

# AI: Strategy + Marketing (MGT 853)

## Generative AI in practice (Session 9)

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Spring 2024

# Generative AI Models for Text – Large Language Models (LLMs)

# LLMs

## How do they work?

- Let's say we start a sentence with "I"
- There are a finite set of possible second words, some MUCH more likely than the others
- How does the probability of second word "am" change if we know the third word?

Some questions with LLMs:

- What are they trained on?

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- Why is language predictable?
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- Why do they show different outputs each time you ask the same thing?
- Why do they hallucinate – create random or nonsense text?

# (Some) Problems with Generative AI

The Washington Post  
*Democracy Dies in Darkness*

Sign in

## AI recipes are everywhere — but can you trust them?

By [Emily Heil](#) and [Drew Harwell](#)

March 7, 2024 at 7:00 a.m. EST



# (Some) Problems with Generative AI



## The Turing test of online reviews: Can we tell the difference between human-written and GPT-4-written online reviews?

Balázs Kovács<sup>1</sup>

Accepted: 8 April 2024

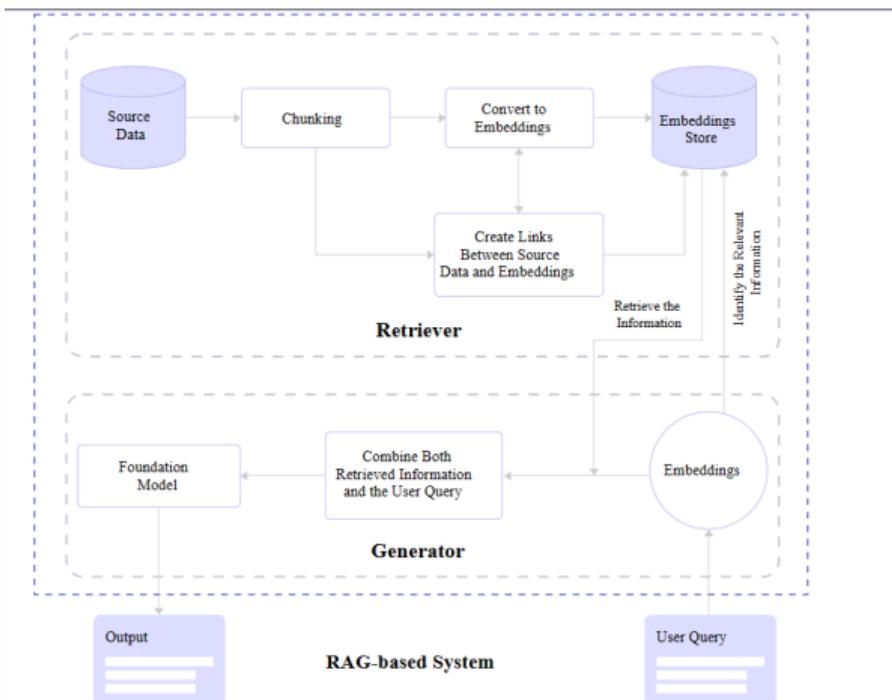
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### Abstract

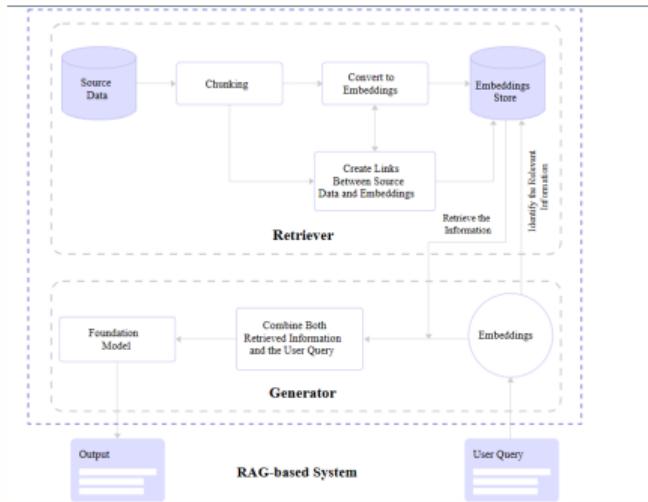
Online reviews serve as a guide for consumer choice. With advancements in large language models (LLMs) and generative AI, the fast and inexpensive creation of human-like text may threaten the feedback function of online reviews if neither readers nor platforms can differentiate between human-written and AI-generated content. In two experiments, we found that humans cannot recognize AI-written reviews. Even with monetary incentives for accuracy, both Type I and Type II errors were common: human reviews were often mistaken for AI-generated reviews, and even more frequently, AI-generated reviews were mistaken for human reviews. This held true across various ratings, emotional tones, review lengths, and participants' genders, education levels, and AI expertise. Younger participants were somewhat better at distinguishing between human and AI reviews. An additional study revealed that current AI detectors were also fooled by AI-generated reviews. We discuss the implications of our findings on trust erosion, manipulation, regulation, consumer behavior, AI detection, market structure, innovation, and review platforms.



# Retrieval Augmented Generation

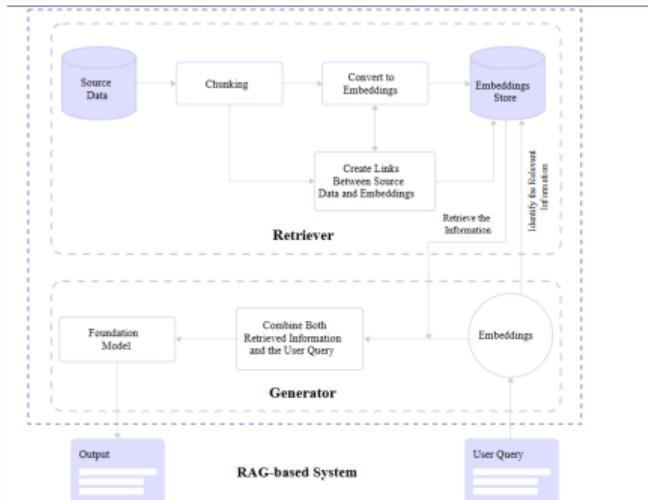


# Retrieval Augmented Generation



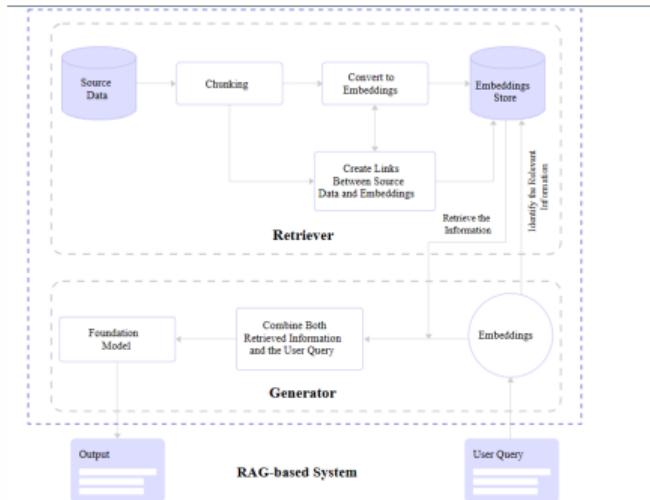
- What is the process?

# Retrieval Augmented Generation



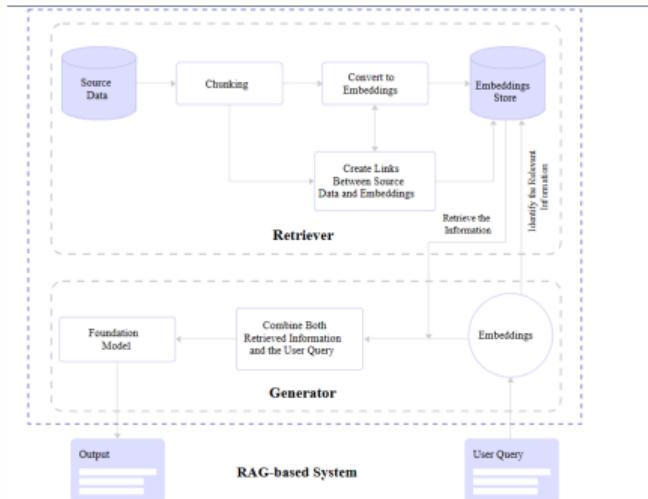
- What is the process?
- What additional sources should be used for training?

# Retrieval Augmented Generation



- What is the process?
- What additional sources should be used for training?
- Explain why it is likely to help.

# Retrieval Augmented Generation



- What is the process?
- What additional sources should be used for training?
- Explain why it is likely to help.
- **What are the benefits of using RAGs?**

# Generative AI Model – Images

# Generative AI

- Can AI actually be part of the creation process?

# Generative AI

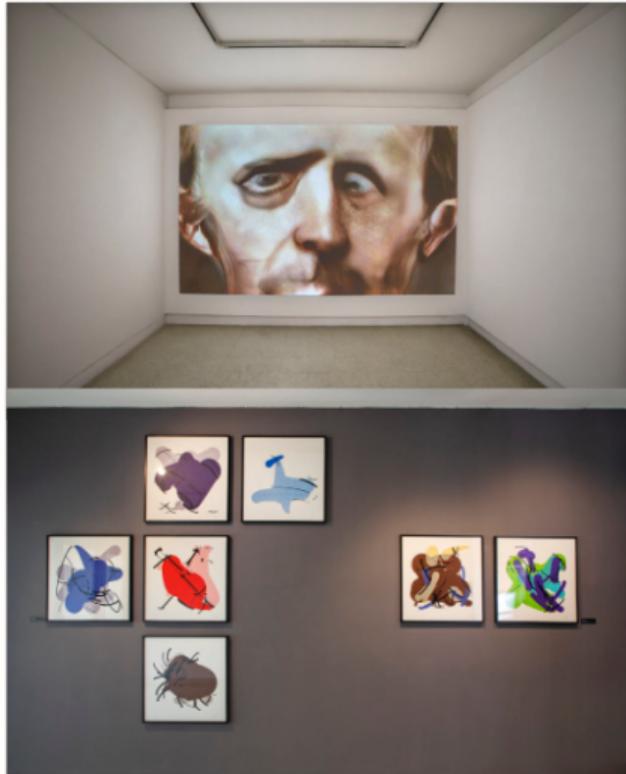
- Can AI actually be part of the creation process?
  - AI can do not just prediction but also generation

# Generative AI

- Can AI actually be part of the creation process?
  - AI can do not just prediction but also generation
  - AI can create or co-create with humans

# Generative AI

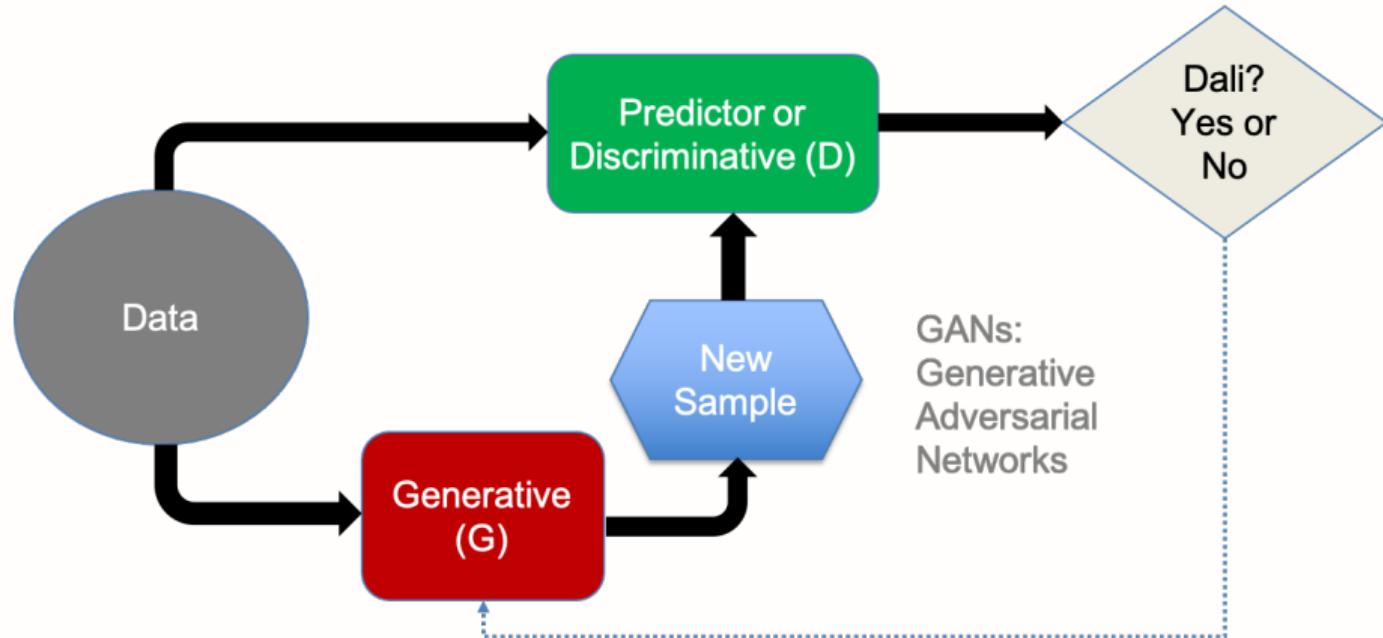
Real Paintings by Dali



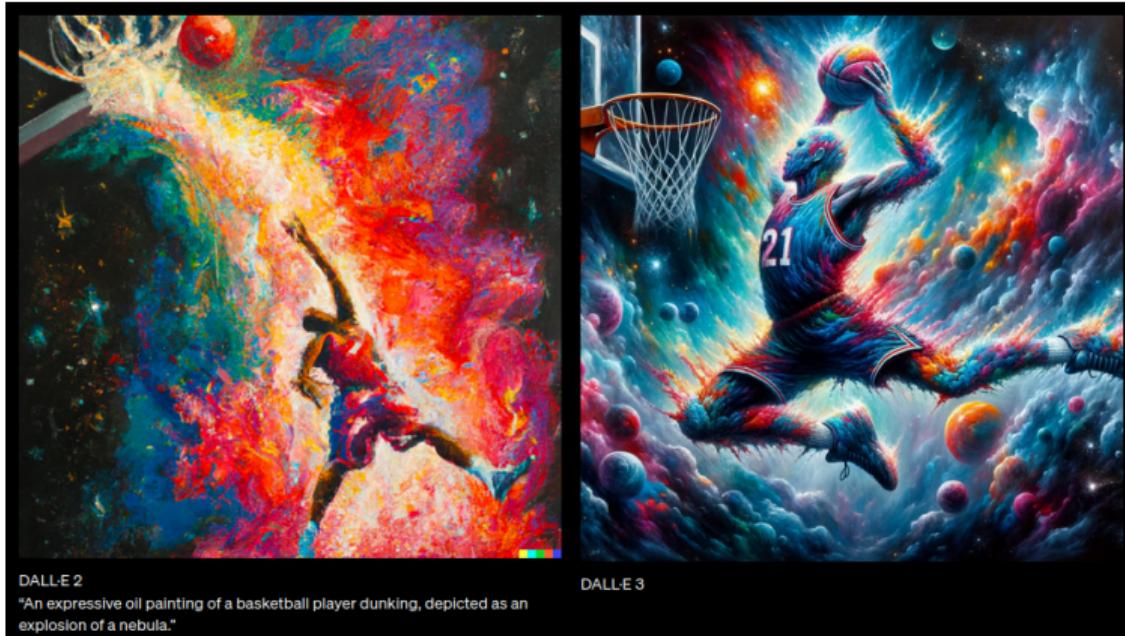
# Generative AI



# Generative AI



# Image generation in 2024



How do you connect text and images?

# Generative AI beyond Text and Images

# Coffee?

A coffee roastery in Finland has launched an AI-generated blend. The results were surprising



Kaffa Roastery's founder Svante Hampf shows package of "AI-conic" coffee blend generated by artificial intelligence in Helsinki, Finland, Friday April 19, 2024. Kaffa, an artisan roastery based in the Finnish capital has introduced a coffee blend that has been developed by artificial intelligence in a trial in which it's hoped that technology can ease the workload in a sector that traditionally prides itself on manual work. (AP Photo/Jari Tanner)

# How was the Coffee?



After the first test roasting and blind testing, Kaffa's coffee experts agreed, however, that the tech-assisted blend was perfect, and there was no need for human adjustments.

# Guest Speaker

# How was the Coffee?

## Generative AI in Practice

*James Lin, Head of AI/ML Innovation, Experian*

April 23, 2024

3:00 pm - 3:40 pm & 4:20 pm - 5:00 pm



Yale SOM MBA '15 - Silver Cohort      BS/MS in Computer Science, UCLA

- Currently leading Gen AI program at Experian
- Previously founded startup out of Yale SOM, raising \$2M in funding
- Filed over 10 patents
- pre-SOM worked at Qualcomm

<https://www.linkedin.com/in/james-lin-077a435/>

Hobby is cooking, won SOM Top Chef competition while there  
Was a TA for the wine class  
EIR for Tsai Center



# Converting Business to Prediction Problem: Amazon Go

# Y variables (from your submissions)

1 Person

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- ① Person
- ② Dollar amount of individual/total purchases

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- ① Person
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- ③ Product recommendations for customer

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- ⑥ Identify customer is in store

# Y variables (from your submissions)

- ① Person
- ② Dollar amount of individual/total purchases
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- ⑤ Items that will be purchased
- ⑥ Identify customer is in store
- ⑦ Add/remove item to cart

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- ① Person
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- ⑧ Identify customer left the store and charge cart

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- ⑨ Number of different items purchased

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## To solve a business problem as an ML problem

"What prediction when made  
with 100% accuracy  
will solve my  
**Business Problem?**" ↑

Essential - Some (smaller #)

"Nice to have" - Many

$$y = f(x)$$

Start with  $y$  ↴

- ↴ Suitable  $x$  ?

# Which *y*s are essential?

- ➊ First select the *y* variables without which business problem \*cannot\* be solved
- ➋ Typically depends on business problem
- ➌ Some *y*s can be derived from others, so we don't need to focus on those
- ➍ In Amazon Go, essential *y*s are 1,7 and 8
  - Others are derivative

# X variables (from your submissions)

- ① Predicted using x-variables from physical facial attributes (i.e.  $x_1$  = distance between eyes,  $x_2$  = width of nose, etc.)
- ② Items available (volume, SKU, price)
- ③ Items purchased (volume, SKU, price)
- ④ Items returned (volume, SKU, price)
- ⑤ Customer identity and account information
- ⑥ Number of unique customers
- ⑦ Amount of time spent by customer in store
- ⑧ Day/frequency of visits/purchases
- ⑨ Demographics

# X variables

- ① Person identification
- ② Track person movements
- ③ Detect persons body movement (arms)
- ④ Detect activity of person
- ⑤ Item identification
- ⑥ Time spent in the store
- ⑦ Distance walked inside the store
- ⑧ Average time on each aisle
- ⑨ Items grabbed
- ⑩ Location point of where they made a stop