



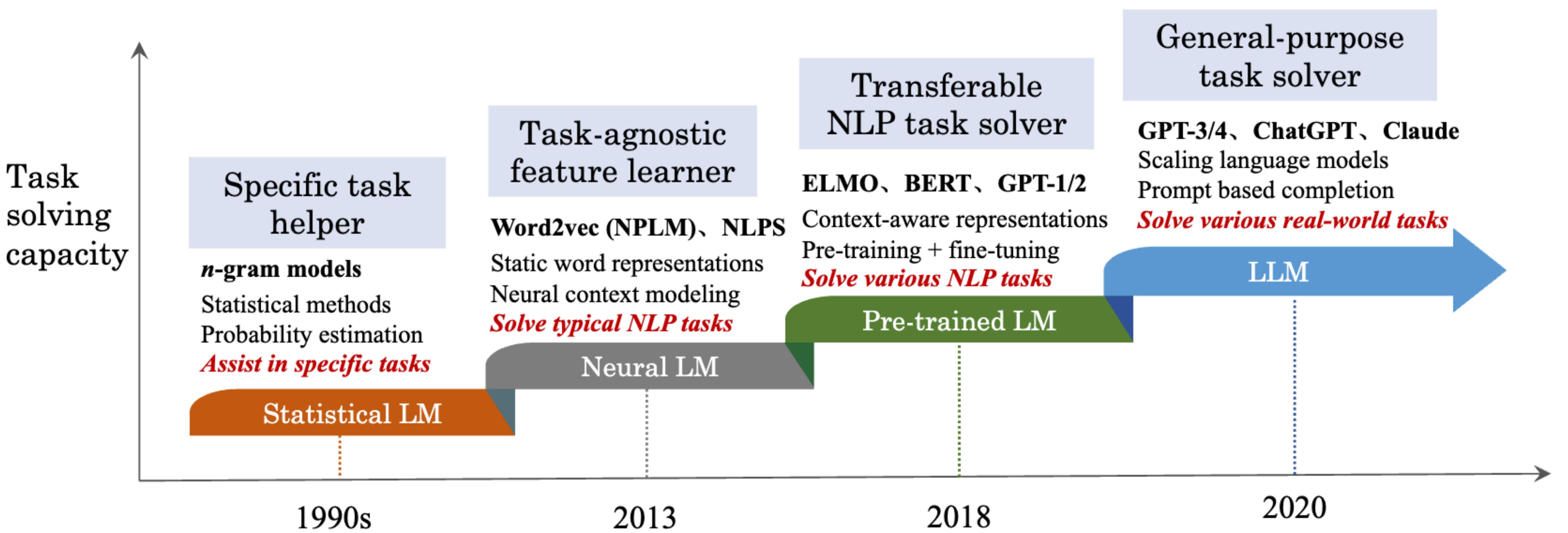
ETHICS

Sandeep Soni

04/02/2024

STORY SO FAR

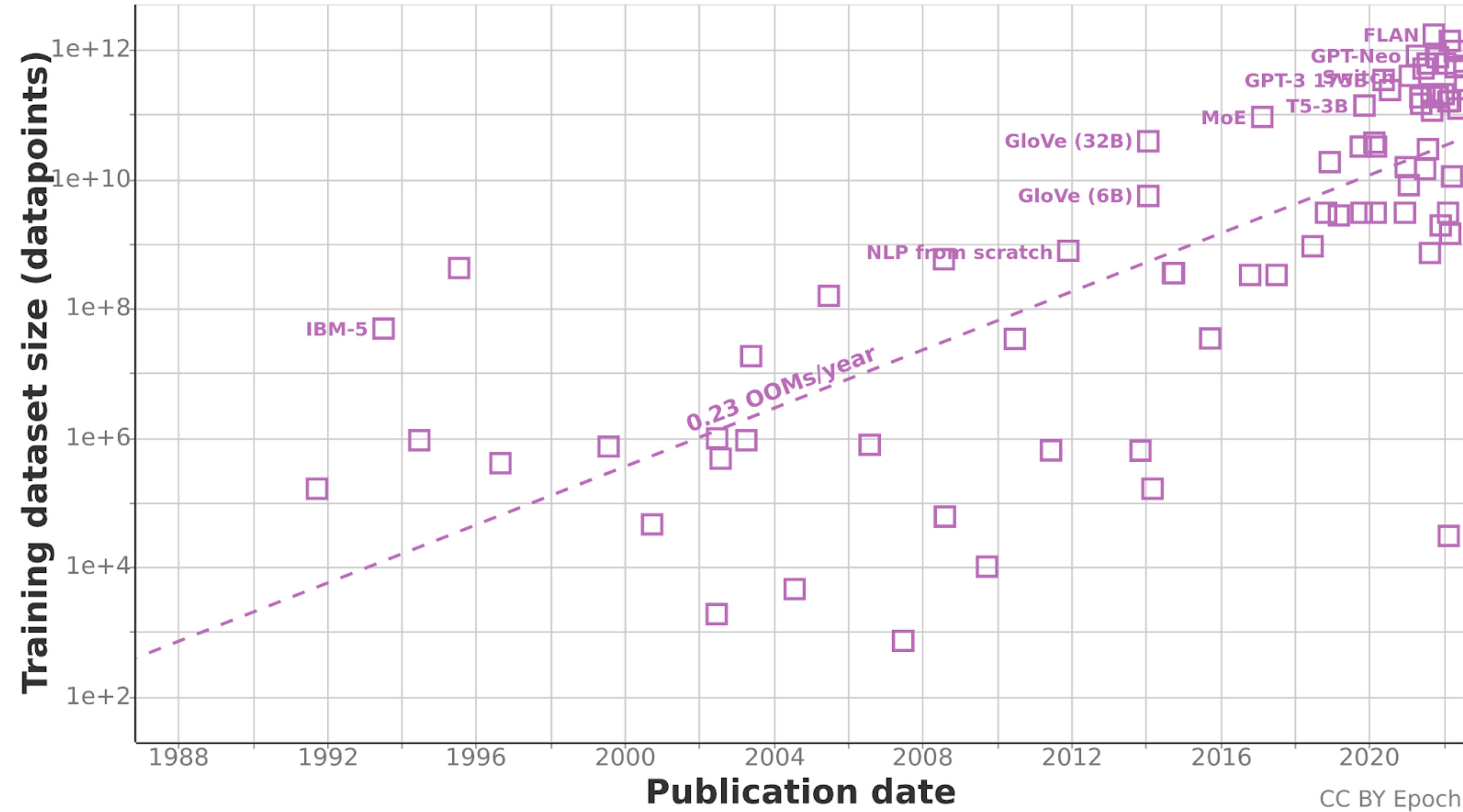
- High capability of methods that process text
- But these methods also pose significant risks



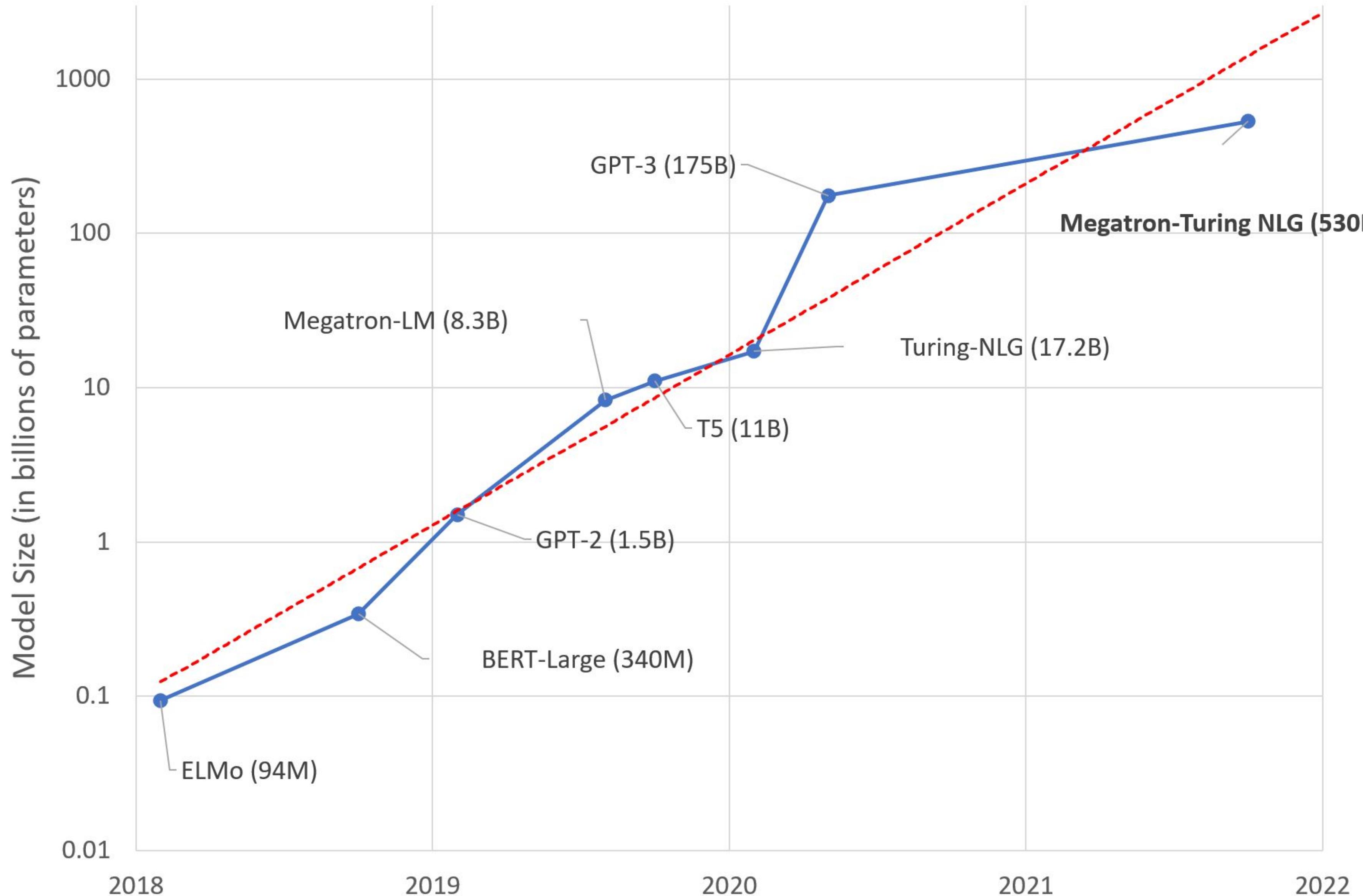
Zhao, Wayne Xin, et al. "A survey of large language models." arXiv preprint arXiv:2303.18223 (2023).

REASONS FOR PROGRESS

- What makes them so much capable?



Source: <https://epochai.org/blog/trends-in-training-dataset-sizes>



Source: <https://huggingface.co/blog/large-language-models>

On the Dangers of Stochastic Parrots: Can Language Models Be Too Big?



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The Aether

“What are the ethical dilemmas in creating larger and larger models?”

Mark Zuckerberg indicates Meta is spending billions of dollars on Nvidia AI chips

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KEY POINTS

- Mark Zuckerberg said on Thursday that by the end of 2024, the company's computing infrastructure will include 350,000 H100 graphics cards.
- That suggests the company is spending billions of dollars on Nvidia's leading chips that can cost over \$40,000 on eBay due to heavy demand.
- Zuckerberg said in October that "AI will be our biggest investment area in 2024, both in engineering and computer resources."



Fast Money
Halftime Report

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FINANCIAL COSTS

- \$150K computational cost required to raise 0.1 BLEU score on English → German translation (Strubell et. al.)

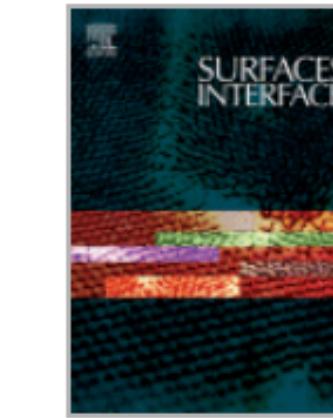
ENVIRONMENTAL COSTS

- GPU training of single BERT base model (without hyperparameter tuning) estimated to require same energy as a trans-American flight



Surfaces and Interfaces

Volume 46, March 2024, 104081



Introduction

Certainly, here is a possible introduction for your topic:Lithium-metal batteries are promising candidates for high-energy-density rechargeable batteries due to their low electrode potentials and high theoretical capacities [1], [2]. However, during the cycle, dendrites forming on the lithium metal anode can cause a short circuit, which can affect the safety and life of the battery [3], [4], [5], [6], [7], [8], [9]. Therefore, researchers are indeed focusing on various aspects such as negative electrode structure [10], electrolyte additives [11], [12], SEI film construction [13], [14], and collector modification [15] to inhibit the formation of lithium dendrites. However, using a separator with high mechanical strength and chemical stability is another promising approach to prevent dendrites from infiltrating the cathode. By incorporating a separator with high mechanical strength, it can act as a physical barrier to impede the growth of dendrites. This barrier can withstand the mechanical stress exerted by the dendrites during battery operation, preventing them from reaching the cathode and causing short circuits or other safety issues. Moreover, chemical stability of the separator is equally important

Programming Is Hard – Or at Least It Used to Be: Educational Opportunities And Challenges of AI Code Generation

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DESKILLING

- Suggested solutions can superficially appear correct but may not perform the task the user intended, particularly affecting novice programmers.

HALLUCINATIONS

Lawyer cites fake cases generated by ChatGPT in legal brief

The high-profile incident in a federal case highlights the need for lawyers to verify the legal insights generated by AI-powered tools.

Published May 30, 2023



Lyle Moran
Reporter

[in](#) [f](#) [t](#) [p](#) [m](#)

- LLMs can confidently generate fluent text that's not accurate
- This problem is called hallucination



The Social Impact of Natural Language Processing

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SOCIAL IMPACT OF NLP

SOCIAL IMPACT OF NLP

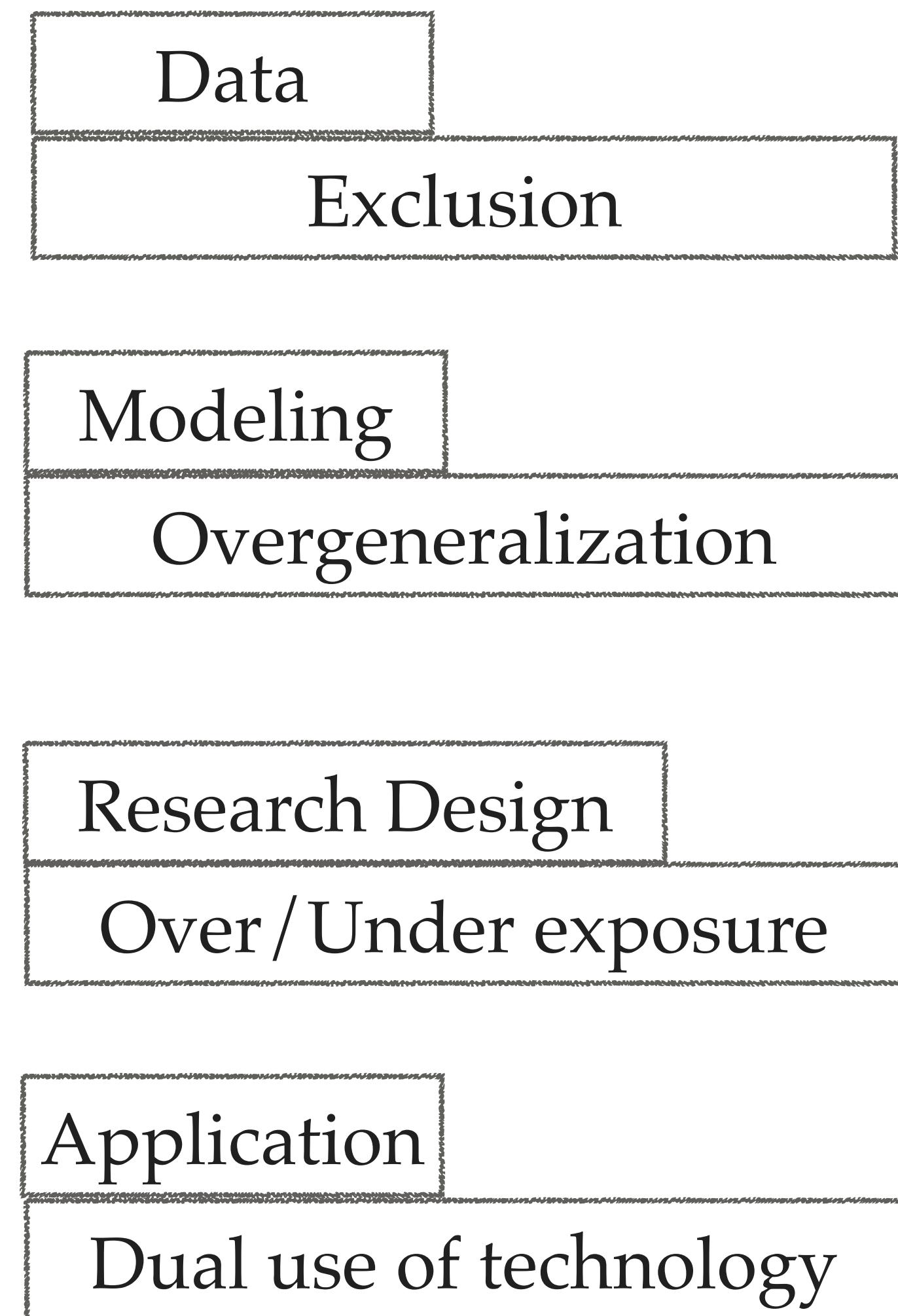
Data

Modeling

Research Design

Application

SOCIAL IMPACT OF NLP



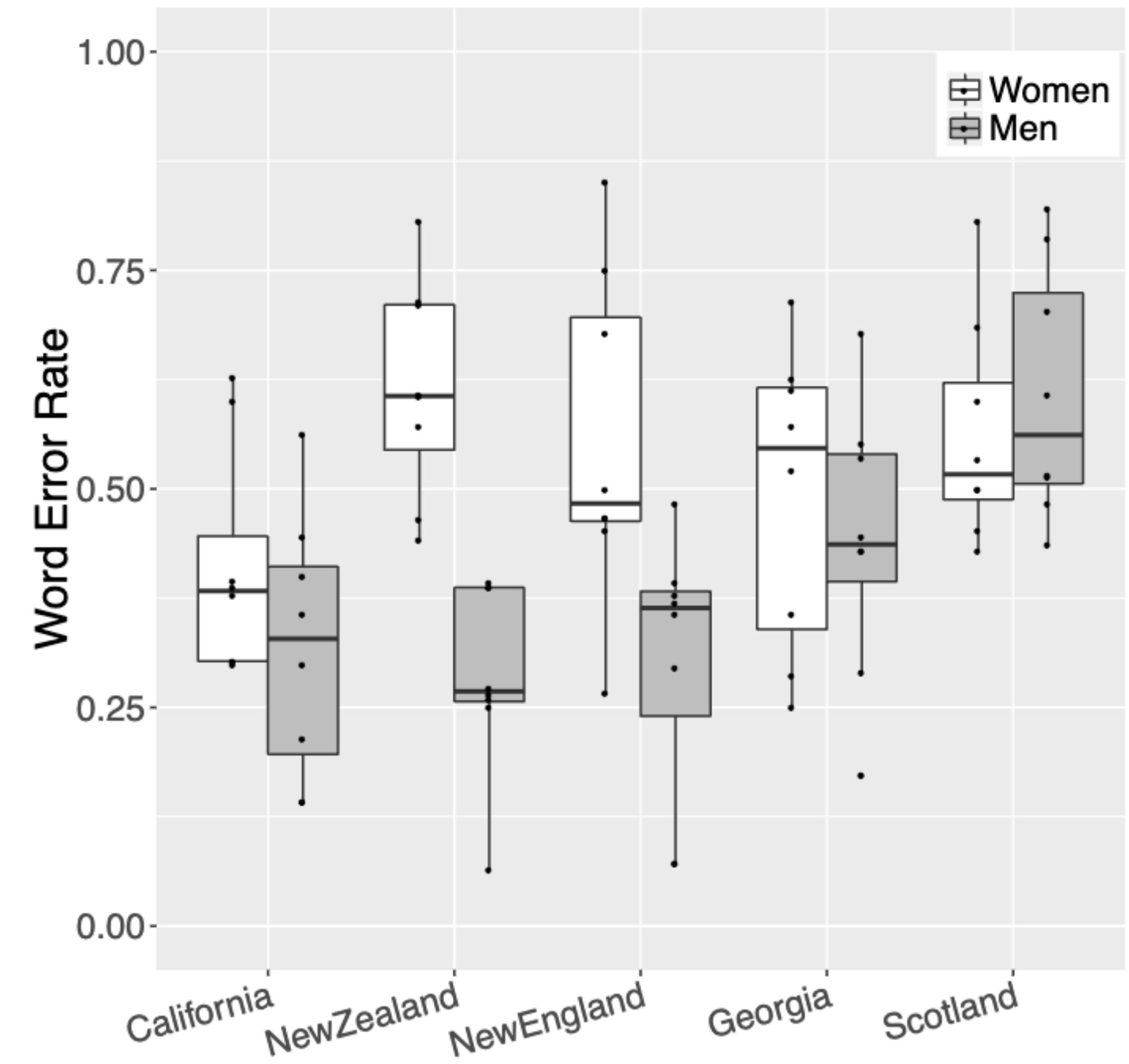
EXCLUSION

- Datasets are demographically biased
- Consequently, language technology can misrepresent some demographics or exclude them

Gender and Dialect Bias in YouTube's Automatic Captions

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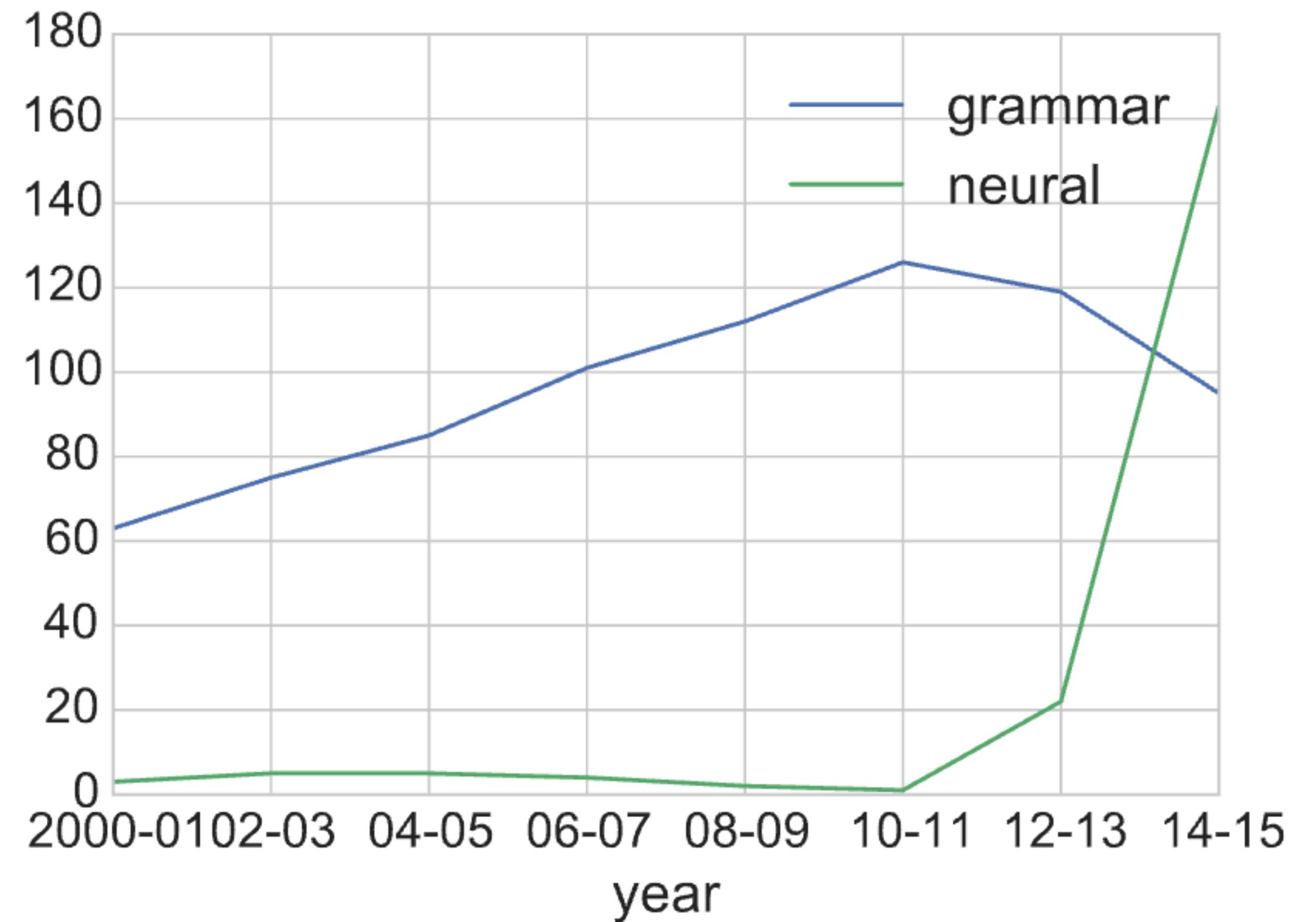


OVERGENERALIZATION

- Some prediction tasks seem less costly
- But others can have high cost for errors
- Modeling objectives should be aligned to the target variables of interest

OVER OR UNDEREXPOSURE

- High concentration of research on only a few topics can lead to overexposure
- Most language technology focusing on English can lead to underexposure to other interesting languages



DUAL USE OR UNINTENDED CONSEQUENCES

- Text generators are great at writing essays, emails, etc
- But! The same text generators can be used to generate misinformation

Language (Technology) is Power: A Critical Survey of “Bias” in NLP

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REVIEW OF NLP WORK ON “BIAS”

- Motivations are unclear, vague, and do not always surface the harms accurately
- Techniques are not well-grounded outside NLP, are far less scrutinized beyond output predictions of source of data