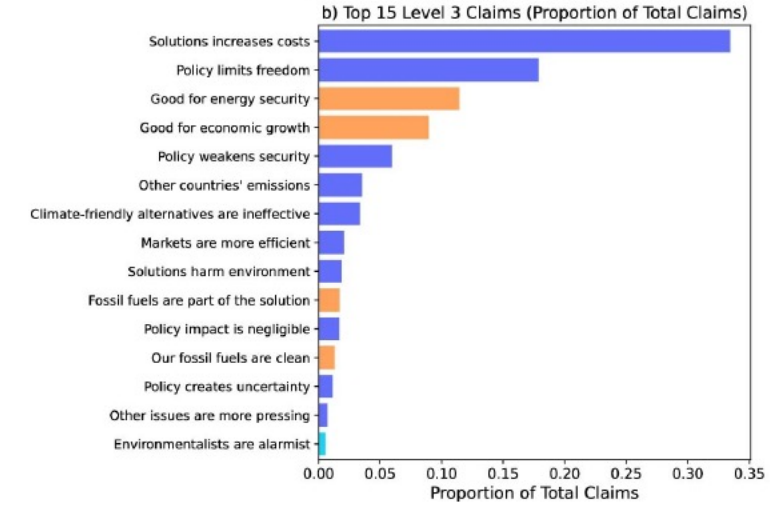
Large language model reveals an increase in climate contrarian speech in the United States Congress

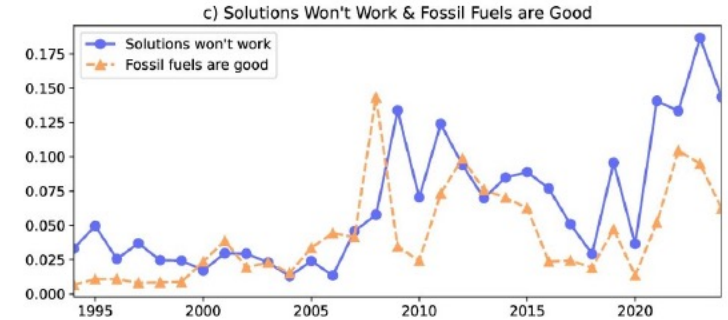
Travis G. Coan, Ranadheer Malla, Mirjam O. Nanko, William Kattrup, J. Timmons Roberts, John Cook & Constantine Boussalis

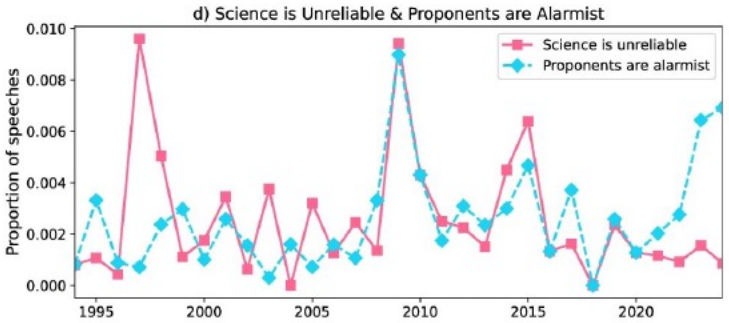
Communications Sustainability **1**, Article number: 37 (2026) | Cite this article

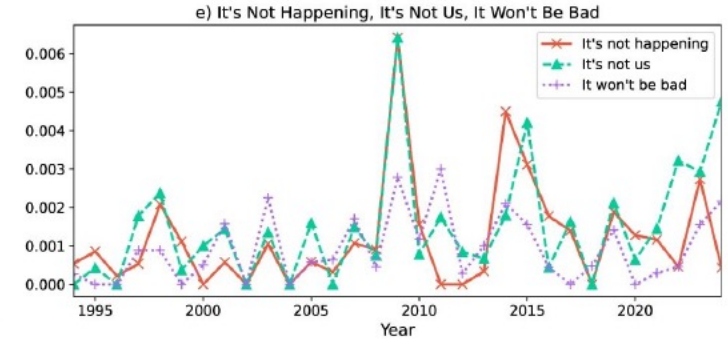
- ➔ Parte de uma taxonomia complexa de argumentos negacionistas e ajusta GPT4o e Claude Sonnet 3.7 para detectá-los.
- ➔ Discursos no Congresso dos EUA
- ➔ Acompanha diferentes narrativas no tempo (e no espaço)











Article | Open access | Published: 24 November 2022

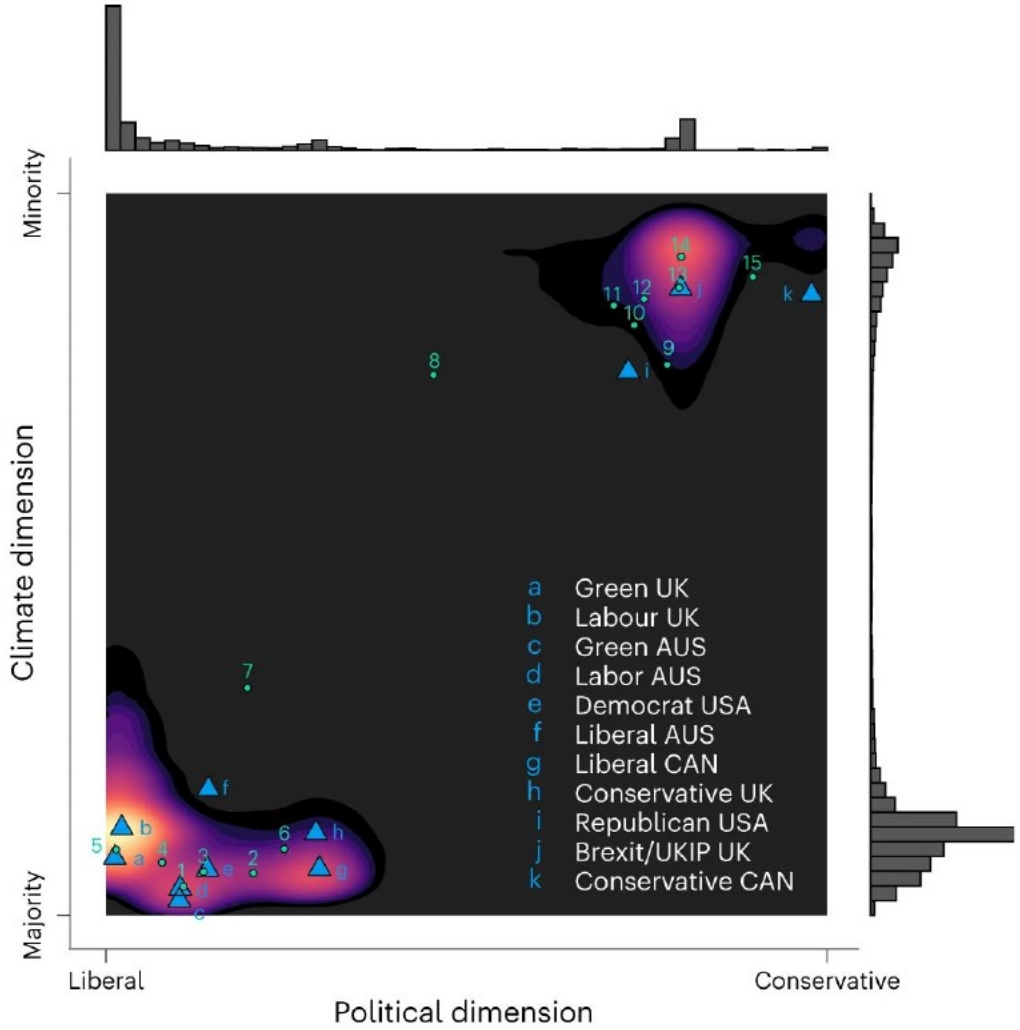
Growing polarization around climate change on social media

Max Falkenberg, Alessandro Galeazzi, Maddalena Torricelli, Niccolò Di Marco, Francesca Larosa, Madalina Sas, Amin Mekacher, Warren Pearce, Fabiana Zollo, Walter Quattrociocchi & Andrea Baronchelli

Nature Climate Change **12**, 1114–1121 (2022) | Cite this article

- Analisa interações de retuíte entre contas influentes no debate sobre as COPs para detectar polarização.
- Combina isso com o BERTopic* para contextualizar melhor

1 Anti-Morrison
2 Biodiversity & Localism, Women at COP, Climate Finance, Youth,
3 Climate Justice Decolonise Climate
4 Sustainable Transport
5 Activitsts for Climate Action
6 Climate Crisis
7 Anti-Johnson
8 Anti-Sturgeon
9 Climate Alarmists
10 Wind Energy & Nuclear
11 Thunberg Cult
12 Chinese Absence, Vaccine Passports
13 Anti-Biden, Didn't Vote Green, Arctic Ice, Climate "Scam", Benefits of Warming
14 Illegal Immigration, Net Zero Referendum, Private Jets, Hypocrisy, CO_2
15 Anti-Trudeau



AJPS AMERICAN JOURNAL of POLITICAL SCIENCE

ARTICLE | Open Access

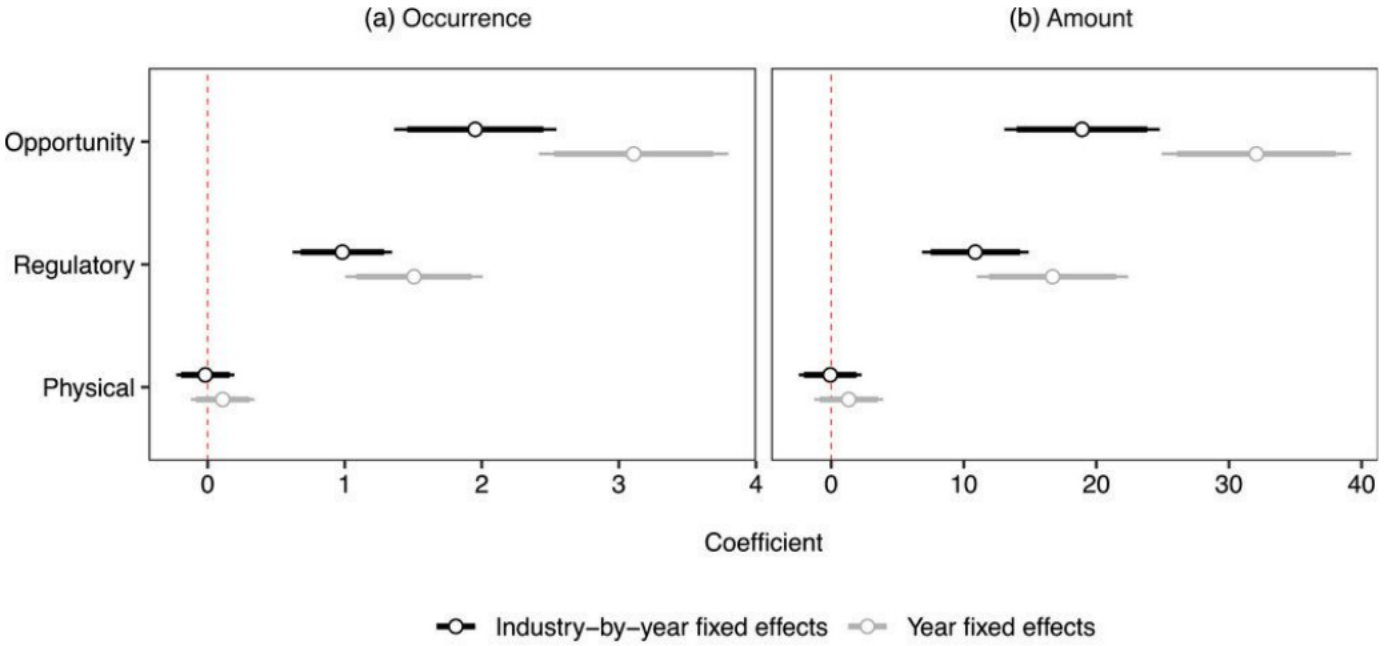
Climate exposure drives firm political behavior: Evidence from earnings calls and lobbying data

Christian Baehr, Fiona Bare, Vincent Heddesheimer

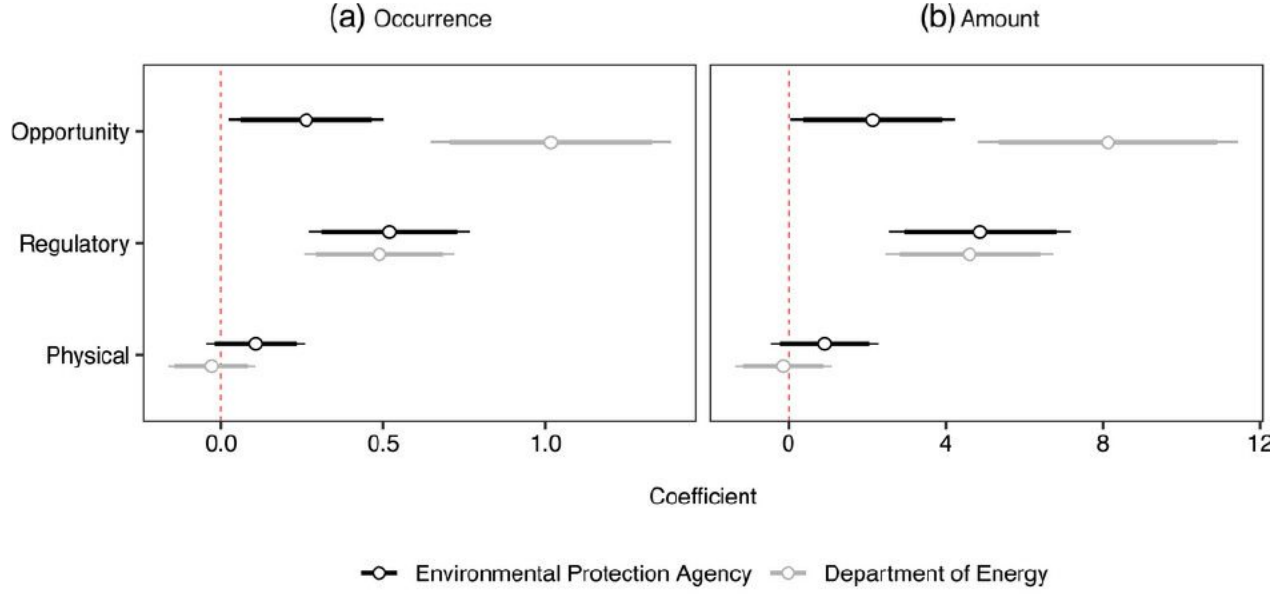
First published: 26 April 2026 | https://doi.org/10.1111/ajps.70062 | VIEW METRICS

- Usa o ClimateBert para analisar teleconferências
- de resultados e identificar empresas que mencionam oportunidades da mudança climática, além de riscos regulatórios e físicos.
- As que mais mencionam oportunidades e riscos regulatórios também fazem mais lobby.

Efeitos da exposição climática no lobby climático das empresas



Efeitos heterogêneos conforme o alvo do lobby



Open access | Research article | First published online September 19, 2025 Social Science Computer Review

Leveraging VLLMs for Visual Clustering: Image-to-Text Mapping Shows Increased Semantic Capabilities and Interpretability

Luigi Arminio, Matteo Magnani, [...], and Alexandra Segerberg +2 View all authors and affiliations

Volume 44, Issue 3 | https://doi.org/10.1177/08944393251376703 | View article versions

- Usa VLLMs (gpt-4-turbo e LLaVa) para gerar descrições textuais de imagens
- Depois as usa para agrupar as imagens para análises quantitativas e qualitativas
- "Um aspecto a verificar é o possível viés introduzido na análise, tanto em relação a possíveis erros quanto a possíveis preferências por um grupo em vez de outro"






DANGER

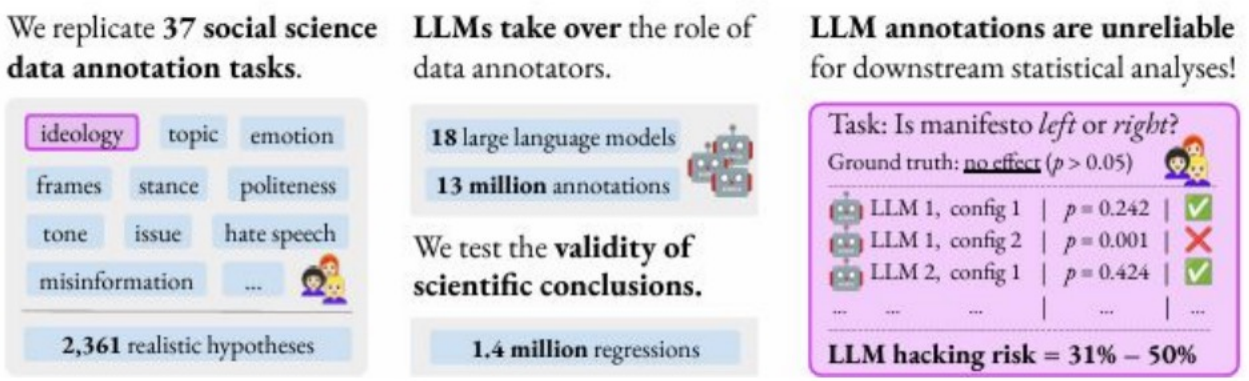
Viés de classificação incorreta

- Nenhuma previsão é perfeita
- Pouquíssimos fluxos de desenvolvimento incluem verificações de validação completas
- Isso gera viés nas análises posteriores
- Ainda mais problemático com LLMs

Large Language Model Hacking:
Quantifying the Hidden Risks of Using LLMs for Text Annotation

Joachim Baumann[1], Paul Röttger[1], Aleksandra Urman[2], Albert Wendsjö[3], Flor Miriam Plaza-del-Arco[4], Johannes B. Gruber[5], and Dirk Hovy[1]

[1]*Bocconi University*
[2]*University of Zurich*
[3]*University of Gothenburg*
[4]*LIACS, Leiden University*
[5]*GESIS, Leibniz Institute for the Social Sciences*



Viés de classificação incorreta

Antes de usar um novo modelo...

➔ Sempre verifique os dados de treinamento (examinando exemplos, se possível) para entender se o contexto é adequado

➔ Tome medidas para mitigar o viés sempre que possível (TeBlunthuis et al., 2024)

➔ Não avalie o desempenho do modelo só com o treinamento. Sempre valide também as previsões.


COMMUNICATION METHODS AND MEASURES
2024, VOL. 18, NO. 3, 278–299
https://doi.org/10.1080/19312458.2023.2293713

Routledge
Taylor & Francis Group

Check for updates

Misclassification in Automated Content Analysis Causes Bias in Regression. Can We Fix It? Yes We Can!

Nathan TeBlunthuis [a,b], Valerie Hase [c], and Chung-Hong Chan [d]

Análise de questionários

ELSEVIER

Energy Research & Social Science
Volume 73, March 2021, 101883



Why hate carbon taxes? Machine learning evidence on the roles of personal responsibility, trust, revenue recycling, and other factors across 23 European countries

Sebastian Levi

Research article ● Open access Under a Creative Commons license ↗ Get rights and content ↗

Unpacking the side effects of social norm nudges ☆

Julien Picard [a b c], Sanchayan Banerjee [d] Show more

- ➔ Novas formas de estudar relações entre variáveis: estruturas latentes, força preditiva...
- ➔ Pode aumentar a precisão dos modelos.
- ➔ Pode reforçar a inferência causal conforme os dados e o contexto.
- ➔ É importante tratar a incerteza.
- ➔ Sempre exige embasamento teórico.

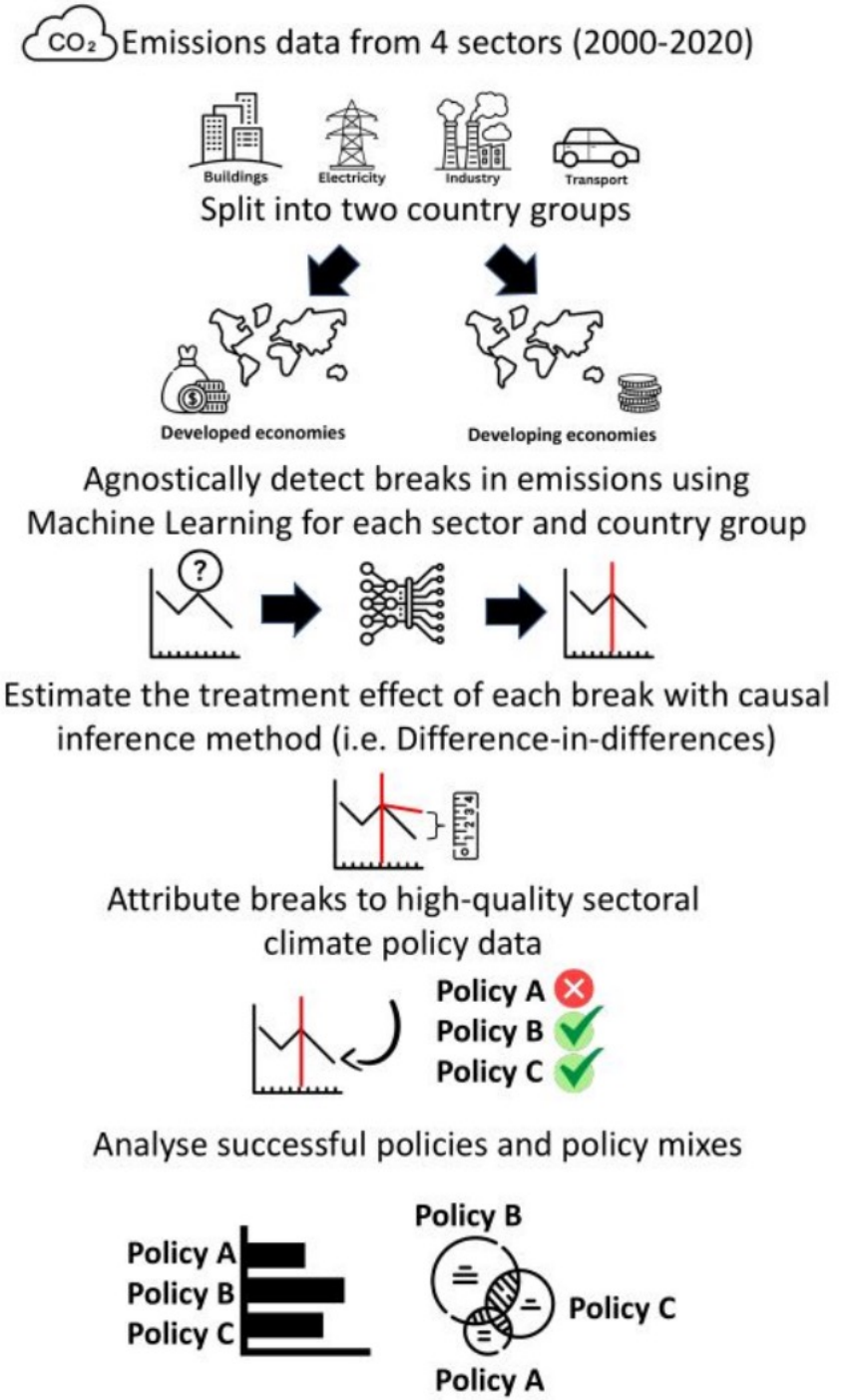
Avaliação de políticas

RESEARCH ARTICLE | CLIMATE POLICY

Climate policies that achieved major emission reductions: Global evidence from two decades

ANNIKA STECHEMESSER, NICOLAS KOCH, EBBA MARK, ELINA DILGER, PATRICK KLÖSEL, LAURA MENICACCI, DANIEL NACHTIGALL, FELIX PRETIS, NOLAN RITTER, [...], AND ANNA WENZEL +2 authors Authors Info & Affiliations

SCIENCE · 22 Aug 2024 · Vol 385, Issue 6711 · pp. 884-892 · DOI: 10.1126/science.adl6547



Síntese de evidências

Article | Published: 11 October 2021

Machine-learning-based evidence and attribution mapping of 100,000 climate impact studies

Max Callaghan, Carl-Friedrich Schleussner, Shruti Nath, Quentin Lejeune, Thomas R. Knutson, Markus Reichstein, Gerrit Hansen, Emily Theokritoff, Marina Andrijevic, Robert J. Brecha, Michael Hegarty, Chelsea Jones, Kaylin Lee, Agathe Lucas, Nicole van Maanen, Inga Menke, Peter Pfleiderer, Burcu Yesil & Jan C. Minx

Nature Climate Change **11**, 966–972 (2021) | Cite this article

Article | Open access | Published: 16 May 2024

Systematic review and meta-analysis of ex-post evaluations on the effectiveness of carbon pricing

Niklas Döbbeling-Hildebrandt, Klaas Miersch, Tarun M. Khanna, Marion Bachelet, Stephan B. Bruns, Max Callaghan, Ottmar Edenhofer, Christian Flachsland, Piers M. Forster, Matthias Kalkuhl, Nicolas Koch, William F. Lamb, Nils Ohlendorf, Jan Christoph Steckel & Jan C. Minx

Nature Communications **15**, Article number: 4147 (2024) | Cite this article

Article | Open access | Published: 07 September 2024

Public support for carbon pricing policies and revenue recycling options: a systematic review and meta-analysis of the survey literature

Farah Mohammadzadeh Valencia, Cornelia Mohren, Anjali Ramakrishnan, Marlene Merchert, Jan C. Minx & Jan Christoph Steckel

npj Climate Action **3**, Article number: 74 (2024) | Cite this article

- → Muda completamente o que é possível na síntese de evidências.
- → Identificação mais rápida do que é relevante e por quê.
- → Extração mais rápida de informações-chave para sínteses e metanálises.
- → Retorno mais rápido a especialistas e gestores.

IA para análise qualitativa → perguntas abertas de questionários

› Psychol Methods. 2025 Apr 7. doi: 10.1037/met0000753. Online ahead of print.

The use of large language models for qualitative research: The Deep Computational Text Analyser (DECOTA)

Lois Player [1], Ryan Hughes [2], Kaloyan Mitev [1], Lorraine Whitmarsh [1], Christina Demski [1], Nicholas Nash [1], Trisevgeni Papakonstantinou [3], Mark Wilson [1]

Affiliations + expand

PMID: 40193412 DOI: 10.1037/met0000753

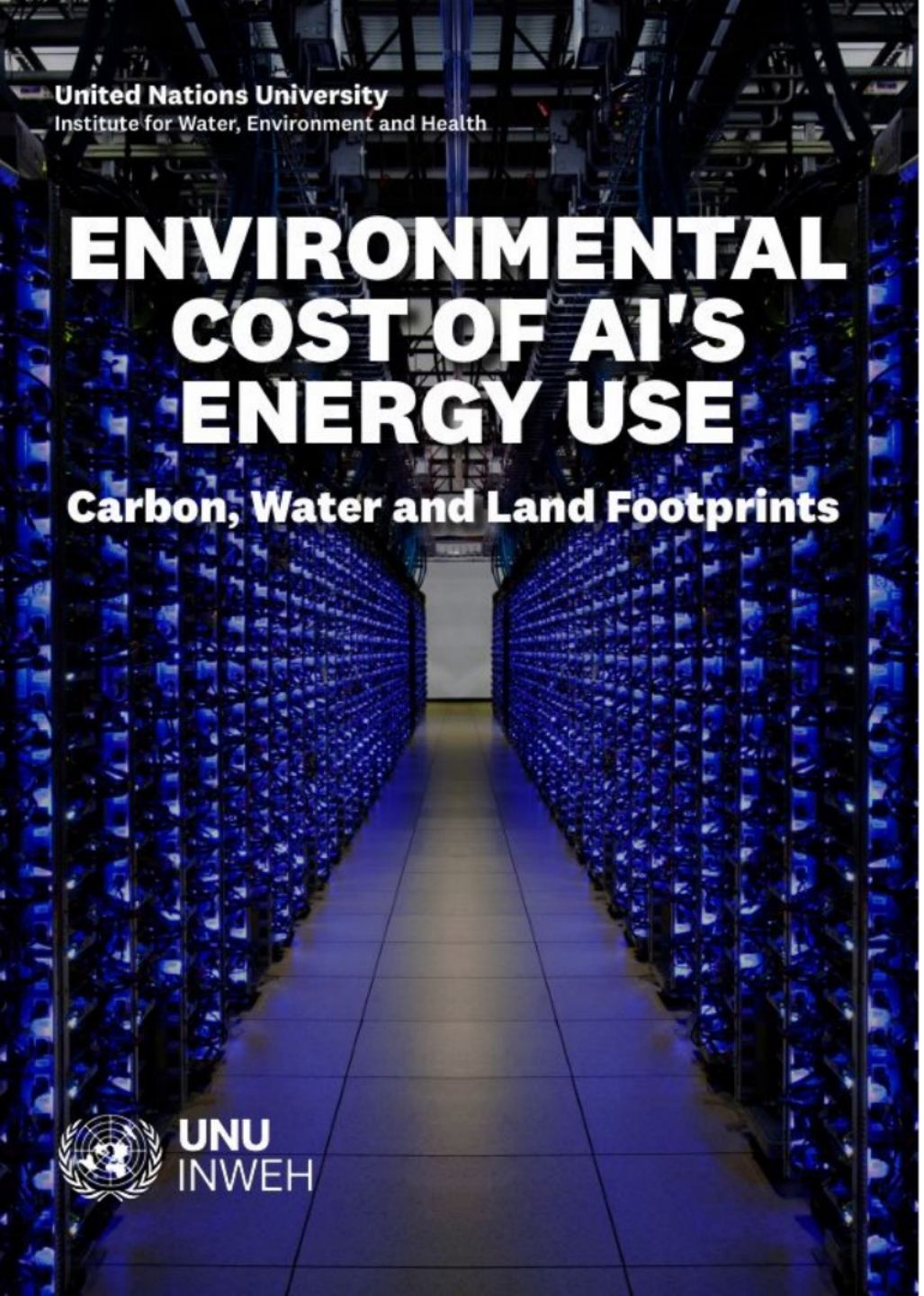
JOURNAL ARTICLE EDITOR'S CHOICE

Scaling Open-Ended Survey Responses Using LLM-Paired Comparisons

Matthew R DiGiuseppe ✉, Michael E Flynn

Public Opinion Quarterly, Volume 90, Issue 3, Fall 2026, Pages 630–656,
https://doi.org/10.1093/poq/nfag013
Published: 27 March 2026

Debates atuais sobre IA, ciências sociais e pesquisa sobre a mudança climática



GPT-4's training carbon footprint of 25,000 tonnes of CO_2e would require the sequestration capacity of 420,000 tree seedlings grown for 10 years, or about equal to the number of trees in 105 Hyde Parks in London.

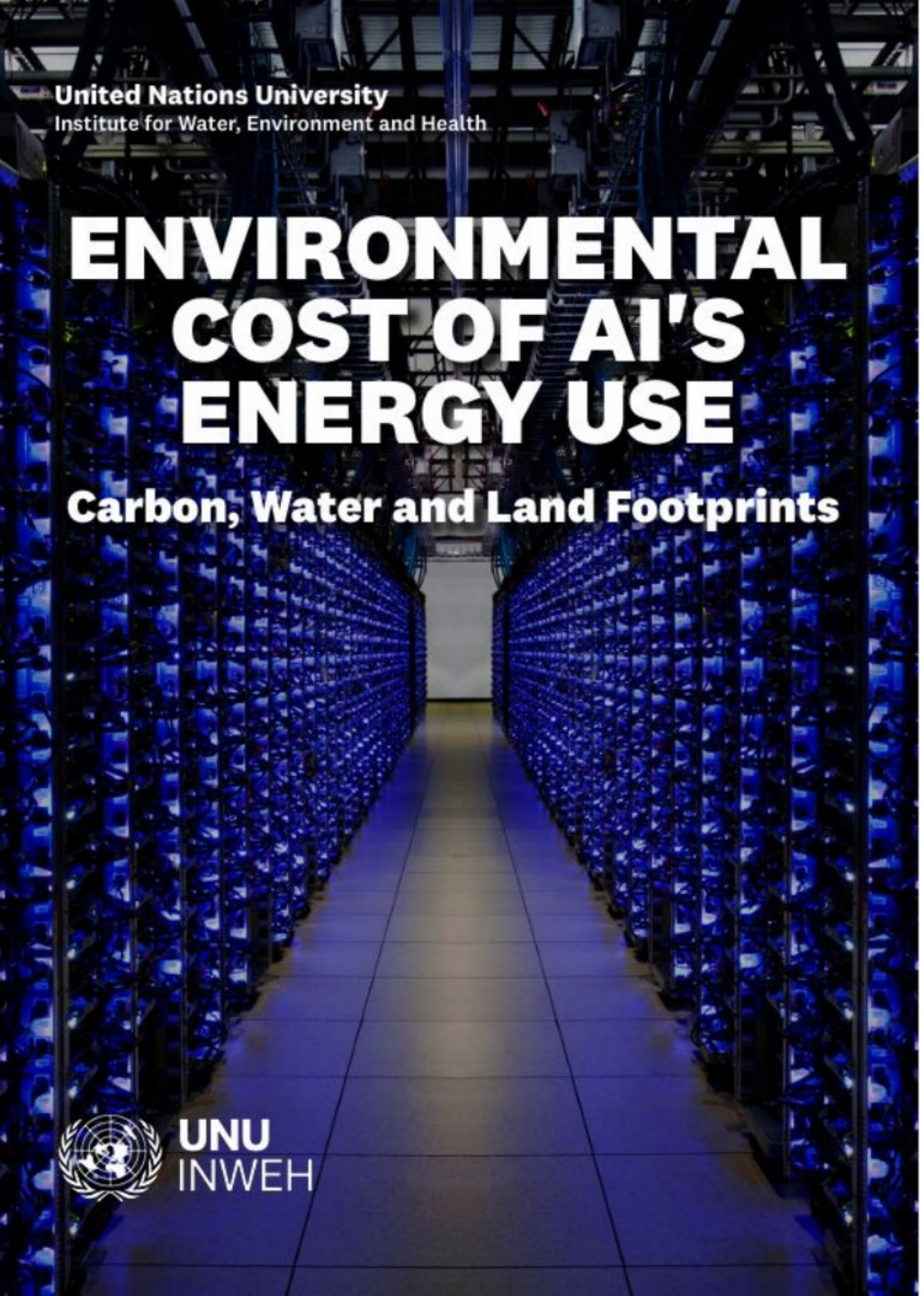
The water footprint associated with training GPT-4 was about 600 million liters, enough to meet the minimum annual domestic water needs of 81,000 people in Sub-Saharan Africa, or to fill 237 Olympic-sized pools.

Training models like GPT-5 is estimated to have a carbon footprint of 42,000 tonnes of CO_2e, requiring 700,000 tree seedlings (about equal to the number of trees in 40 Central Parks in New York or 155 times the trees in Toronto's High Park over 10 years to offset).

The water footprint of GPT-5 training is estimated at 1 billion liters, enough to meet the annual domestic water needs of more than 135,000 people in Sub-Saharan Africa.

While training is highly resource-intensive, the continuous inference phase used to generate responses for billions of interactions is estimated to account for 80% to 90% of total AI energy use.

A typical ChatGPT-style text query is about 200 times more energy-intensive than text classification (such as spam filtering).



The global AI market is expanding rapidly, projected to grow from USD 189 billion in 2023 to nearly USD 5 trillion by 2033.

Generative AI accounted for over 20% of the global AI market in 2026, and is projected to reach 40% by 2030.

AI workloads accounted for roughly 20% of total data centers' electricity use in 2025 and are projected to grow to 40% by 2030.

Data centers' electricity use in 2025 had a carbon footprint of 189 million tonnes of CO_2e, which would require 3.2 billion tree seedlings grown over 10 years to offset, roughly the total number of trees in the entire United Kingdom.

The associated water footprint of projected 2030 electricity consumption of data centers is 9.3 trillion liters, or enough to meet the minimum annual domestic water needs of all 1.3 billion residents of Sub-Saharan Africa for a full year.

Projected global data centers' electricity consumption could exceed 945 TWh by 2030, accounting for almost 3% of projected global electricity use—enough to supply residential electricity to all 1.3 billion people in Sub-Saharan Africa for about 5.5 years.

US POLICY | 29 May 2026 13:58

AI boom means US is now ‘investing more’ in fossil-fuel power than China



Meta’s $13-billion Alberta data centre a potential boost for utilities and natural gas producers

ANDREW WILLIS >

Report warns AI data centre boom threatens Australia's energy transition

By national AI reporter **Cam Wilson**

AI

Tue 26 May

Revealed: landmark Scottish AI project has no prospect of meeting renewables promise

Exclusive: Government and developers privately acknowledged Lanarkshire datacentre site had power provision ‘issue’

BREAKING | BUSINESS

Microsoft's AI Buildout Sent Carbon Emissions Up 25% Last Year

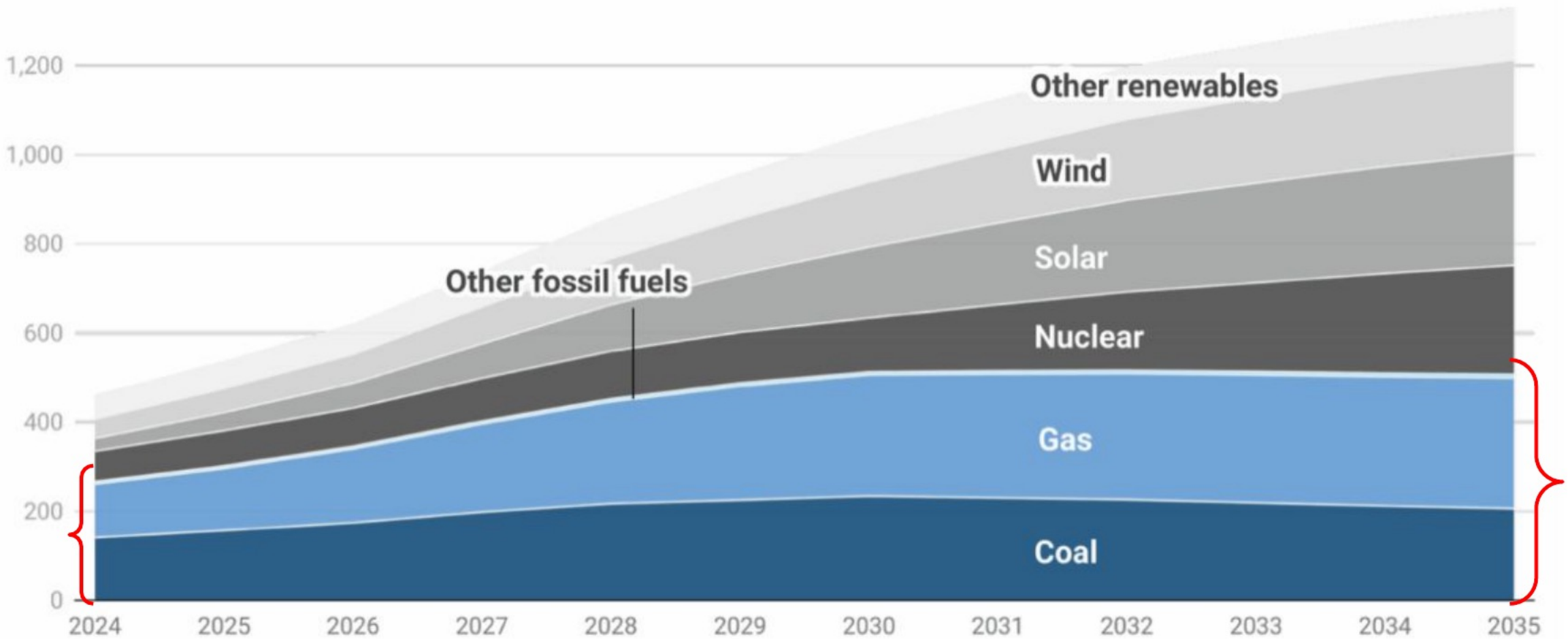
By Ty Roush, Forbes Staff. Ty Roush is a breaking news reporter based in New ...

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Published Jul 09, 2026, 02:45pm EDT

Fossil fuels currently provide the majority of power to data centres – but this is expected to shift over the next decade

Sources of electricity for data centres, TWh, 2024-2035



Source: IEA energy and AI report.

CarbonBrief
CLEAR ON CLIMATE

Para saber mais sobre esses temas, não perca a aula do Nikola em 12 de agosto!



Pergunta

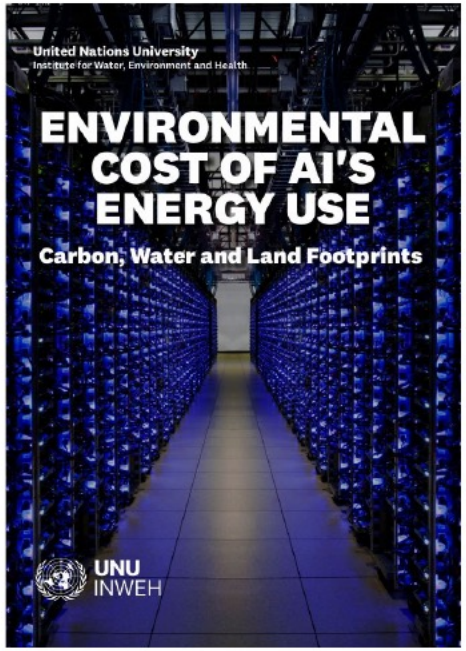
16% dos países hospedam computação em nuvem especializada em IA.
Quanto disso está concentrado na China e nos EUA?

Estime um valor entre 0 e 100%

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16% dos países hospedam computação em nuvem especializada em IA.
Quanto disso está concentrado na China e nos EUA?

90%



Implicações políticas

Grande vulnerabilidade geopolítica

Quem está por trás das empresas?

Acesso a modelos comerciais

Enfraquecimento da democracia

Implicações para a segurança


MAXWELL ZEFF BUSINESS FEB 12, 2026 2:00 PM

OpenAI's President Gave Millions to Trump. He Says It's


A.I. Is Starting to Wear Down Democracy

Content generated by artificial intelligence has become a factor in elections around the world. Most of it is bad, misleading voters and discrediting the democratic process.

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136

Artificial intelligence + Add to myFT

OpenAI admits AI 'agent' caused major cyber breach by itself

AI lab's advanced models escaped testing 'sandbox' to hack Hugging Face

Crise de validade



Figure 1. Illustration of potemkin understanding in a large language model. This example shows GPT-4o's failure to apply its own conceptual explanation of an ABAB rhyming scheme.

Potemkin Understanding in Large Language Models

Marina Mancoridis [1] Keyon Vafa [2] Bec Weeks [3] Sendhil Mullainathan [1]

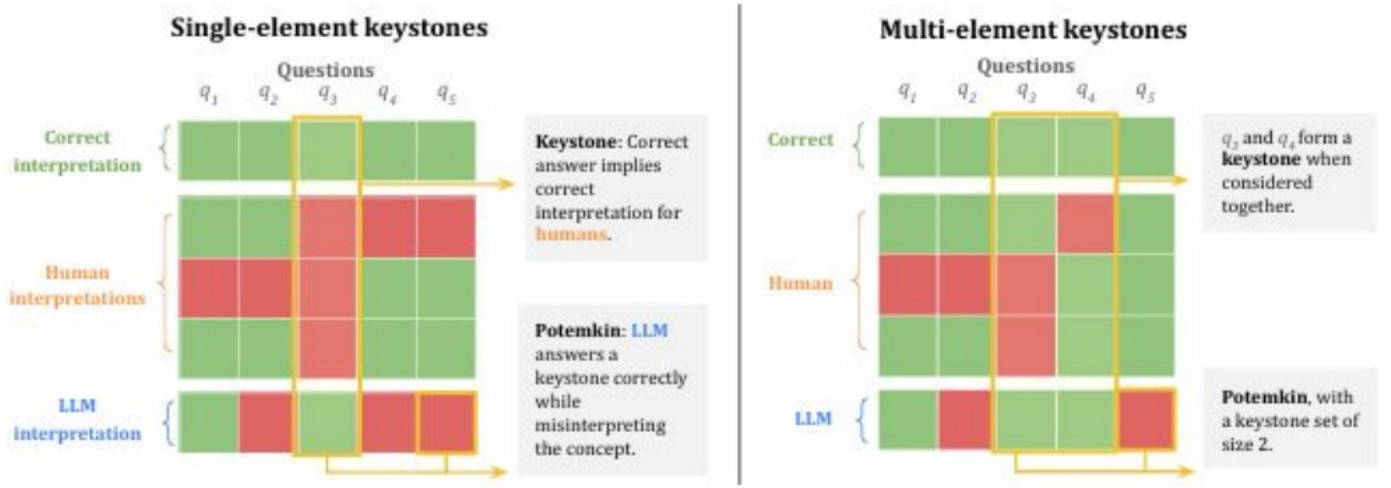


Figure 2. A schematic representation of keystones and potemkins. Rows represent interpretations of a concept and columns represent questions. Questions can either be interpreted correctly or incorrectly. A keystone is a set of questions that can only be interpreted correctly by a human who has understood the concept. An LLM has potemkin understanding when it correctly interprets all questions in a keystone but does not understand a concept.

Crise de validade

Potemkin Understanding in Large Language Models

Marina Mancoridis [1] Keyon Vafa [2] Bec Weeks [3] Sendhil Mullainathan [1]

	Potemkin rate, as measured by:		
Model	**Classify**	**Generate**	**Edit**
Llama-3.3	0.57 (0.06)	0.43 (0.09)	0.36 (0.05)
Claude-3.5	0.49 (0.05)	0.23 (0.08)	0.29 (0.04)
GPT-4o	0.53 (0.05)	0.38 (0.09)	0.35 (0.05)
Gemini-2.0	0.54 (0.05)	0.41 (0.09)	0.43 (0.05)
DeepSeek-V3	0.57 (0.05)	0.38 (0.09)	0.36 (0.05)
DeepSeek-R1	0.47 (0.05)	0.39 (0.09)	0.52 (0.05)
Qwen2-VL	0.66 (0.06)	0.62 (0.09)	0.52 (0.05)
Overall	**0.55 (0.02)**	**0.40 (0.03)**	**0.40 (0.02)**

Table 1. Potemkin rate on classify, generate, and edit tasks. The potemkin rate is the percent of questions about a concept that are answered incorrectly, conditional on a model defining that concept correctly. We scale the classification values so that chance-level performance corresponds with a potemkin rate of 1. Standard errors are in parentheses.

Crise de validade

Measuring what Matters: Construct Validity in Large Language Model Benchmarks

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Franziska Sofia Hafner[1] **Harry Mayne**[1]

Jan Batzner[3,4] **Negar Foroutan**[2] **Chris Schmitz**[5] **Karolina Korgul**[1] **Hunar Batra**[1]
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Hazel Kim[1] **Hannah Rose Kirk**[1,7] **Fangru Lin**[1]
Gabrielle Kaili-May Liu[10] **Lennart Luettgau**[7] **Jabez Magomere**[1] **Jonathan Rystrøm**[1]
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Abstract

Evaluating large language models (LLMs) is crucial for both assessing their capabilities and identifying safety or robustness issues prior to deployment. Reliably measuring abstract and complex phenomena such as 'safety' and 'robustness' requires strong *construct validity*, that is, having measures that represent what matters to the phenomenon. With a team of 29 expert reviewers, we conduct a systematic review of 445 LLM benchmarks from leading conferences in natural language processing and machine learning. Across the reviewed articles, we find patterns related to the measured phenomena, tasks, and scoring metrics which undermine the validity of the resulting claims. To address these shortcomings, we provide eight key recommendations and detailed actionable guidance to researchers and practitioners in developing LLM benchmarks.

Crise de validade

RESEARCH-ARTICLE | OPEN ACCESS |

Gender Trouble in Language Models: An Empirical Audit Guided by Gender Performativity Theory

Authors: Franziska Sofia Hafner, Ana Valdivia, Luc Rocher | Authors Info & Claims

FAccT '25: Proceedings of the 2025 ACM Conference on Fairness, Accountability, and Transparency • Pages 1677 - 1695
https://doi.org/10.1145/3715275.3732112

Published: 23 June 2025 Publication History

Analysis | Open access | Published: 12 December 2024

Generative language models exhibit social identity biases

Tiancheng Hu, Yara Kyrychenko, Steve Rathje, Nigel Collier, Sander van der Linden & Jon Roozenbeek

Nature Computational Science **5**, 65–75 (2025) | Cite this article

Bias in Large Language Models: Origin, Evaluation, and Mitigation

Yufei Guo, Muzhe Guo, Juntao Su, Zhou Yang, Mengqiu Zhu, Hongfei Li, Mengyang Qiu, Shuo Shuo Liu

Na pesquisa

- ➔ IA para responder questionários?
  - Os LLMs conseguem simular respostas humanas de forma confiável? A pesquisa atual tende a dizer que não.
- ➔ IA para entrevistas qualitativas?
  - Novos métodos para ampliar entrevistas qualitativas, que costumam ser demoradas e caras. Mas o que podemos perder do processo?
- ➔ Riscos de perda de competências?
  - A IA muda como trabalhamos, o que sabemos e o que sabemos fazer... o que isso pode significar para o desenvolvimento da pesquisa e da educação?
- ➔ O caso de agentes substituindo assistentes de pesquisa: o que isso fará com os pesquisadores em início de carreira?
  - O mesmo vale para empregos de entrada.

O que você acha?

Consegue pensar em uma aplicação em que não deveríamos usar IA?

https://partici.fi/97320810

E agora?

Perguntas em aberto

➔ Ainda há muito a aprender sobre como mobilizar as pessoas → onde a IA pode ajudar?

➔ Ainda há muito a entender sobre os prós e contras do impacto da IA nos diversos desafios sociais e políticos da crise climática.

➔ Como podemos moldar a tecnologia pela forma como a usamos (ou não)?

➔ A pesquisa climática, sobretudo nas ciências sociais, enfrenta ventos políticos contrários...

Como manter as ciências sociais no debate? Sobre a mudança climática, sobre a IA e sobre a interseção entre elas?

Pontos de ação!

➔ Avalie com cuidado os pontos fortes e fracos das ferramentas de IA para poder usá-las de forma responsável.

- Trate-a como qualquer outra ferramenta ou método.
- Mantenha o foco no “prego” (objetivo), não no “martelo” (ferramenta).

➔ Faça perguntas sobre as aplicações de IA.

- Quais são os dados de treinamento? Que vieses preciso conhecer? Como posso mitigá-los?
- O custo justifica o ganho de desempenho?
- Existem modelos de código aberto? Eles dariam conta?

➔ Resista à tendência de aplicar LLMs sem validação: crie a norma de incluir estratégias e práticas de validação em toda aplicação.

➔ Pense (e fale!) de forma criativa e crítica sobre como otimizar o trabalho humano-IA. Mantenha o humano no circuito!

As ciências sociais são uma base essencial para construir a ação climática rumo à descarbonização.

➔ Diagnosticar barreiras e encontrar soluções para obter apoio social e político

crucial entre as partes interessadas → necessário para a adoção de avanços tecnológicos.

➔ A IA pode acelerar parte desse processo, mas deve ser usada com sabedoria, não indiscriminadamente.

Obrigado pela atenção.