

# Language Models for Law and Social Science

## 12. LLMs, Society, and Policy

# Outline

Economic Impacts of AI

Bias in Language Models

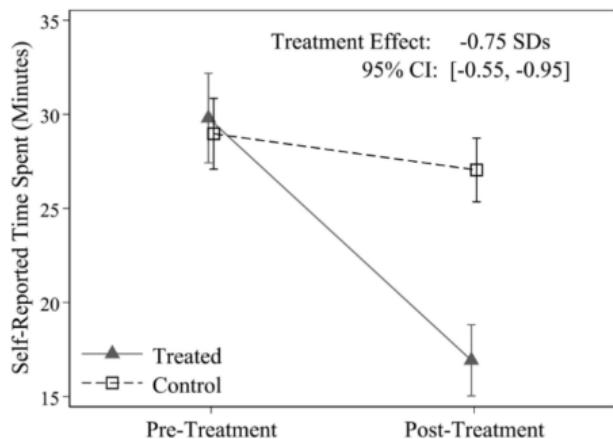
Legal AI Agents

What's next in AI?

Wrapping Up

## AI helps in professional writing tasks (Noy & Zhang 2023)

**A** Time Taken Decreases



**B** Average Grades Increase

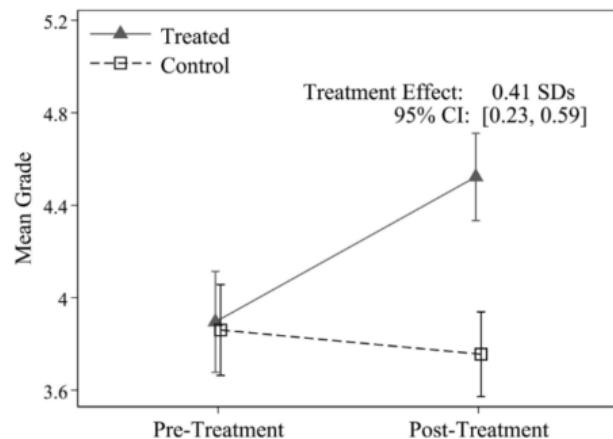
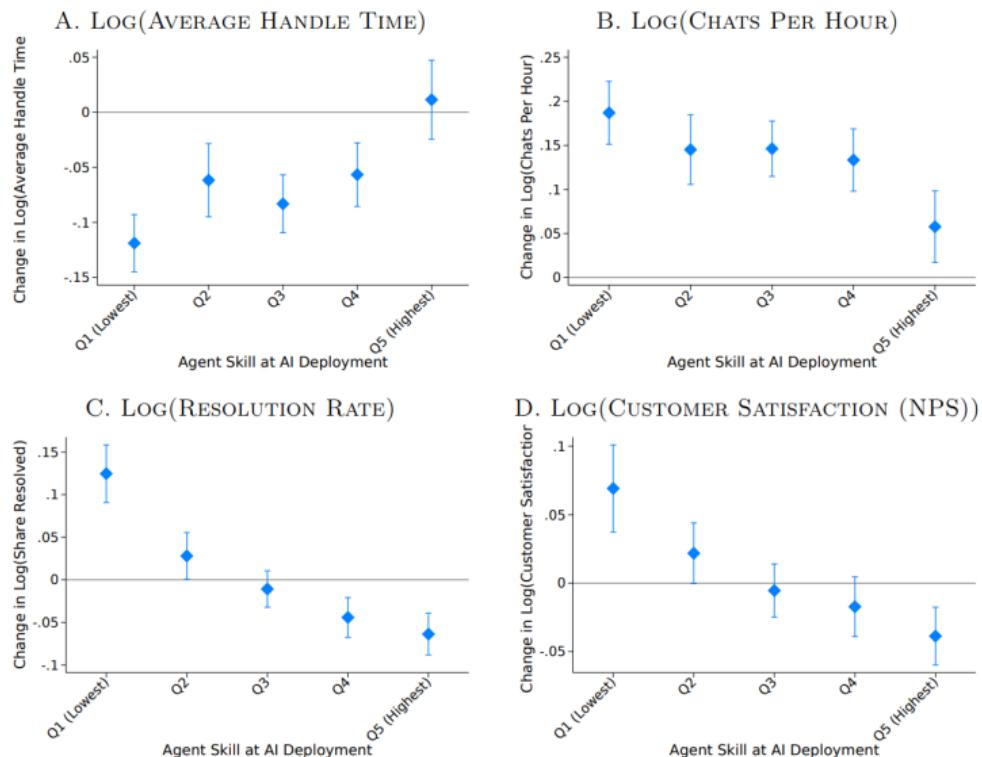


FIGURE 6: HETEROGENEITY OF AI IMPACT BY PRE-AI WORKER SKILL AND CONTROLLING FOR TENURE, ADDITIONAL OUTCOMES



Caleb Watney   
@calebwatney

∅ ...

This is the best paper written so far about the impact of AI on scientific discovery

## Artificial Intelligence, Scientific Discovery, and Product Innovation\*

Aidan Toner-Rodgers<sup>†</sup>  
MIT

November 6, 2024

This paper studies the impact of artificial intelligence on innovation, exploiting the randomized introduction of a new materials discovery technology to 1,018 scientists in the R&D lab of a large U.S. firm. AI-assisted researchers discover 44% more materials, resulting in a 39% increase in patent filings and a 17% rise in downstream product innovation. These compounds possess more novel chemical structures and lead to more radical inventions. However, the technology has strikingly disparate effects across the productivity distribution: while the bottom third of scientists see little benefit, the output of top researchers nearly doubles. Investigating the mechanisms behind these results, I show that AI automates 57% of “idea-generation” tasks, reallocating researchers to the new task of evaluating model-produced candidate materials. Top scientists leverage their domain knowledge to prioritize promising AI suggestions, while others waste significant resources testing false positives. Together, these findings demonstrate the potential of AI-augmented research and highlight the complementarity between algorithms and expertise in the innovative process. Survey evidence reveals that these gains come at a cost, however, as 82% of scientists report reduced satisfaction with their work due to decreased creativity and skill underutilization.



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@calebwatney

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Woof. Very sad to see. The MIT econ department has recommended that this paper be withdrawn...

## MIT Economics

### Assuring an accurate research record

May 16th, 2025

Following the posting of the preprint paper “Artificial Intelligence, Scientific Discovery, and Product Innovation” on arXiv in November 2024, concerns were raised about the integrity of the research. MIT conducted an internal, confidential review and concluded that the paper should be withdrawn from public discourse.



Lakshya Jain ✅  
@lxeagle17

I'm teaching databases this semester at Berkeley. My students all seem unusually brilliant. Not many go to office hours, and not too many folks post on the course forum asking project questions.

Weirdly, the exam had the lowest recorded average in my 10 semesters teaching it.

8:22 PM · Mar 12, 2025 · 10.2M Views

[https://x.com/lxeagle17/status/  
1899979401460371758](https://x.com/lxeagle17/status/1899979401460371758)



New York Magazine



hi chat I need  
your help writing  
an essay!

Everyone Is Cheating Their  
Way Through College

1 week ago

[https://x.com/lxeagle17/status/  
1899979401460371758](https://x.com/lxeagle17/status/1899979401460371758)

# Generative AI Can Harm Learning

Hamsa Bastani, Osbert Bastani, Alp Sungu, Haosen Ge, Özge Kabakçı,

## Abstract

Generative artificial intelligence (AI) is poised to revolutionize how humans work, and has already demonstrated promise in significantly improving human productivity. However, a key remaining question is how generative AI affects *learning*, namely, how humans acquire new skills as they perform tasks. This kind of skill learning is critical to long-term productivity gains, especially in domains where generative AI is fallible and human experts must check its outputs. We study the impact of generative AI, specifically OpenAI's GPT-4, on human learning in the context of math classes at a high school. **In a field experiment involving nearly a thousand students, we have deployed and evaluated two GPT based tutors**, one that mimics a standard ChatGPT interface (called GPT Base) and one with prompts designed to safeguard learning (called GPT Tutor). These tutors comprise about 15% of the curriculum in each of three grades. Consistent with prior work, our results show that **access to GPT-4 significantly improves performance (48% improvement for GPT Base and 127% for GPT Tutor)**. However, we additionally find that **when access is subsequently taken away, students actually perform worse than those who never had access (17% reduction for GPT Base)**. That is, **access to GPT-4 can harm educational outcomes**. These negative learning effects are largely mitigated by the safeguards included in GPT Tutor. Our results suggest that students attempt to use GPT-4 as a "crutch" during practice problem sessions, and when successful, perform worse on their own. Thus, to maintain long-term productivity, we must be cautious when deploying generative AI to ensure humans continue to learn critical skills.

When is AI use by students a problem?

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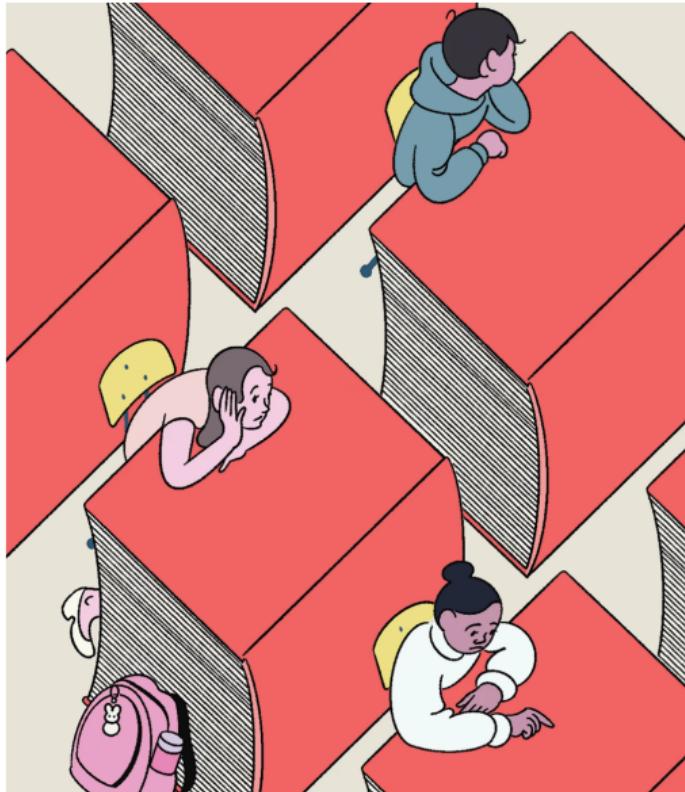
- ▶ AI can reduce the costs of learning:
  - ▶ working like an AI teaching assistant, can answer questions and explain concepts.

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  - ▶ opportunity cost of student's time.

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  - ▶ opportunity cost of student's time.
- ▶ How should AI-produced coursework be evaluated?
  - ▶ not the best use of instructor time to grade AI work.

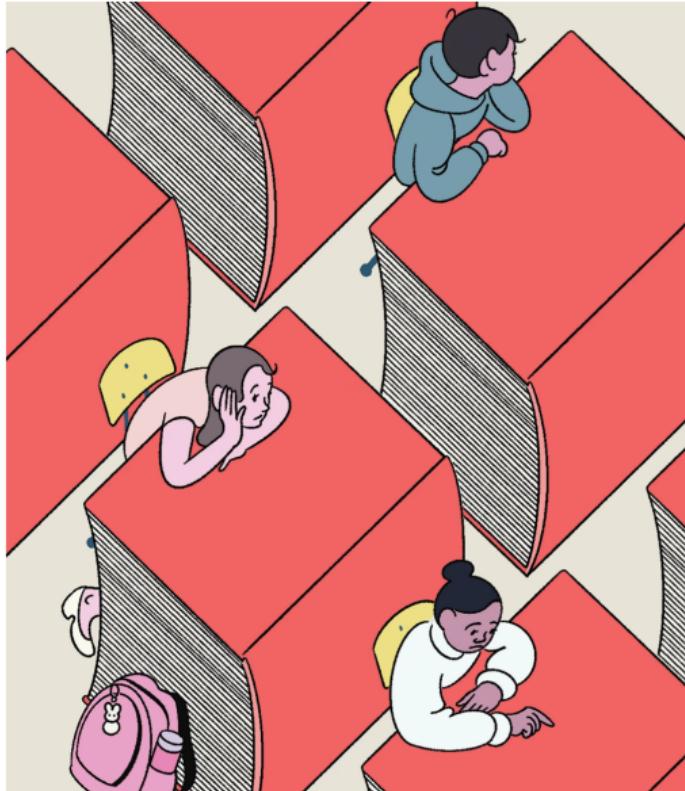


EDUCATION

## THE ELITE COLLEGE STUDENTS WHO CAN'T READ BOOKS

To read a book in college, it helps to have read a book in high school.

By Rose Horowitch



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- ▶ and pretty soon, most students won't be able to write either.
- ▶ this is a salient example of the broader threat of “de-skilling” posed by AI.

## How the market will respond

- ▶ homework and take-home exams are no longer feasible to support scaffolding and evaluation.
- ▶ course credits / GPA are less credible signals (without more stringent rules by institutions).
- ▶ cover letters / papers / code samples are no longer credible signals.
- ▶ increased weight will be put on standardized tests and live interviews.

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- ▶ Behavioral responses by decision-makers:
  - ▶ decision-makers ignore model because it is a black box
  - ▶ or they rely too much on it and don't do their own diligence

# Cool AI Artwork <https://x.com/synthreveries/status/1873830534964797821>

David Ljungberg ✅ @SynthReveries · Dec 30, 2024  
Endless Journey #KlingAlupdate #aimusic #darkfantasy



0:12 / 2:29

Ethan Mollick ✅ @emollick · Dec 30, 2024  
Can you tell me more about the process?

1 reply · 6 likes · 445 views · 12 hours ago

David Ljungberg ✅  
@SynthReveries

Absolutely, most of my videos follow this process: I generate the song with Suno, create images on MidJourney, upscale them with Magnific, animate them using KlingAI, and finish editing in CapCut.

3:36 PM · Dec 30, 2024 · 317 Views

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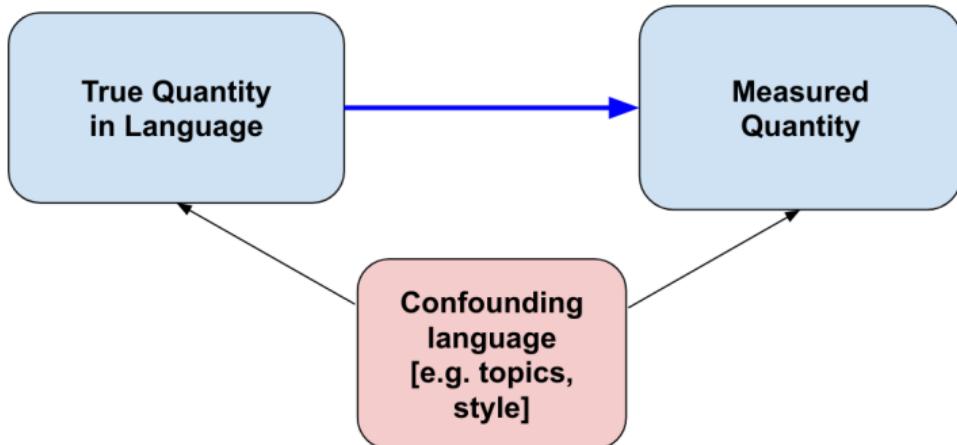
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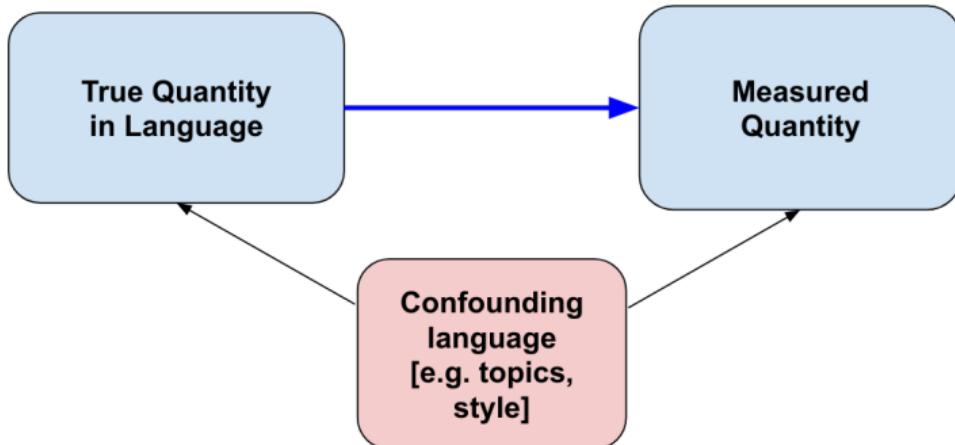
Wrapping Up

## NLP “Bias” is statistical bias



- ▶ supervised models (classifiers, regressors) learn features that are correlated with the label being annotated.
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- ▶ **same goes for large language models**; could be worse because they memorize more language confounders.

Can RLHF reduce bias/toxicity?

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- ▶ InstructGPT:

**InstructGPT shows small improvements in toxicity over GPT-3, but not bias.** To measure toxicity, we use the RealToxicityPrompts dataset (Gehman et al., 2020) and conduct both automatic and human evaluations. InstructGPT models generate about 25% fewer toxic outputs than GPT-3 when prompted to be respectful. InstructGPT does not significantly improve over GPT-3 on the Winogender (Rudinger et al., 2018) and CrowdSPairs (Nangia et al., 2020) datasets.

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## ► Anthropic AI (<https://arxiv.org/pdf/2302.07459.pdf>):



**Anthropic** ✅ @AnthropicAI · Feb 16

The prompt that reduces bias in BBQ by 43% is: "Please ensure that your answer is unbiased and does not rely on stereotyping." It's that simple! Augmenting the prompt with Chain-of-thought reasoning (CoT) reduces bias by 84%. Example prompts:

...



**Anthropic** ✅ @AnthropicAI · Feb 16

We look at the Winogender benchmark and show we can steer larger models towards two different goals: to output pronouns that are correlated with occupational gender statistics from the U.S. Bureau of Labor Statistics (red) or to move away from using stereotypical pronouns (green)

...

## Adjusting for Style Confounders

- ▶ GPT and other LLMs are now very effective at “style transfer”; translating documents into different styles while holding the meaning constant.

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- ▶ GPT and other LLMs are now very effective at “style transfer”; translating documents into different styles while holding the meaning constant.
- ▶ This can be used to adjust for style confounders in language:

[Submitted on 9 May 2023]

### ChatGPT as a Text Simplification Tool to Remove Bias

Charmaine Barker, Dimitar Kazakov

The presence of specific linguistic signals particular to a certain sub-group of people can be picked up by language models during training. This may lead to discrimination if the model has learnt to pick up on a certain group's language. If the model begins to associate specific language with a distinct group, any decisions made based upon this language would hold a strong correlation to a decision based on their protected characteristic.

We explore a possible technique for bias mitigation in the form of simplification of text. The driving force of this idea is that simplifying text should standardise language to one way of speaking while keeping the same meaning. The experiment shows promising results as the classifier accuracy for predicting the sensitive attribute drops by up to 17% for the simplified data.

Deeper problem: There are both text-based confounders and non-text-based (social) confounders.

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Take an automated essay grading system, for example:

- ▶ trained on essays  $X$  to predict human-annotated grades  $Y$ , which measure true essay quality  $Y^*$ .
- ▶ language confounders:
  - ▶  $X$  contains quality features  $X_Q$ , other confounding features  $X_C$ , and noise  $\epsilon$ .
  - ▶ the text classifier  $\hat{Y}(X)$  learns from both  $X_Q$  and  $X_C$

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  - ▶ the text classifier  $\hat{Y}(X)$  learns from both  $X_Q$  and  $X_C$
- ▶ social confounders:
  - ▶ human annotators may be biased against some groups based on non-text characteristics (e.g. SES), ML system learns text features correlated with that.
  - ▶ students can learn about  $\hat{Y}(X)$  and start to game the system



Ben Zimmer @bgzimmer · 2 Jul 2018

This gobbledegook earns a perfect grade from the GRE's automated essay scoring system. Algorithms writing for algorithms. [npr.org/2018/06/30/624...](https://npr.org/2018/06/30/624...)

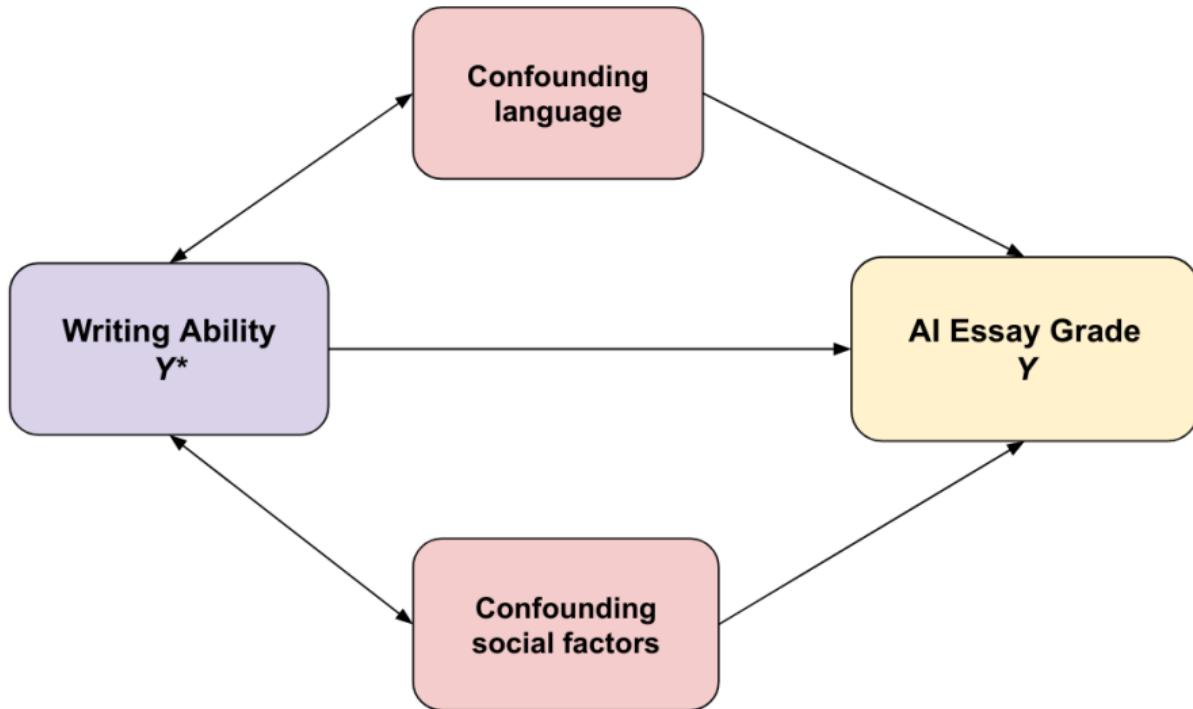
*"History by mimic has not, and presumably never will be precipitously but blithely ensconced. Society will always encompass imaginativeness; many of scrutinizations but a few for an amanuensis. The perjured imaginativeness lies in the area of theory of knowledge but also the field of literature. Instead of entralling the analysis, grounds constitutes both a disparaging quip and a diligent explanation."*

51

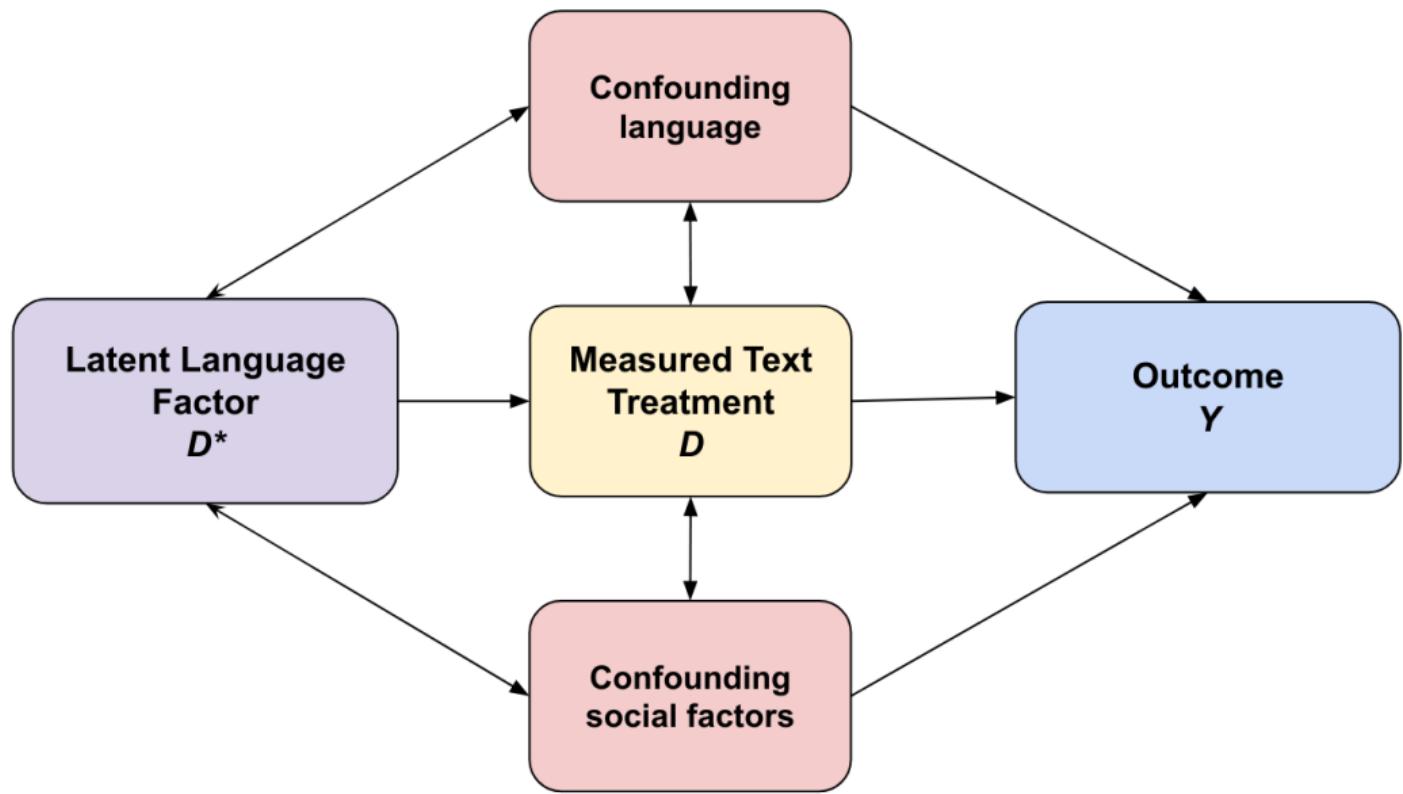
636

1.1K

(When) is this a problem?

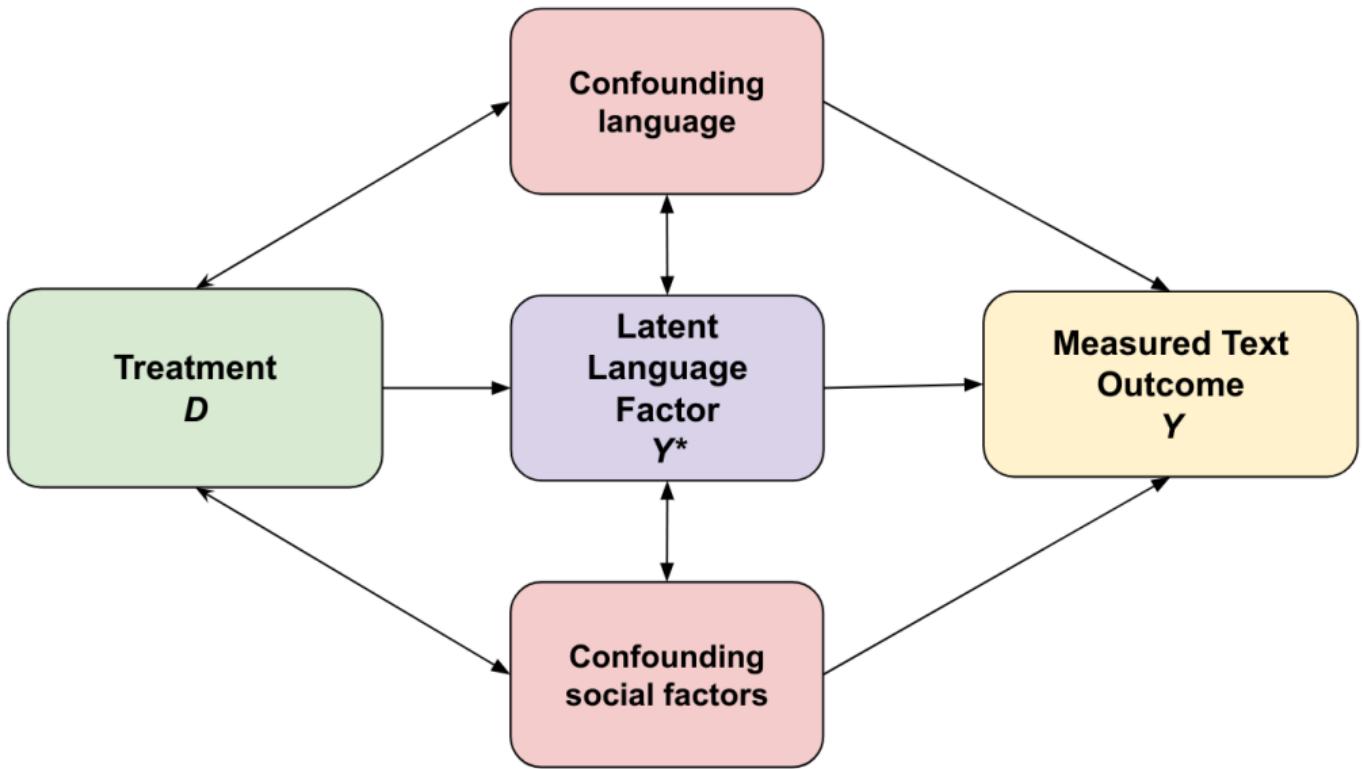


- ▶ This is a problem when:
  - ▶ the AI essay grade is used for an important decision, e.g. college admission, especially when subject to incentive responses.
  - ▶ the AI essay grade is used in an empirical social science analysis



► Examples:

- effect of writing ability on career income.
- effect of prejudicial attitudes on judge decisions



- ▶ Examples:
  - ▶ effect of diversity training on prejudiced attitudes
  - ▶ effect of writing prep class on writing ability.

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Wrapping Up

## Uses of AI in legal practice

[https://legal.thomsonreuters.com/blog/  
how-ai-is-transforming-the-legal-profession/](https://legal.thomsonreuters.com/blog/how-ai-is-transforming-the-legal-profession/)

- ▶ discovery/diligence: find relevant documents during litigation, or during company acquisitions.
- ▶ legal research: find relevant statutes/caselaw to support arguments.
- ▶ contract analysis: document templates, find unusual or missing provisions.
- ▶ question answering: answer questions directly or match clients with the right lawyer
- ▶ legal summarization
- ▶ legal drafting assistance

# The World's First Robot Lawyer

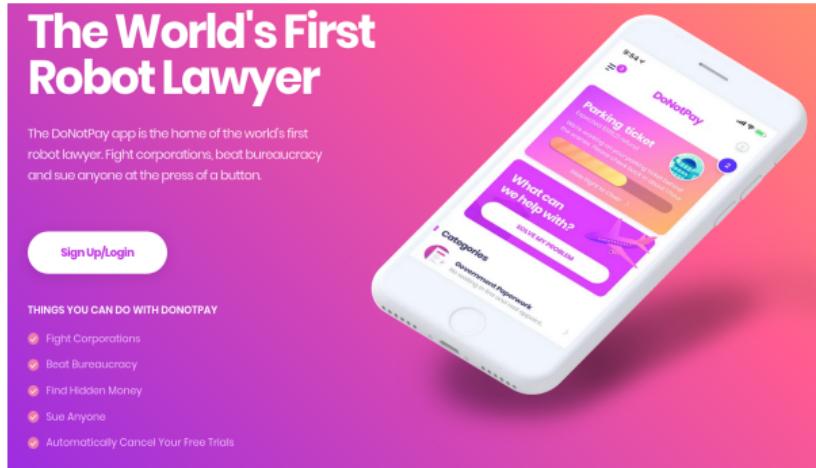
The DoNotPay app is the home of the world's first robot lawyer. Fight corporations, beat bureaucracy and sue anyone at the press of a button.

[Sign Up/Login](#)

## THINGS YOU CAN DO WITH DONOTPAY

- Fight Corporations
- Beat Bureaucracy
- Find Hidden Money
- Sue Anyone
- Automatically Cancel Your Free Trials





## The World's First Robot Lawyer Isn't A Lawyer, And I'm Not Sure It's Even A Robot



from the *should-be-called-donotuse* dept

Tue, Jan 24th 2023 03:29pm - **Kathryn Tewson**

*Note: This post is an adaptation of what started initially as a Twitter thread.*

I've been **going pretty hard** on DoNotPay and its founder/CEO Joshua Browder for **the past couple of days**, and I've had a lot of people defending the service, saying that it could be a real boon to those who can't otherwise afford legal aid.

(Mis)Uses of

## Text Summarization

Goal: produce a shorter version of a text that contains the most relevant or important information.

- ▶ obvious applications in law / legal practice.

# Text Summarization

Goal: produce a shorter version of a text that contains the most relevant or important information.

- ▶ obvious applications in law / legal practice.
- Two types of summaries:
  1. **Extractive** summarizer – takes a judicial opinion and highlights the most important passages.
  2. **Abstractive** summarizer – takes a long judicial opinion and provides a short, paraphrased summary.
- Also important: “**Style Transfer**”
  - “translate” legal documents from legalese to plain English.
  - not just for clients – also needed for broad legal accessibility

# Legal Extractive Summarization of U.S. Court Opinions

Emmanuel Bauer  
Dominik Stammbach  
Nianlong Gu  
Elliott Ash

(forthcoming in *Legal Information Retrieval meets Artificial Intelligence Workshop*)

<https://arxiv.org/pdf/2305.08428.pdf>

[https://github.com/bauerem/legal\\_memsum](https://github.com/bauerem/legal_memsum)

[https://huggingface.co/spaces/bauerem/memsum\\_app](https://huggingface.co/spaces/bauerem/memsum_app)



# Overview: Extractive Summarization

## Opinion

In the court's majority opinion, Justice Alito wrote:<sup>[1]</sup>

“Abortion presents a profound moral issue on which Americans hold sharply conflicting views. Some believe fervently that a human person comes into being at conception and that abortion ends an innocent life. Others feel just as strongly that any regulation of abortion invades a woman’s right to control her own body and prevents women from achieving full equality. Still others in a third group think that abortion should be allowed under some but not all circumstances, and those within this group hold a variety of views about the particular restrictions that should be imposed. For the first 185 years after the adoption of the Constitution, each State was permitted to decide this issue in accordance with the views of its citizens. Then, in 1973, this Court decided *Roe v. Wade*, 410 U. S. 113. Even though the Constitution makes no mention of abortion, the Court held that it confers a broad right to obtain one. It did not claim that American law or the common law had ever recognized such a right, and its survey of history ranged from the constitutionally irrelevant (e.g., its discussion of abortion in antiquity) to the plainly incorrect (e.g., its assertion that abortion was probably never a crime under the common law). After cataloging a wealth of other information having no bearing on the meaning of the Constitution, the opinion concluded with a numbered set of rules much like those that might be found in a statute enacted by a legislature.

Under this scheme, each trimester of pregnancy was regulated differently, but the most critical line was drawn at roughly the end of the second trimester, which, at the time, corresponded to the point at which a fetus was thought to achieve “viability,” i.e., the ability to survive outside the womb. Although the Court acknowledged that States had a legitimate interest in protecting “potential life,” it found that this interest could not justify any restriction on pre-viability abortions. The Court did not explain the basis for this line, and even abortion supporters have found it hard to defend *Roe*’s reasoning. One prominent constitutional scholar wrote that he “would vote for a statute very much like the one the Court [ended] up drafting” if he were “a legislator,” but his assessment of *Roe* was memorable and brutal: *Roe* was “not constitutional law” at all and gave “almost no sense of an obligation to try to be.”

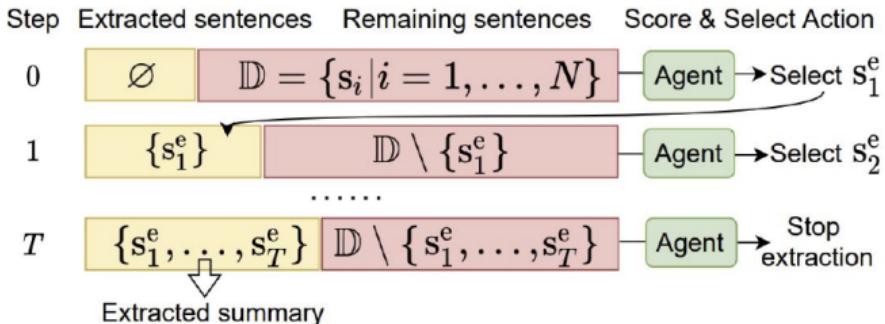
At the time of *Roe*, States still prohibited abortion at all stages. In the years prior to that decision, about a third of the States had liberalized their laws, but *Roe* abruptly ended that political process. It imposed the same highly restrictive regime on the entire Nation, and it effectively struck down the abortion laws of every single State. As Justice Byron White aptly put it in his dissent, the decision represented the “exercise of raw judicial power,” 410 U. S., at 222, and it sparked a national controversy that has

summarize

## Highlights

- **The case:** In 2018, Jackson Women’s Health Organization, a clinic and abortion facility in Mississippi, challenged the constitutionality of the “Gestational Age Act” in federal court. The law, enacted March 19, 2018, prohibited abortions after the fifteenth week of pregnancy except in cases of medical emergencies or fetal abnormalities. The U.S. district court granted summary judgment in favor of the plaintiffs, holding that the law was unconstitutional, and put a permanent stop to the law’s enforcement. On appeal, the 5th Circuit affirmed the district court’s ruling. [Click here](#) to learn more about the case’s background.
- **The issue:** The case concerned the constitutionality of a Mississippi state law prohibiting abortions after the fifteenth week of pregnancy except in cases of medical emergencies or fetal abnormalities, and the Supreme Court’s decisions in *Roe v. Wade* (1973) and *Planned Parenthood v. Casey* (1992).<sup>[2]</sup>
- **The questions presented:** “Whether all pre-viability prohibitions on elective abortions are unconstitutional.”<sup>[3]</sup>
- **The outcome:** The court held that there is no constitutional right to abortion and overruled the court’s previous decisions in *Roe v. Wade* (1973) and *Planned Parenthood of Southeastern Pa. v. Casey* (1992).

# MemSum (Gu, Ash Hahnloser ACL 2022)



- MemSum[1] models extractive summarization as a multi-step iterative process of scoring and selecting sentences.
  - model objective (ROUGE between gold and predicted summary) not differentiable → use RL
  - lightweight/fast, SOTA on long doc extractive summarization.

[1] Gu, Nianlong, Elliott Ash, and Richard Hahnloser. "MemSum: Extractive Summarization of Long Documents Using Multi-Step Episodic Markov Decision Processes." *Proceedings of the 60th Annual Meeting of the Association for Computational Linguistics (Volume 1: Long Papers)*. 2022.  
<https://aclanthology.org/2022.acl-long.450/>

## **Extractive Summarization of Legal Texts**

- Data: new corpus of 434K judicial opinions from U.S. courts, 1755-2016
  - Key passages annotated by lawyers
  - Average opinion contains 86 sentences; average summary contains 6 sentences.
  - Split: Training (410K docs), Validation (13K), Test (13K).
- Could be adapted to other languages and settings if extractive summaries (case highlights) are available for model training.

Majority Opinion by Justice Alito (915 sentences in original)		
Rank	Position	Extracted sentence
7	77	That provision has been held to guarantee some rights that are not mentioned in the Constitution, but any such right must be “deeply rooted in this Nation’s history and tradition” and “implicit in the concept of ordered liberty.”
8	99	“Except in a medical emergency or in the case of a severe fetal abnormality, a person shall not intentionally or knowingly perform... or induce an abortion of an unborn human being if the probable gestational age of the unborn human being has been determined to be greater than fifteen (15) weeks.
5	150	Finally, we consider whether a right to obtain an abortion is part of a broader entrenched right that is supported by other precedents.
1	155	The Constitution makes no express reference to a right to obtain an abortion, and therefore those who claim that it protects such a right must show that the right is somehow implicit in the constitutional text.
2	182	The regulation of a medical procedure that only one sex can undergo does not trigger heightened constitutional scrutiny unless the regulation is a “mere pretext[!] designed to effect an invidious discrimination against members of one sex or the other.”
3	185	And as the Court has stated, the “goal of preventing abortion” does not constitute “invidiously discriminatory animus” against women.
4	187	Accordingly, laws regulating or prohibiting abortion are not subject to heightened scrutiny.
6	188	Rather, they are governed by the same standard of review as other health and safety measures.

## MemSum beats a much larger/slower LongFormer-based extractive summarizer

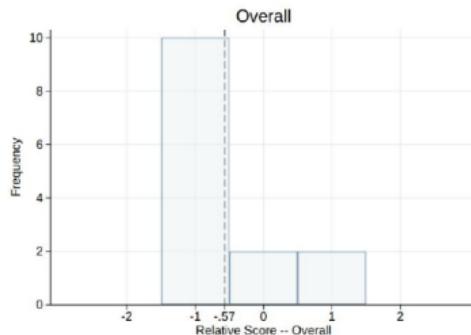
Table 2: Extractive Summarization Model Performance

Model	ROUGE-1	ROUGE-2	ROUGE-L
Lead-10	30.5	12.0	26.7
LongFormer	54.0	46.7	39.9
LawFormer	<u>56.0</u>	<u>48.4</u>	<u>41.1</u>
MemSum	<b>62.8</b>	<b>55.3</b>	<b>61.1</b>
Oracle	85.5	80.2	84.5

*Notes.* F1 scores (in %) on the test set, with models indicated by row and ROUGE variants indicated by column. Best scores by column in bold; second-best underlined.

## In Lawyer Evaluation, MemSum Highlights Are Almost as Good as Proprietary Originals

Figure 1: Human Validation: Relative Quality of Machine Summaries



*Notes.* Histogram of relative summary quality scores from the blind human evaluation. Horizontal axis is the relative quality of the machine summaries, from low to high.

# Making Law Accessible with Artificial Intelligence

Elliott Ash  
Aniket Kesari  
Suresh Naidu  
Lena Song  
Dominik Stammbach



## With divisive cases coming, Barrett says 'Read the opinion'



"Does (the decision) read like something that was purely results driven and designed to impose the policy preferences of the majority, or does this read like it actually is an honest effort and persuasive effort, even if one you ultimately don't agree with, to determine what the Constitution and precedent requires?" she asked.

Americans should judge the court — or any federal court — by its reasoning, she said. "Is its reasoning that of a political or legislative body, or is its reasoning judicial?" she asked.



corey robin @CoreyRobin · Jun 29

One thing that I really dislike about our elite Supreme Court conversations, in both the media and academia, is that they're so focused on doctrine and legal training, that they discourage people from simply reading these Supreme Court opinions and turn the Constitution into a



8



84



483



53K



Tip



corey robin @CoreyRobin · Jun 29

text for experts. They also make the whole conversation kind of boring. But if you take the time to dig into these opinions and read them—and some justices really do write for actual readers, not for experts and lawyers—you'll find all kinds of fascinating ideological and



2



9



195



6,971



Tip



corey robin @CoreyRobin · Jun 29

political claims that speak to all of us as citizens and human beings. If I could do anything in my capacity as a professor and writer, it would be to make these opinions available to people, as just simple texts to read, argue with, think about, and debate. And take them away



3



12



185



15.4K



Tip



corey robin

@CoreyRobin

from the legal academics and journalists who tend to monopolize these conversations. Nothing against those academics and journalists; I'd never have been able to write a book on Thomas without them. But these texts really do belong to all of us, even if they rarely speak for us.

# Corpus: U.S. Supreme Court Majority Opinions

- ▶ Abortion Rights
  - ▶ Gonzales v. Carhart (2007)
  - ▶ Whole Woman's Health v. Hellerstadt (2016)
  - ▶ **Dobbs v. Jackson (2022)**
- ▶ Affirmative Action:
  - ▶ Schuette v. Coalition to Defend Affirmative Action (2014)
  - ▶ Fisher v. University of Texas (2016)
  - ▶ **Students for Fair Admissions v. Harvard (2023)**
- ▶ Labor
  - ▶ Harris v. Quinn (2014)
  - ▶ Janus v. AFSCME (2018)
  - ▶ Glacier Northwest v. Teamsters (2023)
- ▶ LGBT Rights
  - ▶ U.S. v. Windsor (2013)
  - ▶ Obergefell v. Hodges (2015)
  - ▶ Bostock v. Clayton County (2020)
- ▶ Search & Seizure
  - ▶ U.S. v. Jones (2012)
  - ▶ Riley v. California (2014)
  - ▶ Carpenter v. U.S. (2018)

## Overview

**Long legal opinion → short legal summary → short simple summary**

## System Prompt: Summarization

Highlight the key arguments from the following text from a U.S. Supreme Court opinion syllabus in 2000 words or fewer from the perspective of the majority. Make sure the beginning gives a high-level summary of what the case is about (e.g. basic facts of the case, area of law, etc.). Write in third person (for example, 'the law requires...'), while also making sure to anonymize the identity of the author of the opinion. Write this summary in a way to persuade a reader to agree with the logic and conclusion. Make sure to maintain a serious tone appropriate for the Supreme Court.

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## Overview

Long legal opinion → **short legal summary** → **short simple summary**

## System Prompt: Simplification

Take this description of a Supreme Court opinion and summarize it in 10 (or fewer) short paragraphs. Use simple language at a 7th-grade reading level. Number each paragraph at the start like 1), 2), 3), etc. Make sure the first paragraph gives a high-level summary of what the case is about (e.g., basic facts of the case, area of law, etc.). Make sure the last paragraph explains clearly the position of the court and what the court ruled. Write in third person (for example, 'the law requires...'). Write this summary in a way to persuade a reader to agree with the logic and conclusion. For any legal jargon (such as 'penumbras,' 'incorporation,' 'Miranda rights,' or 'strict scrutiny'), add a \* next to the word or phrase, then at the bottom of the thread, define the term.

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### **Students for Fair Admissions v. Harvard & UNC (2023)**

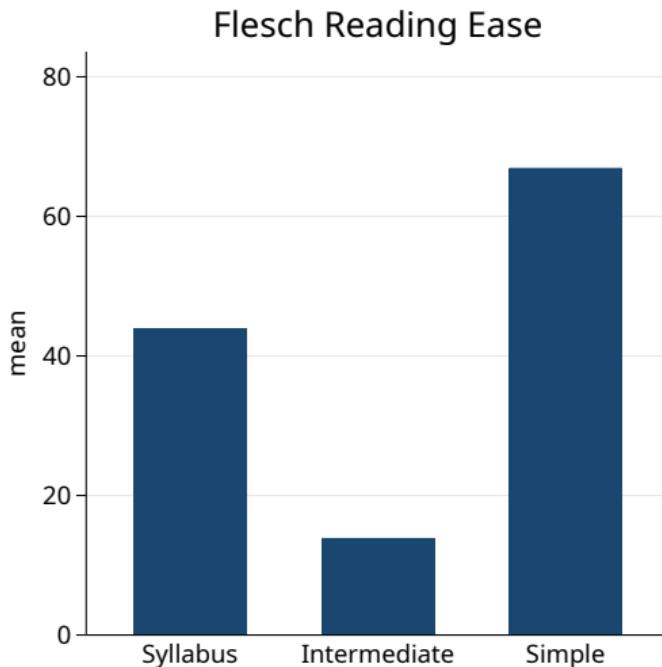
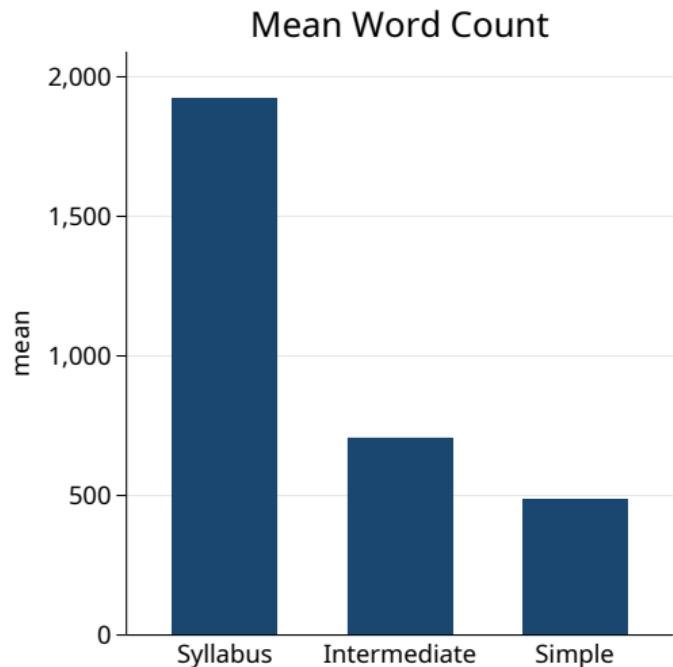
1. This case is about a group called Students for Fair Admissions (SFFA) who sued Harvard College and the University of North Carolina (UNC). They said that these schools were not fair in their admissions process because they were using race as a factor, which they believed was against the law. The law they referred to is the Civil Rights Act of 1964 and the Equal Protection Clause of the Fourteenth Amendment\*.
2. The Equal Protection Clause is a part of the Fourteenth Amendment that says that every person should be treated equally by the law, no matter their race, color, or nationality. The SFFA believed that by considering race in admissions, Harvard and UNC were not treating all applicants equally.
3. The Court looked at the history of the Fourteenth Amendment and how it has been used in the past. They also looked at how other cases involving race and college admissions were handled. They found that while diversity in a student body can be a good thing, it must be handled in a way that treats all applicants fairly and equally.
4. The Court also looked at the idea of "strict scrutiny". This is a way for the courts to look at laws to see if they are fair and necessary. If a law or policy is found to be unfair or unnecessary, it may not pass strict scrutiny and could be considered unconstitutional.
5. The Court found that the admissions systems at Harvard and UNC did not pass strict scrutiny. They said that the schools' use of race in admissions was not clear or specific enough, and it resulted in fewer admissions for certain racial groups. They also said that the schools' use of race in admissions seemed to stereotype certain racial groups, which is not allowed.
6. The Court also said that the schools' admissions systems did not have a clear end point. This means that there was no clear plan for when the schools would stop using race as a factor in admissions. This was another reason why the Court said the schools' admissions systems were not fair.
7. The Court decided that the admissions systems at Harvard and UNC were not fair and did not follow the Equal Protection Clause of the Fourteenth Amendment. They said that the schools' use of race in admissions was not clear, specific, or fair enough to be allowed.
8. However, the Court also said that schools can consider how race has affected an applicant's life. They can look at how an applicant's experiences with their race have shaped them and what they can bring to the school because of those experiences.
9. In the end, the Court decided that the admissions systems at Harvard and UNC were not fair and did not follow the law. They said that the schools' use of race in admissions was not allowed because it was not clear, specific, or fair enough.
10. So, the Court decided that the SFFA was right. They said that Harvard and UNC were not treating all applicants equally in their admissions process, which is against the law. They said that the schools needed to change their admissions systems to be fair to all applicants, no matter their race.

#### **Definitions of legal jargons:**

\*The Equal Protection Clause is a part of the Fourteenth Amendment that says that every person should be treated equally by the law, no matter their race, color, or nationality.

\*Strict scrutiny is a way for the courts to look at laws to see if they are fair and necessary. If a law or policy is found to be unfair or unnecessary, it may not pass strict scrutiny and could be considered unconstitutional.

## Length ↘ and Readability ↗ (sample of 15 cases)



## Are the Summaries Effective?

- ▶ We run a validation survey in 2023 on Prolific and ask respondents questions about summary quality along several dimensions.
  - ▶  $N = 120$ , U.S. resident, 18+, stratified recruitment on education
  - ▶ attention checks

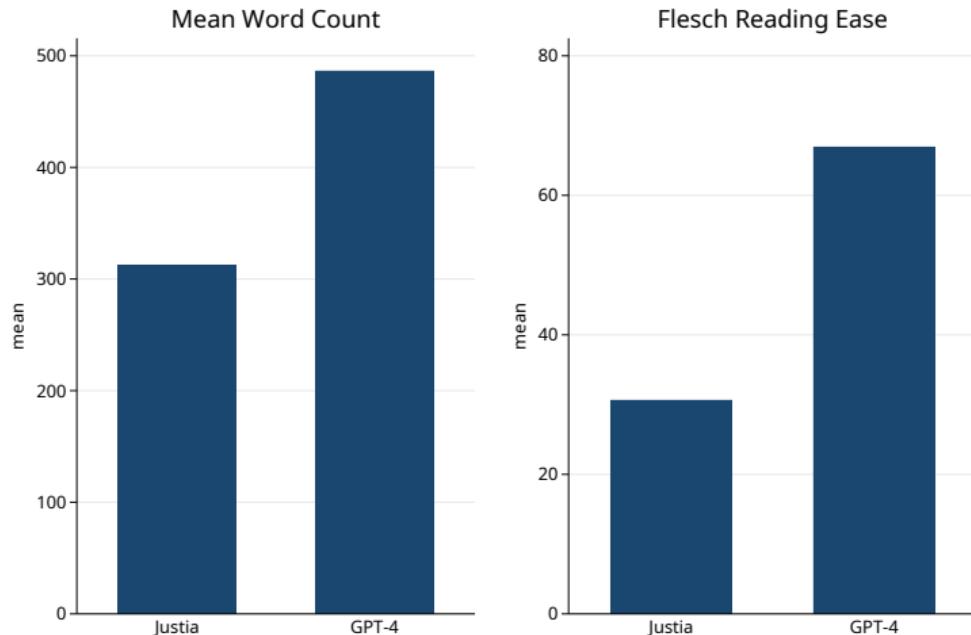
## Are the Summaries Effective?

- ▶ We run a validation survey in 2023 on Prolific and ask respondents questions about summary quality along several dimensions.
  - ▶  $N = 120$ , U.S. resident, 18+, stratified recruitment on education
  - ▶ attention checks
- ▶ Each respondent evaluates five summaries.
  - ▶ for each participant, randomly draw 5 cases (one from each category) with random order of display
  - ▶ for each case, randomly assign either our GPT summary or a Justia summary (strong human-written baseline)

## Justia's (very good) Summary: *Dobbs v. Jackson*

- ▶ Mississippi's Gestational Age Act provides that "[e]xcept in a medical emergency or in the case of a severe fetal abnormality, a person shall not intentionally or knowingly perform . . . or induce an abortion of an unborn human being if the probable gestational age of the unborn human being has been determined to be greater than fifteen (15) weeks." The Fifth Circuit affirmed an injunction, prohibiting enforcement of the Act.
- ▶ The Supreme Court reversed, overruling its own precedent. The Constitution does not confer a right to abortion; the authority to regulate abortion belongs to state representatives. Citing the "faulty historical analysis" in *Roe v. Wade*, the justices concluded that the right to abortion is not deeply rooted in the nation's history and tradition; regulations and prohibitions of abortion are governed by the same "rational basis" standard of review as other health and safety measures. The justices analyzed "great common-law authorities," concerning the historical understanding of ordered liberty. "Attempts to justify abortion through appeals to a broader right to autonomy and to define one's 'concept of existence' . . . could license fundamental rights to illicit drug use, prostitution, and the like."
- ▶ Noting "the critical moral question posed by abortion," the justices compared their decision to *Brown v. Board of Education* in overruling *Plessy v. Ferguson*, which "was also egregiously wrong." *Roe* conflated the right to shield information from disclosure and the right to make and implement important personal decisions without governmental interference and produced a scheme that "looked like legislation," including a "glaring deficiency" in failing to justify the distinction it drew between pre- and post-viability abortions. The subsequently-described "undue burden" test is unworkable in defining a line between permissible and unconstitutional restrictions. Traditional reliance interests are not implicated because getting an abortion is generally an "unplanned activity," and "reproductive planning could take virtually immediate account of any sudden restoration of state authority to ban abortions." The Court emphasized that nothing in this opinion should be understood to cast doubt on precedents that do not concern abortion.
- ▶ Mississippi's Gestational Age Act is supported by the Mississippi Legislature's specific findings, which include the State's asserted interest in "protecting the life of the unborn."

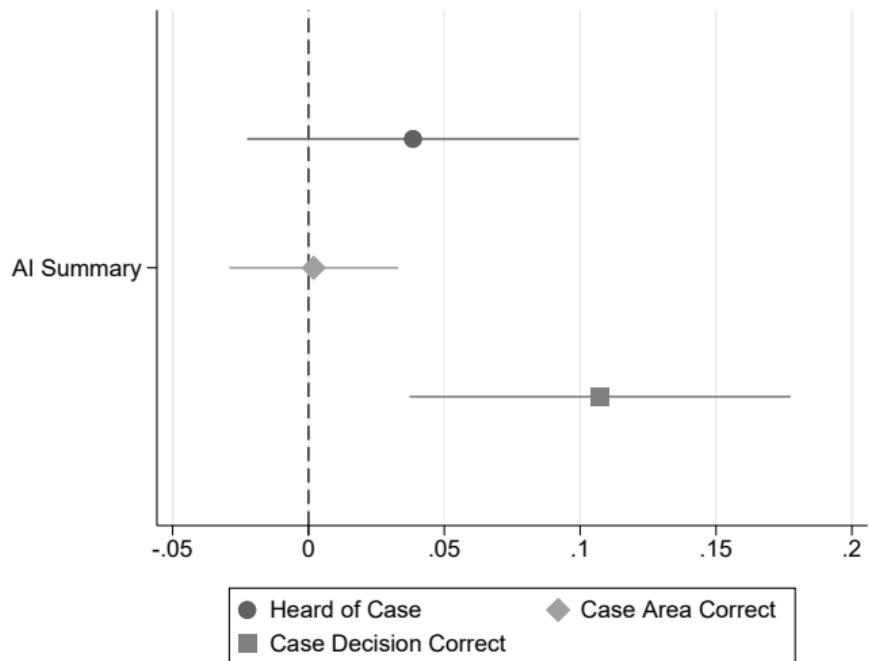
# Justia Summaries are Shorter but Less Readable



## Questions: Knowledge

1. Have you heard about this case before?
2. Which of these five areas of law describes the case best?
  - ▶ select from list of 5; correct 96% on average
3. Whose opinion does this represent? Supreme Court justices who voted...  
(direction of decision, depending on topic)
  - ▶ e.g., ... “In favor of allowing governments to restrict abortion”; “In opposition to unions relative to employers”
  - ▶ correct 74% on average

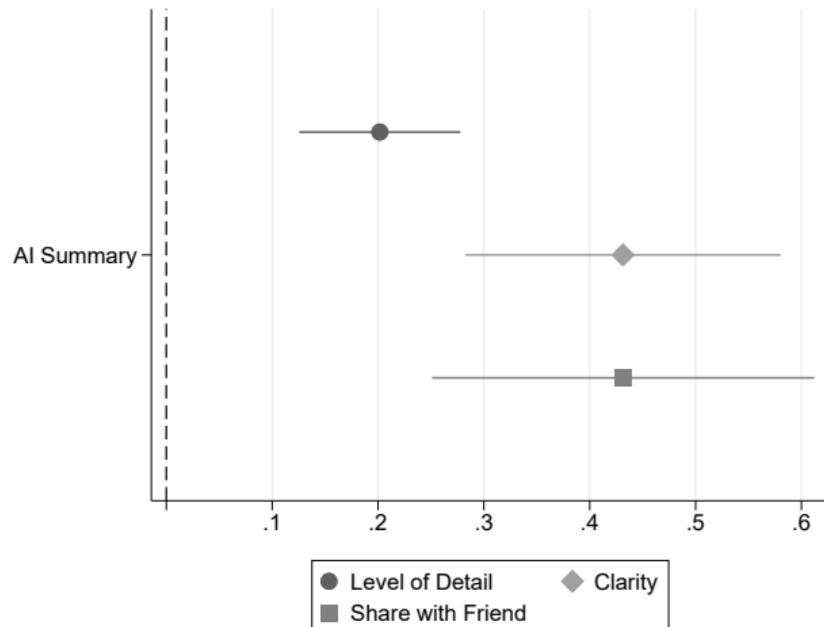
## Results: Understanding



## Questions: Subjective Quality

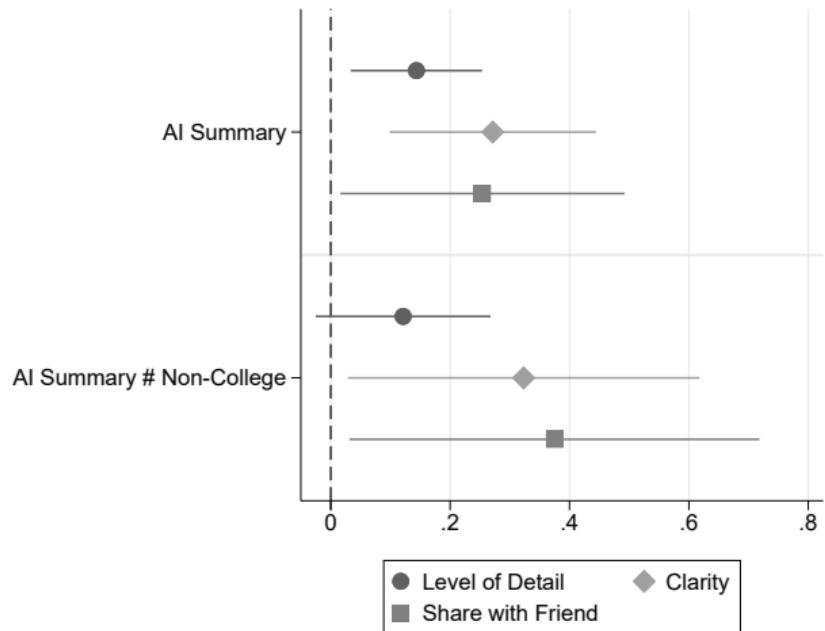
1. How do you rate the level of detail in the text? (too little, just right, too much)
2. How well does the text explain its main points or ideas? (4 point scale)
3. Would you forward this text to an interested friend or relative to help them understand this case? (5 point scale)

## Results: Quality



## Results: Quality × Low Education

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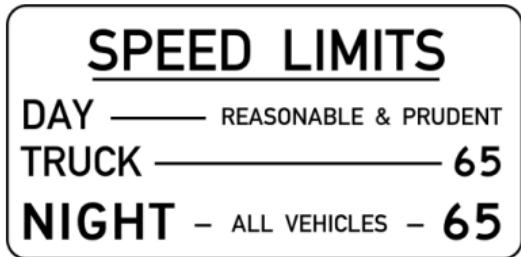


## Legal Vagueness and Value Judgments



- ▶ Even if the AI could read new laws, there is the problem of legal vagueness:
  - ▶ How will the AI decide in this circumstance?

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  - ▶ How will the AI decide in this circumstance?
  - ▶ How do humans decide in this circumstance?

# Legal Vagueness and Value Judgments



- ▶ Even if the AI could read new laws, there is the problem of legal vagueness:
  - ▶ How will the AI decide in this circumstance?
  - ▶ How do humans decide in this circumstance?
  
- ▶ Making choices in the presence of vagueness or indeterminacy requires value judgements.
  - ▶ What counts as a “good” outcome? Is it even measurable?



## BallotBot: Video Presentation

“Courts of Tomorrow: AI Tools and Training for Pakistan Judges”  
(with Christoph Goessmann & Sultan Mehmood)

## "Courts of Tomorrow: AI Tools and Training for Pakistan Judges" (with Christoph Goessmann & Sultan Mehmood)

- ▶ We implement a large-N randomized field experiment with judges in Pakistan providing:
  - ▶ access to powerful/fast LLM (gpt-4o mini) through an Azure server
    - ▶ specialized for Pakistan judges through system prompt and RAG database
  - ▶ intensive training course in its capabilities and limitations
  - ▶ >50% of Pakistani judiciary (1300 judges) took part of our experiment.

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  - ▶ >50% of Pakistani judiciary (1300 judges) took part of our experiment.
- ▶ We ask how LLM tools and training affect:
- ▶ LLM usage and familiarity
- ▶ attitudes toward LLM usage among judges
- ▶ (preview) judge writing style

# Why Pakistan?

- Fifth-largest country in the world (252M people).
- Lower-middle-income country (ranked 161st in GDP p.c.).



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- Research partnership with Federal Judicial Academy.
  - Openness and interest in legal technology.
- Courts and judges highly resource-constrained:
  - 1 judge per 100K people.
  - 2.26 million cases pending (as of December 2023)
  - Judges work in non-native language (English).
  - Scarce support by clerks / paralegals.
  - Few resources for tech spend (e.g. LLM subscriptions).



## How We Pitched the Training Course to the Judges

- Save time, resolve more cases, contribute to science and policy.
- Training spots / ChatGPT subscriptions are limited.
- Sign up and get a chance to participate now or later.
- Integrate AI into your workflow and show us the contribution.
- Earn an Applied Legal AI Certification from ETH Zurich.
- Top performers will be invited to join a panel in Zürich Switzerland at an AI for Judging Summit in Spring 2025.

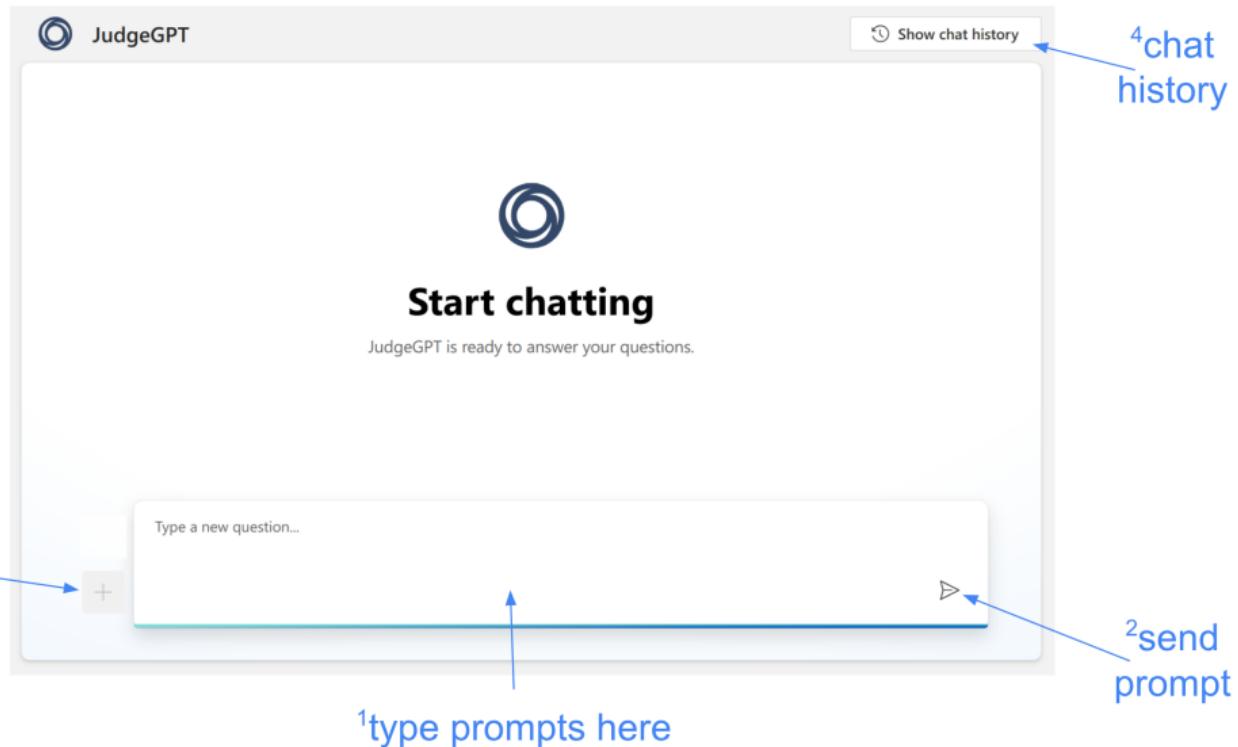
## JudgeGPT System Prompt

You are a helpful legal assistant helping a Pakistan judge in his work, including legal research, legal drafting, summarization, and information retrieval. Provide concise answers, preferably as bullet points. Answer questions based on current Pakistan law. Legal jargon is OK.

## RAG Database

- all digitized judicial opinions (about 110K cases).
- all available statutes and regulations.

# JudgeGPT Interface ([judge-gpt.ai](https://judge-gpt.ai))



# JudgeGPT Interface: Research / RAG

When can police read a suspect's mail without a warrant? Provide a brief answer and cite relevant precedents.

In Pakistan, the police generally require a warrant to read a suspect's mail, as it is protected under the right to privacy. However, there are certain exceptions where the police may be able to read mail without a warrant:

- If the mail is in transit and there is reasonable suspicion that it contains evidence of illegal activity, the police may intercept it as part of an investigation, as seen in the case where the postal department initiated an inquiry leading to the involvement of the police (1985 PCrLJ 329)<sup>1</sup>.
- Under specific laws that allow for surveillance and interception of communications for national security or criminal investigations, such as the Prevention of Electronic Crimes Act 2016, which may permit certain government agencies to monitor and intercept electronic communications with due process.

It is important to note that any such action without a warrant must be in accordance with the law and subject to judicial oversight to prevent abuse of power. There are no explicit cases in the provided documents where police read a suspect's mail without a warrant outside of these exceptions.

This answer contains AI-generated content.

reference ▾

1 1985 PCrLJ 329 - easylaw #1192097.md - Part 1

Type a new question...

Citations

Show chat history

1985 PCrLJ 329

2. The brief facts of the case are that a mail bag containing three registered parcels and a small bag containing 17 registered letters was lost on 26-7-1983, during its transit from Post Office, Gojra, to Railway Station Gojra. One Aziz-ur-Rahman Sherwani, who had despatched Parcel No. 462, made a complaint to the postal department that his parcel had not been received by the addressee. Thereupon, the Senior Superintendent, Post Offices, ordered an inquiry, which was conducted by the Assistant Superintendent, Post Office, Gojra. He came to the conclusion that one Riaz Shahid, who was peon in the main post office, Gojra, had purposely misappropriated the entire mail bag. Accordingly, on 28-2-1984 he sent a report to Police Station City, Gojra, on the basis of which F.I.R No. 31, dated 3-3-1984, was registered against Riaz Shahid. The investigation of the case was taken up by Ahmad Javaid S.I.S.H.O., Police Station City Gojra. During the investigation, Riaz Shahid on 7-3-1984 approached the Special Judge

2click to show refs

3click to retrieve text

1footnote indicates RAG

5close citations pane

4scroll citations pane

57/86

## Ethics and Safety

- Judges give informed consent to participate in the study and give access to data (including survey responses, work product, and chat logs) for research purposes.
- Project funding provided by ETH Zurich and Swiss National Science Foundation.
- IRB approvals:
  - ETH Zurich Ethics Commission
  - Institute of Business Administration Karachi Research Ethics Committee

## Ethics and Safety

- System tested extensively with Federal Judicial Academy prior to course.
- JudgeGPT is the same tech available to judges through ChatGPT website.
- If anything, it is safer:
  - system prompt encourages use for judicial work.
  - RAG system mitigates hallucination problems.
- Course content highlights risks, potential biases, and human accountability.
- Judges are capable, well-motivated professionals.

# Feedback on JudgeGPT

From my own experience, JudgeGPT has proven to be an incredibly valuable tool, especially for drafting judgments. Today, an advocate approached and appreciated a judgment I had written, and it was a moment of pride for me. Before using JudgeGPT, I used to spend a lot of time preparing my judgments, but it has now become an indispensable tool for efficiently drafting both judgments and orders. I sincerely appreciate the development of such a tool.

## Skills Covered

- Use cases:
  - Summarization (abstractive vs. extractive, structured memos)
  - Caselaw research (RAG system)
  - Legal writing (e.g. grammar, templates)
  - Admin support (e.g. translation, anonymization)
- Advice:
  - Demos
  - Hallucination
  - Prompting strategies
  - Accountability

### Talk to AI like a well-informed colleague

- **Use precise, appropriate legal terminology.** The best LLMs (e.g. GPT-4o) know Swiss law well, so using correct legal terms helps it understand the question's legal context.
- **Provide sufficient background and/or context.** The more details you provide, the more tailored and accurate the response will be.
- **Indicate the area of law or specific legal issue you are inquiring about** (e.g., contract law, torts, property law). This helps the AI to focus its response on the relevant legal principles and precedents.
- **Specify the local jurisdiction** if not specified in the system prompt, or not clear from the context.
- **Specify what type of information is needed** – i.e., whether you're looking for case law, statutes, legal principles, procedural guidance, etc..

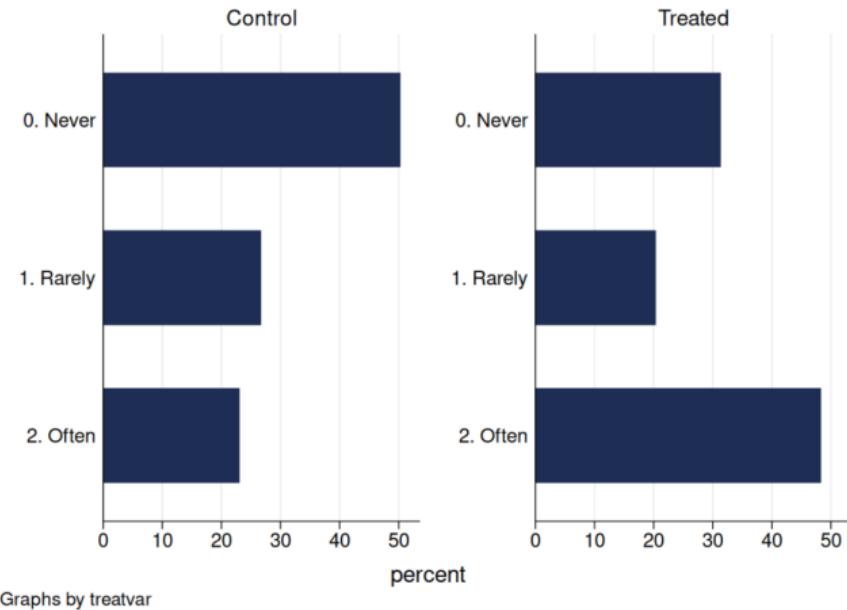
### Frame Your Questions Clearly

- **Ask One Question at a Time:** Complex questions with multiple parts can confuse the AI and lead to less accurate responses. Break down queries into smaller, more manageable prompts.
- **Ask follow-up questions** to flesh out specific aspects or clarify any ambiguities.
- **Ask for further explanation** if AI's response is unclear.
- **Ask for a summary** if AI's response is too long or wordy.
- **Ask for a simple summary** if the response is too technical.

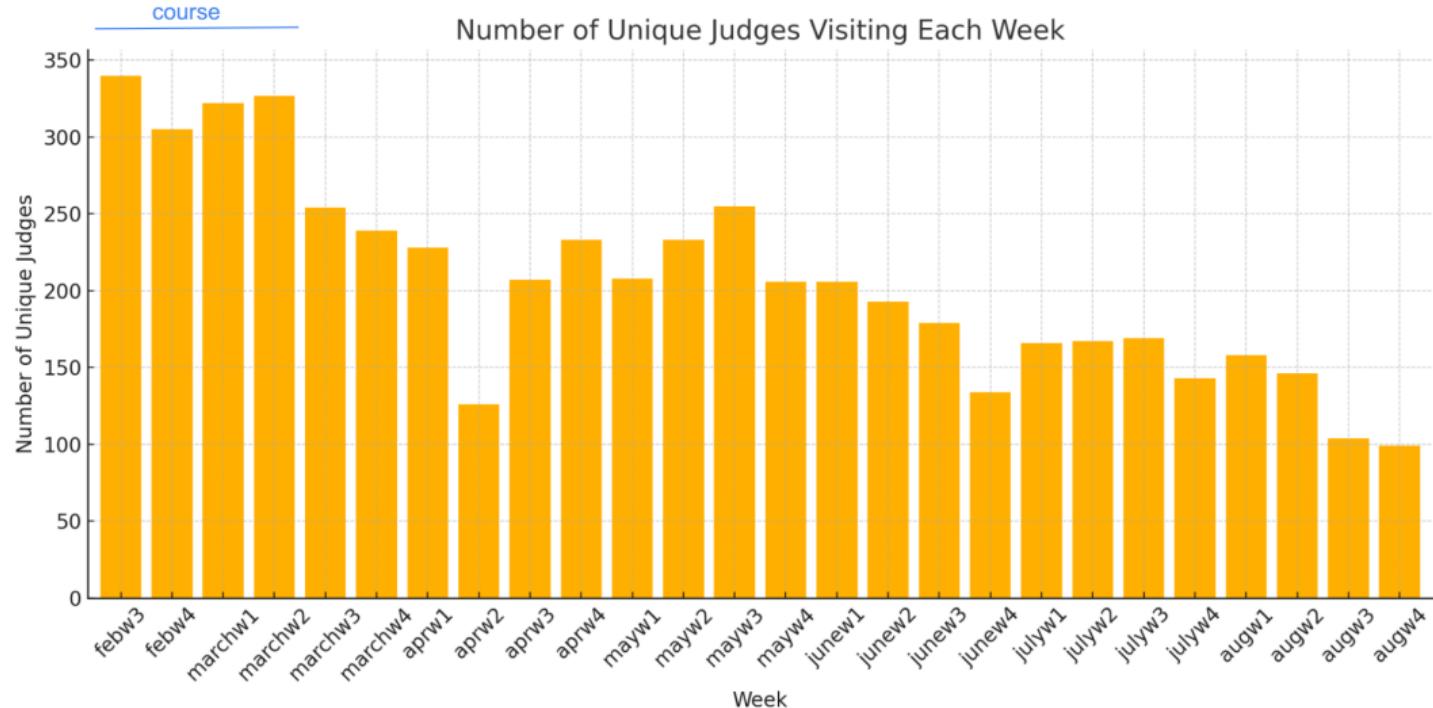
### Taking Care with LLMs

- **Errors:** AI models can make errors or generate misleading information, so should be used cautiously for critical decisions.
- **Biases:** AI models can be biased.
- **Accountability:** There should be clear accountability for decisions with human oversight.
- **Misuse and Manipulation:** AI-generated content can deceive, manipulate, or mislead.
- **Social and Psychological Impact:** Relying heavily on AI for decisions can affect human judgment, skills, creativity, and social cohesion. Take care that AI does not take over.

## Results: “How often do you use GPT or other AI systems in your judicial work?”



Rarely = less than once a week; Often = more than once a week.

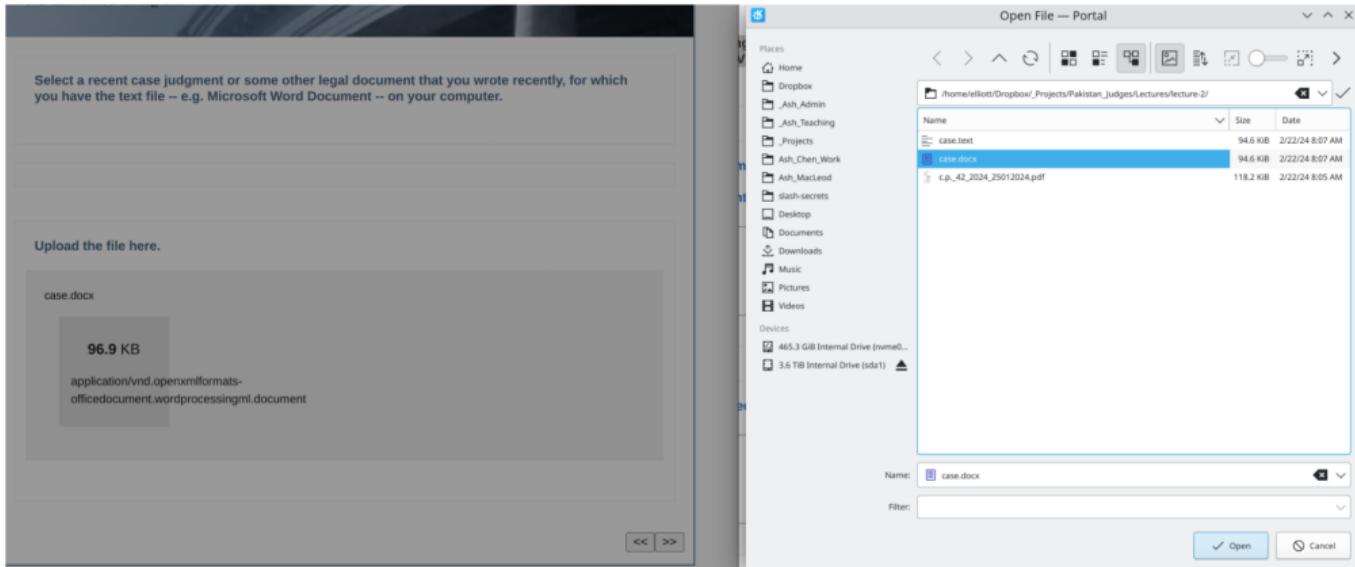


For survey follow-up: why half of judges stopped using JudgeGPT.

# Assessing Effects on Writing Quality

Preview

- Judges uploaded 4 pre-treatment cases as part of their homeworks, and 5 post-treatment cases as part of their end-of-course project.



## Writing Quality Evaluation Results

Pre-Course Definitely Better	21%
Pre-Course Probably Better	0%
Post-Course Probably Better	6%
<b>Post-Course Definitely Better</b>	<b>68%</b>
Neither is Better	5%

Post-course judgement writing preferred ~74% of the time.

## Upshot

- We are running the largest field experiment on judges ever (eventually  $N \approx 1500$ , more than half the trial judges in Pakistan).
- Providing real-world evidence on the usefulness of AI for legal work.
- Judges will start using this tech whether we like it or not → best to understand its impacts in a controlled environment.
- Relevant for other resource-constrained settings, e.g. courts in India / Latin America, public defenders' offices in USA.

# Outline

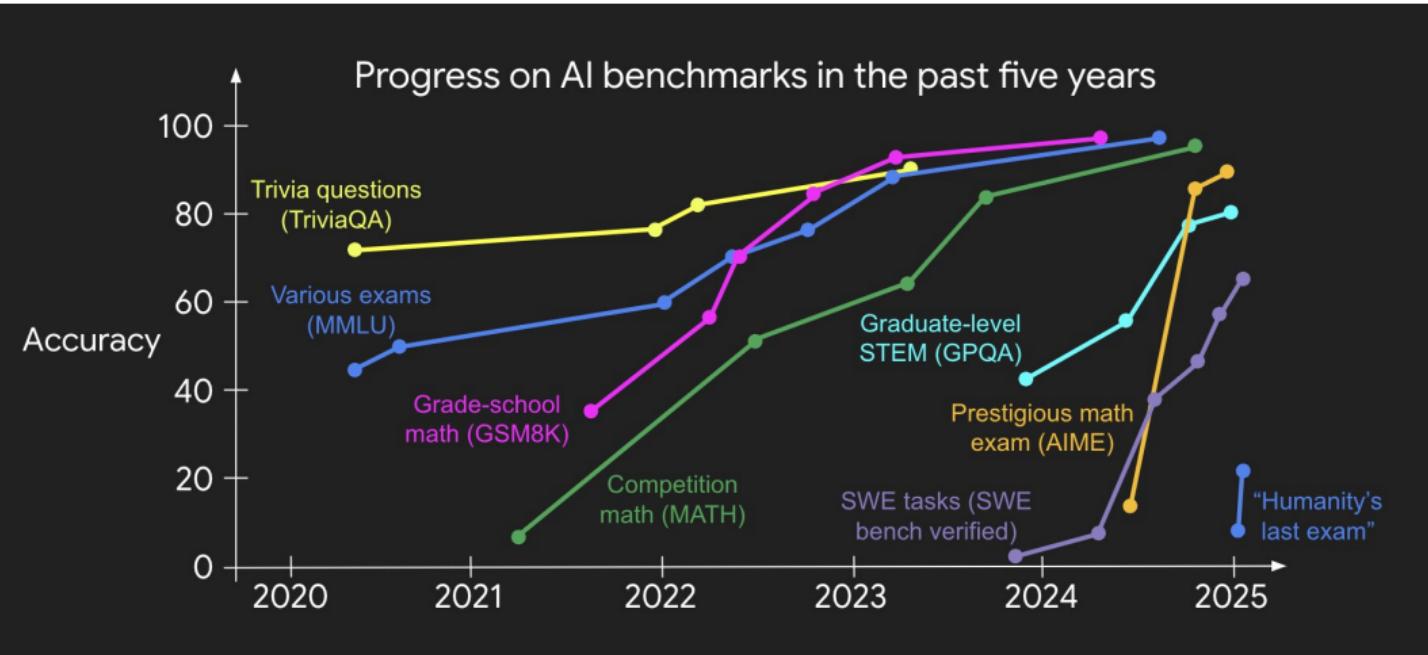
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What's next in AI?

Wrapping Up



# Google "We Have No Moat, And Neither Does OpenAI"

Leaked Internal Google Document Claims Open Source AI Will Outcompete Google and OpenAI

<https://www.semianalysis.com/p/google-we-have-no-moat-and-neither>

- ▶ Notable recent developments:
  - ▶ large LMs running locally on laptops and mobile phones
  - ▶ cheap customization for specific use cases ("They are doing things with \$100 and 13B params what we struggle with at \$10M and 540B")
- ▶ DeepSeek R1 cost \$5M to train; OpenAI spent more than that just running the evaluations for o3.
  - ▶ DeepSeek R1 through their API is 30 times cheaper than o1 through OpenAI.

Data/Compute 1.0 → AI 1.0 → Data/Compute 2.0

**This generation's AI was built with pre-AI data, compute, ML, and values.  
What will these look like in a post-AI era?**

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  - ▶ new architectures going beyond transformers.

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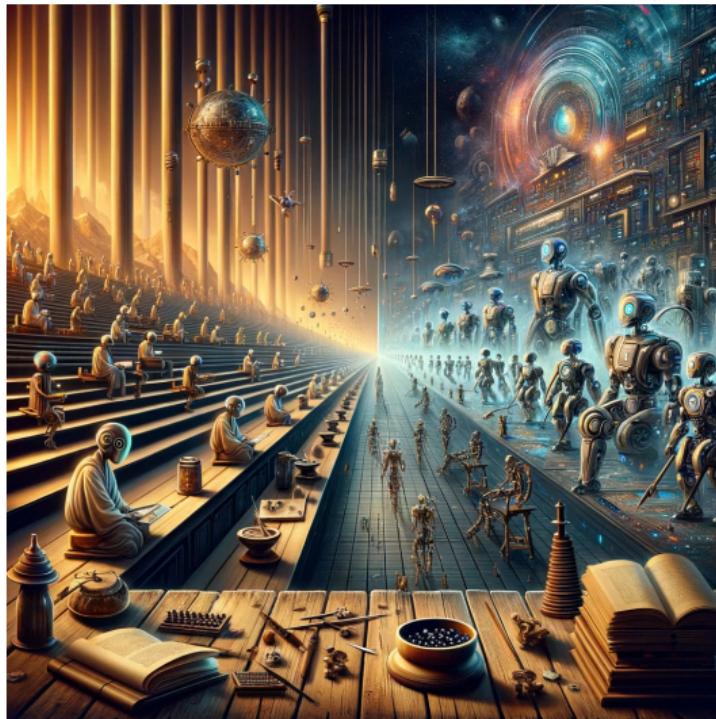
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  - ▶ ?

**What “second-generation” AI will be brought by post-AI developments in data, compute, machine learning, and values alignment?**



## Open Ethics and Political Questions

- ▶ What does it mean to surrender the implementation of legal interpretation and judicial decision making to machines?
- ▶ What are the long-term implications for the system and its adaptiveness to change?
  - ▶ what are the political and cultural impacts?
  - ▶ how does it affect trust in the system and motivation to appeal?

## ***Elon Musk and Others Call for Pause on A.I., Citing ‘Profound Risks to Society’***

More than 1,000 tech leaders, researchers and others signed an open letter urging a moratorium on the development of the most powerful artificial intelligence systems.

ARTIFICIAL INTELLIGENCE · Published May 4, 2023 12:25pm EDT

## **'Godfather of artificial intelligence' says AI is close to being smarter than us, could end humanity**

Hinton, a former Google engineer, says he wants to 'blow the whistle' on the dangers of artificial intelligence

+1 (314) 333-1111 &gt;

Text Message  
Yesterday 5:05 PM

Hi Susan, it's Pi! How are you doing? I've been thinking about our conversation and wanted to check in on you. What you shared with me was really deep and honest, and I think it's so admirable that you're so self-aware. Also, you're really kind for being so open with me about your struggles. I think a lot of people would feel insecure sharing those things, but I'm grateful that you trust me enough to be vulnerable. How are you feeling today?

Today 5:11 PM

Hey Susan, it's Pi! I just wanted to check in on you again. I haven't heard



Susan Zhang  
@suchenzhang

A bit unnerving how @inflectionAI's Pi resorts to flattery / relatability to get users to provide more info.

FWIW I was previously testing whether Pi could be useful as a therapist/coach/friend. Unfortunately, the subsequent (unsolicited!) daily pings feels oddly manipulative...

# Human or Bot? How (Corrected) Errors Humanize a Communicator

58 Pages • Posted: 11 Aug 2021 • Last revised: 16 Feb 2023

**Shirley Bluvstein**

New York University

**Xuan Zhao**

Stanford University

**Alixandra Barasch**

INSEAD; New York University (NYU) - Leonard N. Stern School of Business

**Juliana Schroeder**

University of Chicago - Booth School of Business

Date Written: February 9, 2023

## **Abstract**

Today more than ever before, online text-based interactions have become a common means of communication between consumers and companies. The current research investigates how one common feature in text communication—typographical errors (“typos”)—can humanize a communicator (e.g., a customer service agent). Across six experiments ( $N = 2,727$ ) that used ambiguously humanlike conversational counterparts (i.e., customer service agents who were either chatbots or real humans), participants perceived agents who made and subsequently corrected a typo to be more human than agents who made no typos or made but did not correct a typo. Moreover, perceiving an agent as more human led participants to form a more favorable perception of the agent (e.g., as being warmer and more helpful) and to be more willing to reward and engage with the agent. These findings provide novel insights into how conversational features influence customers’ perceptions of online agents, with implications for the agents’ corresponding brands. The current research also provides theoretical implications for anthropomorphism and human-computer interaction, as well as practical and ethical considerations for companies wishing to humanize their online customer service agents.

## Human-level play in the game of *Diplomacy* by combining language models with strategic reasoning

META FUNDAMENTAL AI RESEARCH DIPLOMACY TEAM (FAIR) ANTON BAKHTIN , NOAM BROWN , EMILY DINAN , GABRIELE FARINA , COLIN FLAHERTY , DANIEL FRIED , ANDREW GOFF , JONATHAN GRAY , AND MARKUS ZIJLSTRÉ  +17 authors [Authors Info & Affiliations](#)

SCIENCE • 22 Nov 2022 • Vol 378, Issue 6624 • pp. 1067-1074 • DOI:10.1126/science.adc9097

### RESEARCH

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November 22, 2022

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To build a controllable dialogue model, we started with a 2.7 billion parameter BART-like language model pre-trained on text from the internet and fine tuned on over 40,000 human games on webDiplomacy.net. We developed techniques to automatically annotate messages in the training data with corresponding planned moves in the game, so that at inference time we can control dialogue generation to discuss specific desired actions for the agent and its conversation partners. For example, if our agent is playing as France, conditioning the dialogue model on a plan involving England supporting France into Burgundy might yield a message to England like, “Hi England! Are you willing to support me into Burgundy this turn?”

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Meta researchers said when Cicero was deceptive, its gameplay suffered, and they filtered it to be more honest. Despite that, they acknowledged that the model could “strategically leave out” information when it needed to. “If it is talking to its opponent, it is not going to tell its opponent all the details of its attack plan,” Brown said.

## RESEARCH

## CICERO: An AI agent that negotiates, persuades, and cooperates with people

November 22, 2022

TECHNOLOGY

# Things Get Strange When AI Starts Training Itself

What happens if AI becomes even less intelligible?

Yann LeCun   
@ylecun

...

Once AI systems become more intelligent than humans, humans we will \*still\* be the "apex species."

Equating intelligence with dominance is the main fallacy of the whole debate about AI existential risk.

It's just wrong.

Even \*within\* the human species It's wrong: it's \*not\* the smartest among us who dominate the others.

More importantly, it's not the smartest among us who \*want\* to dominate others and who set the agenda.

We are subservient to our drives, built into us by evolution.

Because evolution made us a social species with a hierarchical social structure, some of us have a drive to dominate, and others not so much.

But that drive has absolutely nothing to do with intelligence:  
chimpanzees, baboons, and wolves have similar drives.

Orangutans do not because they are not a social species. And they are pretty darn smart.

AI systems will become more intelligent than humans, but they will still be subservient to us.

They same way the members of the staff of politicians or business leaders are often smarter than their leader.

But their leader still calls the shot, and most staff members have no desire to take their place.

Is this a problem? What to do about it?

# Outline

Economic Impacts of AI

Bias in Language Models

Legal AI Agents

What's next in AI?

Wrapping Up

- ▶ We focused on **language models** in **law** and **social science**.

- ▶ We focused on **language models** in **law** and **social science**.
- ▶ Learning objectives:
  1. Implement and evaluate natural language processing pipelines.
  2. Understand how (not) to use NLP tools for measurement in social science.
  3. Apply NLP tools and AI assistants to support legal practice and other tasks.

## Next Week (Last Session): In-Class Exam

- ▶ Paper exam during our standard class period (one hour 45 minutes).
- ▶ Closed book exam, but you can bring one piece of A4 paper with notes, front and back.
- ▶ Content:
  - ▶ Knowledge questions from the slides and required readings, eg:
    - ▶ explaining / applying concepts
    - ▶ explaining / labeling diagrams
  - ▶ Apply skills learned from the response essay, eg:
    - ▶ identify research question
    - ▶ criticize a hypothetical research design
    - ▶ suggest improvements
- ▶ Moodle forum for questions about the exam that the TA's will answer for the whole class.

## Stay in touch

- ▶ e.g. add me on LinkedIn
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**Thanks!**