



# **“Artificial Intelligence” A social problem?**

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**University of Washington**

**21 April 2025**

# Group discussion

What “AI” tools have you used before?

What are some ways it has been most useful to you?

What are the biggest “*fails*” you’ve experienced?

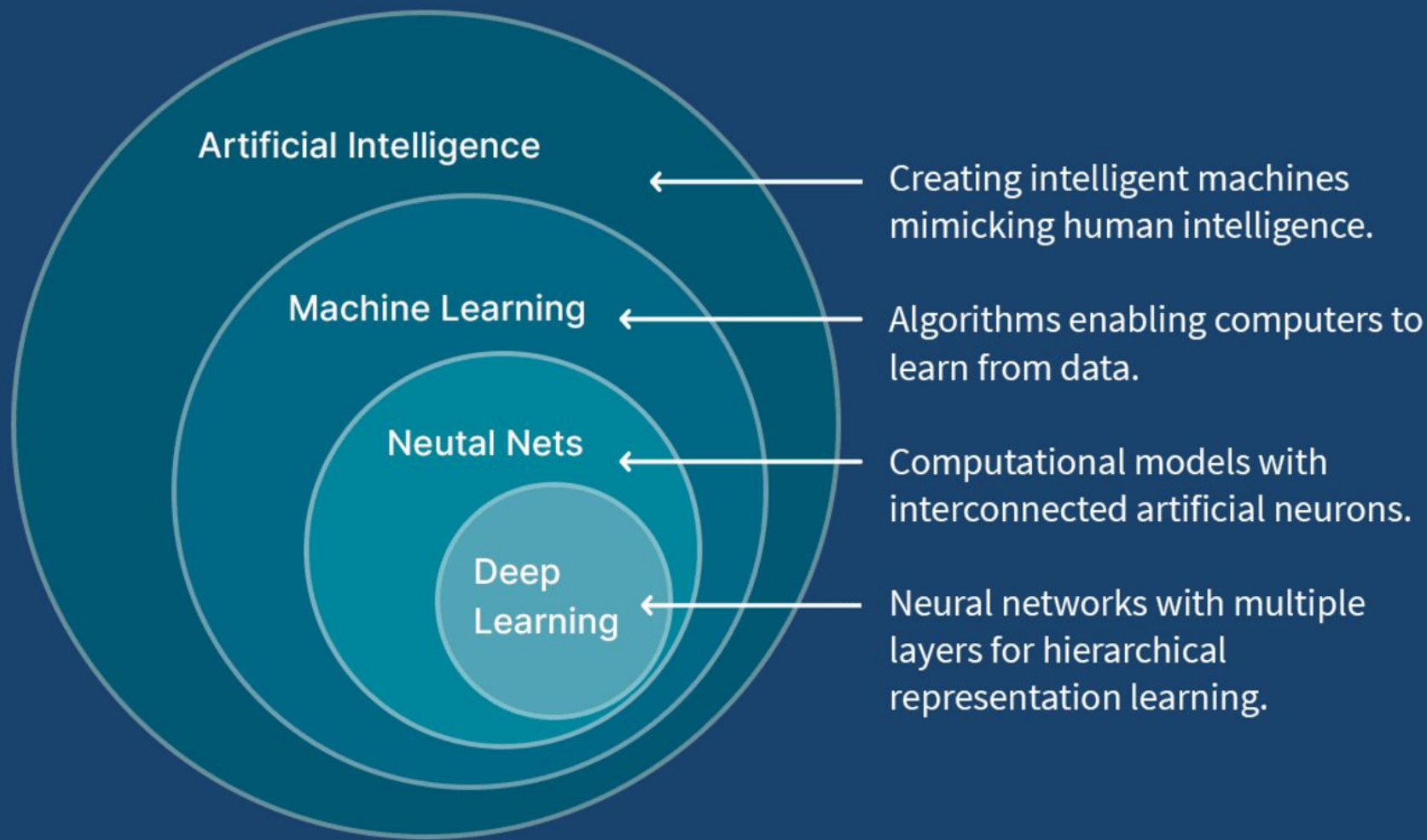


Professor Bender begins at 15:48

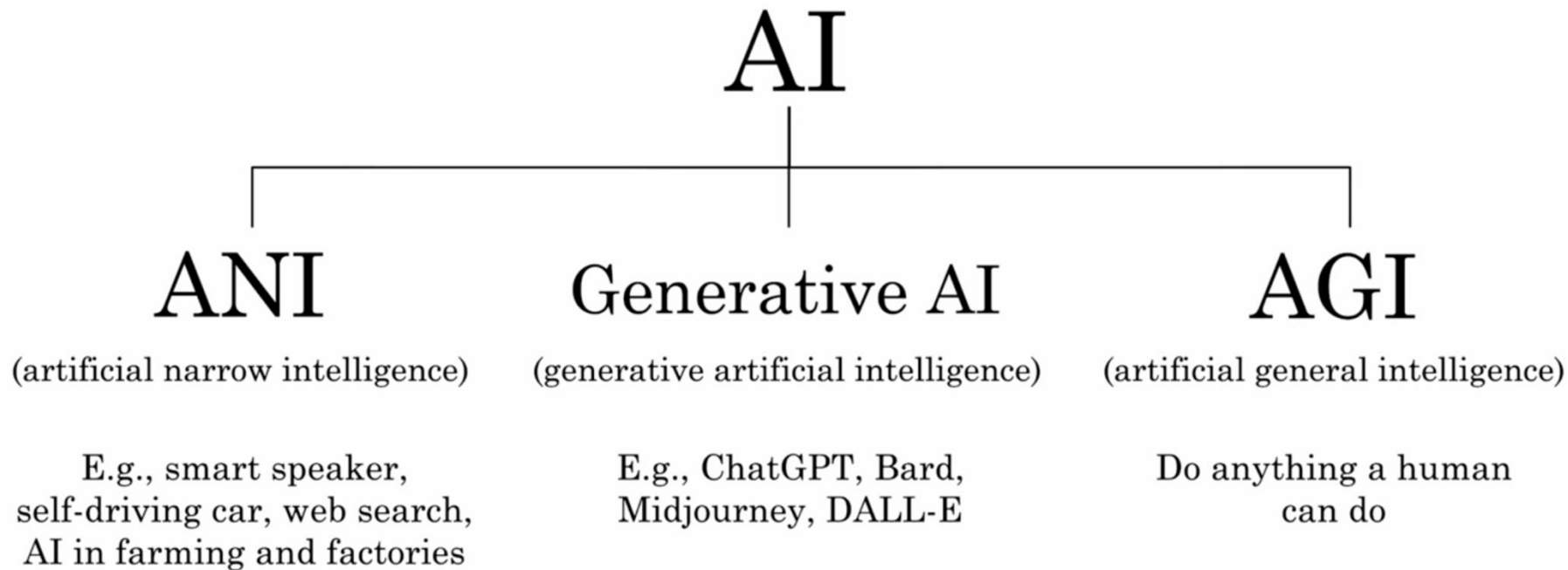
# Group discussion

What are the main points of each argument?

Relative strengths and weaknesses?



# Demystifying AI (cite: Andrew Ng)



But how does a language model work?

# Natural Language Processing (NLP)

- Tokenization - Charles Sanders Peirce (1839–1914)

“ Tokenization is essential in NLP! ”



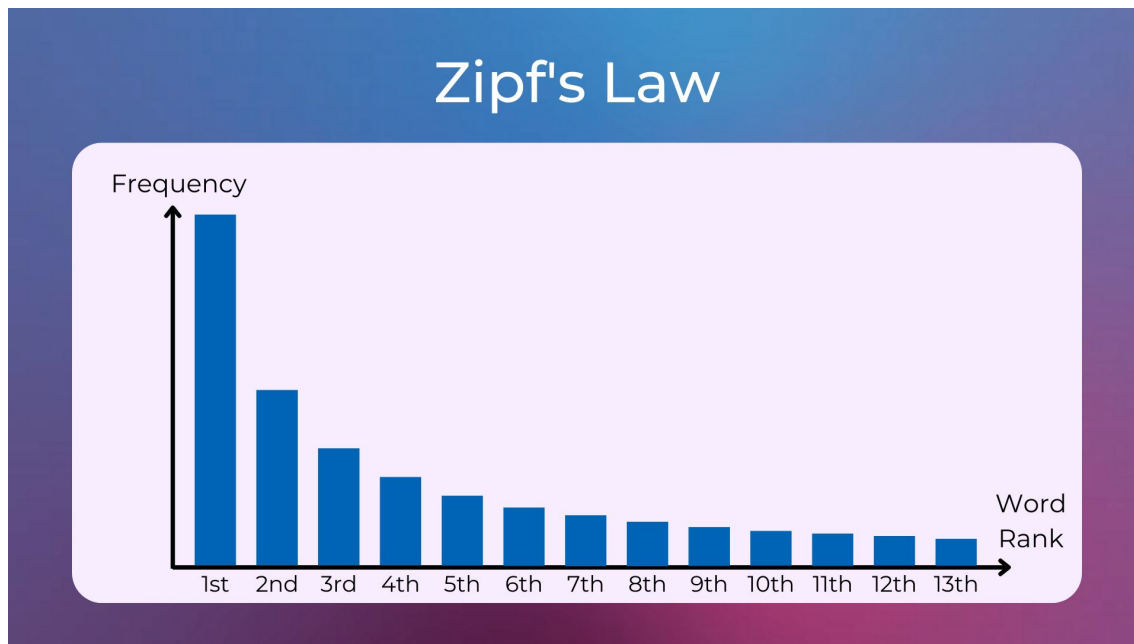
**Tokenization**

“Tokenization” “is” “essential” “in” “NLP”



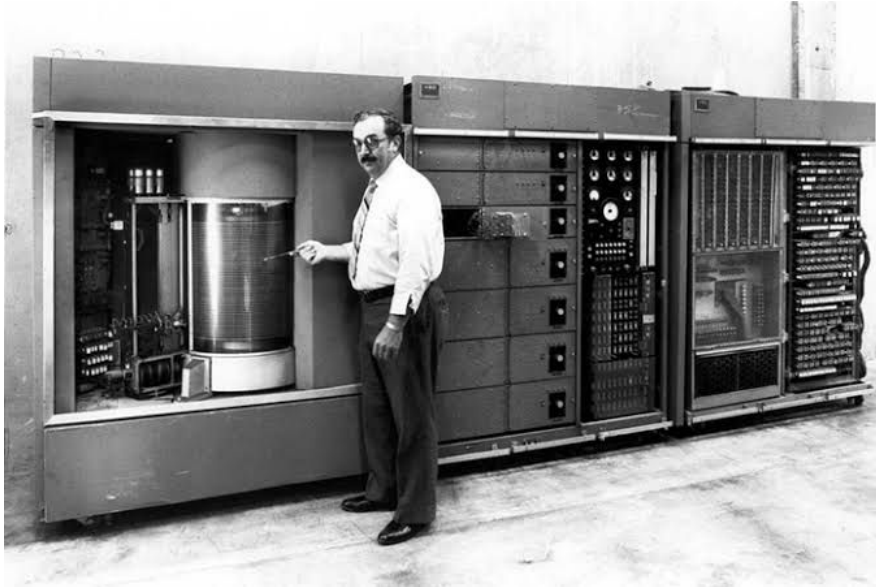
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- Tokenization - Charles Sanders Peirce (1839–1914)
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1789  
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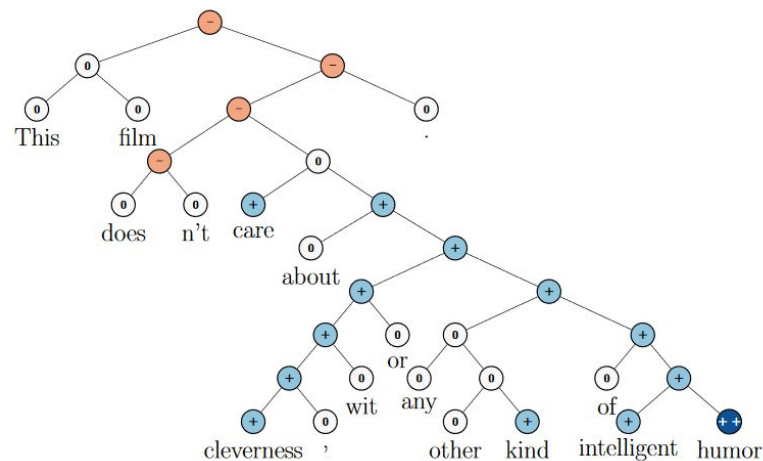
January 7, 1954

The Georgetown-IBM experiment was an influential demonstration of machine translation, the experiment involved completely automatic translation of more than sixty Russian sentences into English.

05  
IT SOLUTIONS

# Natural Language Processing (NLP)

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- Zipf's law - token frequencies (1930)
- Rules-based translation of Russian to English (1954)
- Statistical NLP - modeling distributions (1970's)
- Computation (1990's)
- LLMs (2013-2018)



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  - Computation (1990's)
  - LLMs (2013-2018)
  - GPT (2018)
- Text sample:

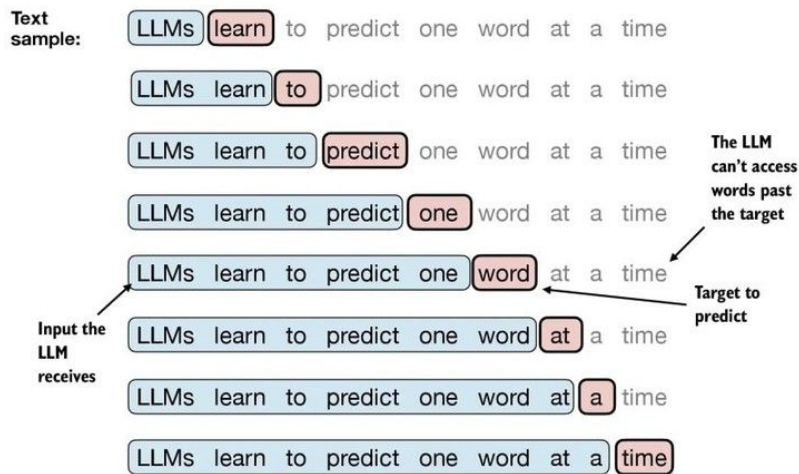
LLMs learn to predict one word at a time

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The LLM can't access words past the target



*like a dog that doesn't know what to do when it catches...*



**Satellite Man Law Man**

@omw2innisfree

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My friend's dog, Max, finally caught its tail, and then didn't know what to do with itself anymore.

# Prediction is based on what the model has “seen”

Binge ... on | - | and | of | is

Binge **drinking** ... is | and | had | in | was

Binge drinking **may** ... be | also | have | not | increase

Binge drinking may **not** ... be | have | cause | always | help

Binge drinking may not **necessarily** ... be | lead | cause | results | have

Binge drinking may not necessarily **kill** ... you | the | a | people | your

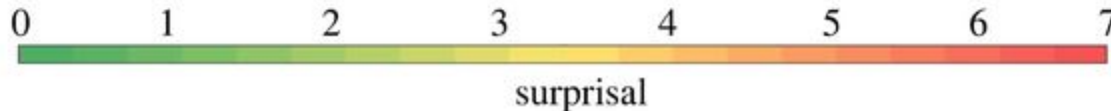
Binge drinking may not necessarily kill **or** ... even | injure | kill | cause | prevent

Binge drinking may not necessarily kill or **even** ... kill | prevent | cause | reduce | injure

Binge drinking may not necessarily kill or even **damage** ... your | the | a | you | someone

Binge drinking may not necessarily kill or even damage **brain** ... cells | functions | tissue | neurons

Binge drinking may not necessarily kill or even damage brain **cells,** ... some | it | the | is | long



# Group discussion

What are some things it can do well?

Where can it go wrong?

How can these models be biased?





10:26



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## ★ AI Overview

Learn more ⋮

Artificial Intelligence (AI) is a broad field encompassing technologies that enable machines to perform tasks that typically require human intelligence, such as learning, problem-solving, and decision-making. Machine Learning (ML) is a subset of AI that focuses on algorithms that can learn from data without being explicitly programmed. In essence, **AI is the broader concept, while ML is a specific technique used within AI to create learning systems.** [↗](#)

Here's a more detailed breakdown:

Show more ▾



## Artificial intelligence (AI) vs. machine learning (ML) - Google Cloud

One helpful way to remember the difference between machine learning and artificial...

 Google Cloud ⋮

## Artificial Intelligence (AI) vs. Machine Learning | Columbia AI

Artificial intelligence (AI) and machine learning are often used interchangeably, but machine learning is a subset of the...

# Saying 'Thank You', 'Please' to ChatGPT? It's costing OpenAI 'millions of dollars', says Sam Altman

*OpenAI CEO Sam Altman revealed that polite exchanges like saying "please" and "thank you" to ChatGPT contribute to tens of millions of dollars in electricity costs.*

Written By **Ravi Hari**

Updated • 19 Apr 2025, 11:33 PM IST



*Despite the massive expense tied to polite ChatGPT conversations, OpenAI CEO Sam Altman says it's "tens of millions of dollars well spent." REUTERS/Axel Schmidt/File Photo(***REUTERS***)*

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