

# AI IN ENTERTAINMENT: CREATIVITY AND OPPORTUNITY

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**IT'S 2024 AND AI IN ENTERTAINMENT IS A BIG HYPED IDEA PRESENTING A CHOICE**



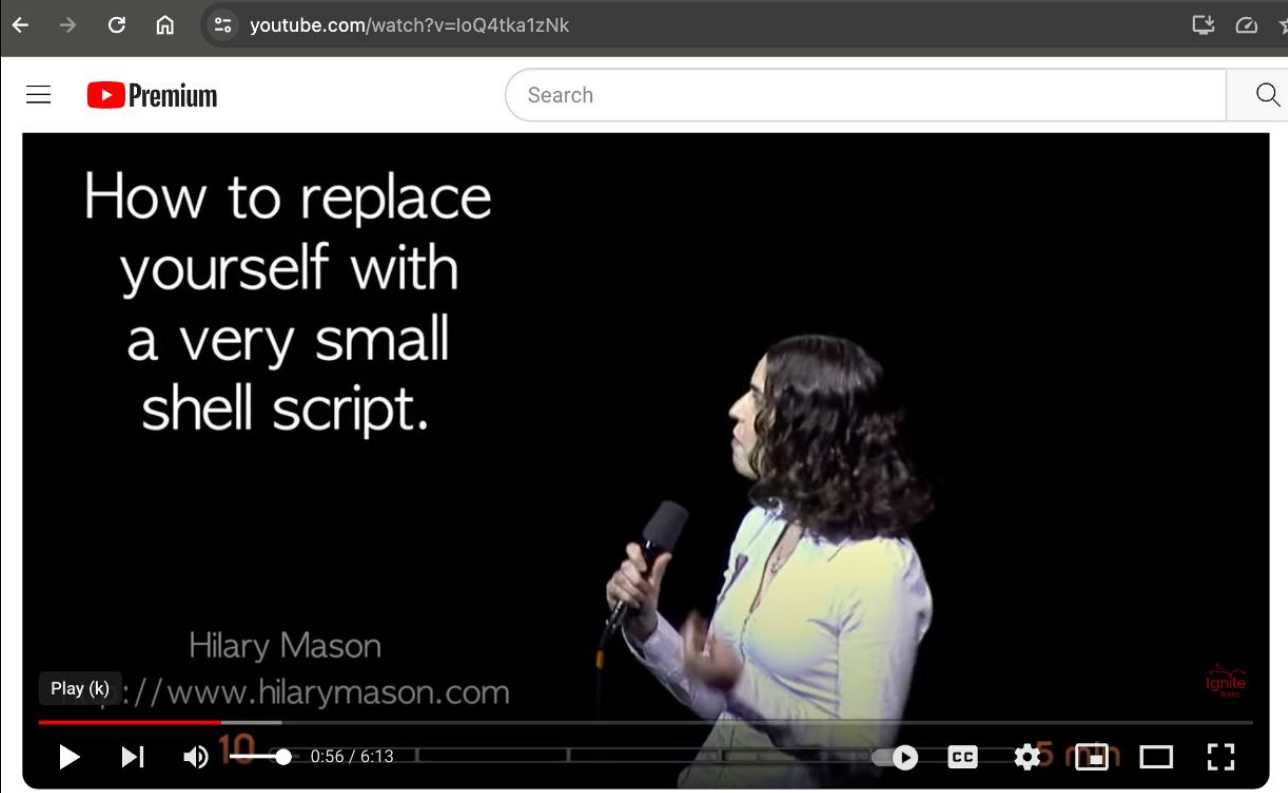
**AI ALLOWS US TO CREATE  
IMMERSIVE AND ACCESSIBLE  
EXPERIENCES THAT WERE NEVER  
POSSIBLE BEFORE**

**...IF WE CHOOSE TO DO IT RIGHT**

**I HAVE A LOT OF EXPERIENCE  
BUILDING DELIGHTFUL  
EXPERIENCES WITH MACHINE  
LEARNING.**

# IN 2009 I AUTOMATED MY EMAIL TO GREAT SADNESS

[SORRY, MOM!]




The screenshot shows a YouTube video player interface. At the top, the browser address bar displays 'youtube.com/watch?v=loQ4tka1zNk'. The YouTube Premium logo is visible in the top left, and a search bar is in the top right. The video content area features a dark background with white text that reads 'How to replace yourself with a very small shell script.' Below the text, a woman (Hilary Mason) is shown in profile, speaking into a microphone. The video player controls at the bottom show the video is at 0:56 of a 6:13 duration. Below the video player, the video title is 'HOW TO REPLACE YOURSELF WITH VERY SMALL SHELL SCRIPT by Hilary Mason, EP 40'. The channel name 'Ignite Talks' is shown with 17.4K subscribers and a 'Subscribe' button. Engagement icons for likes (218), comments, share, and download are present. A description box at the bottom provides context: '69K views 14 years ago. Hilary Mason was tired of sending the same email over and over again. So she decided to create a program to write and send them for her. She offended some people along the way, but now that she's perfected it you never know if she or her personal Skynet is responding to your mail. This work is licensed under a Creative Commons Attribution-Share Alike 3.0 United States License. Distributed by Tubemogul. ...more'

# IN 2014, I BUILT A NATURAL LANGUAGE GENERATION SYSTEM

Fast Forward Labs FF

## Natural Language Generation



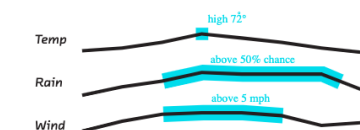
A Report on the Possibilities

### The Stages of Natural Language Generation

**1. Raw Data**

Time of Day	Temperature	Rain %	Wind Speed
	62°	30	4
	70°	40	7
	72°	70	8

**2. Document Planning**



**3. Micro Planning**

- high 72° → a warm day, with a high of 72°
- over 50% chance of rain → grab an umbrella, it's going to be wet out there
- over 5 mph wind → hold onto your hat, it's going to be a very windy day

**4. Realization**

A warm day, with a high of 72°. Grab an umbrella and hold onto your hat. It's going to be a wet and very windy day.

### RoboRealtor

Generate listings for a  bedroom  bathroom apartment in  with the following amenities:

- Laundry in Building
- Storage Available
- Roof Deck  Gym
- Balcony  Doorman
- Pets Allowed  Terrace

Generate for  seconds.

**Generate Listings**

A real estate sales text generator by [Fast Forward Labs](#)

[How it Works](#)

this loft has so much to offer to the discerning buyer who can appreciate its value, and a rare opportunity represented.

**Top Scored Listings** from the **7206** listings generated

This apartment is in a pet-friendly building with many amenities including a full laundry room and bicycle storage. The newly constructed homes include four 4,800-square-foot residences, each with two bedrooms; two floor-through duplexes with private terraces; and one extraordinary 5,700-square-foot penthouse with breathtaking views and 906-square-feet of private outdoor space. The lowest priced combo two bedroom over 3,000 SF in the Flatiron, Soho, NoHo, the East Village and Greenwich Village. Sexy, Fabulous and spacious loft. Move into this new real 2 bedroom real one bathroom home in a prime area today!

Score 6

ft. converted two Bedroom with one Full Marble Bath home. Convenient to all transportation-Penn Station, Grand Central, East Village Tunnel and the FDR Drive as well as plenty of dining and shopping options. This building boasts an elegant new lobby and hallways and in addition to a 24-hour doorman, also contains a newly planted roof garden, bike room, storage room, and laundry facilities.

Score 6

Stunning, two BD 1 BA pre-war loft with amazing character located at the crossroads of Greenwich Village, East Village, and Union Square! A second bedroom, one full baths, a powder room (all renovated), office area and a separate laundry room complete this sun filled home. Parlor Floor Jr. two bedroom on a vibrant block in the East Village with a low monthly maintenance fee.

Score 6

Full time Doorman, Live-in Super, Central State of the Art Laundry Room and Dry Cleaning Vatel. This 2,500 square foot three bedroom, one and one half bathroom unit with balcony combines the modern aesthetics of loft living with the privacy and elegance of more traditional living. There is simply nothing else that comes close to this level of luxury living in this prime East Village location. Enjoy this spacious sunny top floor home with a flexible layout: It can be two bedrooms plus a home office/nursery or two bedrooms and a den.

# (INSPIRED BY THIS ABUSIVE VIRTUAL BOYFRIEND FROM 2012)



# IN 2015, BUILT A REALLY DUMB IMAGE CLASSIFIER & FAILED TO BUILD A CALORIE COUNTER BECAUSE THERE'S NO GROUND TRUTH

Fast Forward Labs FF

## Deep Learning: Image Analysis



 **bleeckerburger**  
is really into

**hamburgers**



**crabs**




**dishes**




**staff**




**crabs** ✕


pictures taken by **bleeckerburger** 




king crab 61%  
dungeness crab 21%



dungeness crab 43%



dungeness crab 54%  
king crab 43%



king crab 26%



Fast Forward Labs FF

## Interpretability

ID	Churn	Phone Service	Internet Service	Multi-Line	Stream	Stream TV	Online Backup	Online Backup	Device Protection	Tech Support	Contract	Payment Method	Payment Method	Months Since Last Change	Total Charges	Tenure	Partner
2076	Yes	Yes	Fiber optic	No	No	No	No	No	No	No	Month-to-month	Electronic check	Yes	\$93.10	\$93.10	1	No
6363	Yes	Yes	Fiber optic	Yes	No	Yes	No	Yes	No	No	Month-to-month	Electronic check	Yes	\$90.80	\$90.80	1	Yes
2505	Yes	Yes	Fiber optic	Yes	No	No	No	No	No	No	Month-to-month	Month-to-month	Yes	\$74.25	\$74.25	1	No
181	Yes	Yes	Fiber optic	Yes	Yes	Yes	No	No	No	No	Month-to-month	Month-to-month	No	\$65.00	\$655.00	7	No
5944	Yes	Yes	Fiber optic	No	Yes	No	No	No	Yes	Yes	Month-to-month	Electronic check	Yes	\$49.25	\$497.25	6	No
2337	Yes	Yes	Fiber optic	No	No	No	No	No	No	No	Month-to-month	Month-to-month	Yes	\$70.10	\$497.55	7	Yes
2931	Yes	Yes	Fiber optic	No	No	No	No	No	No	No	Month-to-month	Electronic check	Yes	\$70.00	\$1144.50	17	No
813	Yes	Yes	Fiber optic	Yes	No	Yes	No	No	No	No	Month-to-month	Electronic check	Yes	\$44.00	\$2098.05	25	No
3005	Yes	Yes	Fiber optic	No	No	No	No	No	No	No	Month-to-month	Electronic check	Yes	\$90.00	\$2098.80	25	No
2000	Yes	Yes	Fiber optic	No	No	No	No	No	No	No	Month-to-month	Electronic check	No	\$55.35	\$2399.80	34	No
4047	Yes	No	DSL	No phone service	Yes	Yes	No	Yes	No	Yes	Month-to-month	Electronic check	Yes	\$46.25	\$1769.80	24	No
2998	Yes	Yes	Fiber optic	Yes	No	No	No	No	No	No	Month-to-month	Electronic check	Yes	\$79.50	\$2180.55	27	No
3257	Yes	Yes	Fiber optic	Yes	No	Yes	No	No	Yes	Yes	Month-to-month	Electronic check	No	\$87.45	\$2874.15	34	Yes

40 Customers sorted by Churn Probability (descending order) 4040 expressions loaded

Fast Forward Labs FF

## Deep Learning: Image Analysis

Fathom

How It Works Explore Categories Your Profile

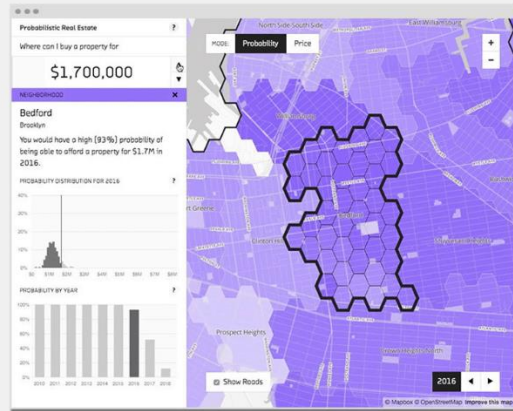
vertebrate living thing mammal organism placental animal carnivore domestic animal

dogs

border collie 60% beagle 53% golden retriever 95% fall-coated retriever 70% english springer 40% arctic fox 28% esmo dog 27% eskimo dog 62% siberian husky 35% blue tick 29%

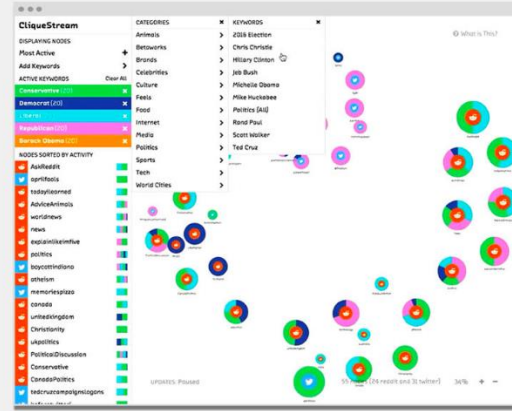
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## Probabilistic Programming



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## Probabilistic Methods for Realtime Streams



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## Summarization

Brief

## How Railroad History Shaped Internet History

theatlantic.com · 7 min read

An 1880 sketch of the railroad depot at Council Bluffs, Iowa. [British Library / Wikimedia](#)

Council Bluffs is a mid-sized town in Iowa, right on that state's border with Nebraska. Although better known for cultivating presidential

Many forces have come together to shape Iowa's data-center industry (which will be discussed in further detail in another story), but it's the state's history as a junction for another major network—railroads—that put it at the top of my list for Cloud sightseeing.

Score: 25 | Scroll: 9%

The histories of these places isn't always immediately obvious, but it's there, forming a kind of infrastructural palimpsest, with new technologies to annihilate space and time inheriting the idealized promise and the political messiness of their predecessors.

Score: 30 | Scroll: 12%

Ingrid Burrington Formed in 1864 (the same year Council Bluffs was selected as the railroad's starting

Fast Forward Labs FF

## Natural Language Generation

RoboWriter

A real estate sales text generator by Fast Forward Labs

Generate listings for a 5 bedroom 2 bathroom apartment in Midtown with the following amenities: Laundry in Building, Storage Available, Roof Deck, Gym, Balcony, Doorman, Pets Allowed, Terrace

Generate for 10 seconds

Generate Listings

Top Scored Listings from the 8794 listings generated

This magnificent mint five bedroom, two bath apartment has been impeccably restored in this legendary building. It features a beautiful lobby, 24-hour doorman, along with a fantastic planted roof deck, modern fitness center, new laundry room, a separate bicycle shed, and private storage bins located in the basement and a live-in resident manager. Pets and pied-e-terres are permitted! 310 Midtown 46th St., Apt. A storage bin is included with the sale and there is a beautiful palatial private garden that tenant-shareholders can use for parties.

Score: 4

Combined they have approximately 600 cubic square feet of additional storage). This perfect sun drenched home with open city views is currently a five bedroom which can be easily converted to two bedrooms. 310 East 46th Street, Apartment 7F. Fantastic space in this full-service doorman building, just steps from the United Nations. Built in the 1960's and converted to a co-op in 1975, the Murray Hill Crescent is in a prime Murray Hill/Midtown East location between 2nd and 3rd Avenues near the Midtown Business District, vibrant Flatiron, and Grand Central Station, the East River Promenade, fine shops and restaurants. The full service building has a laundry, storage, 24/7 doorman, mail room, and newly installed service elevators. Pets are welcome and sublets are permitted. Luxury two bath high rise, terrace

Score: 4

Fivebed/twobath home. It is pet friendly and allows pied-e-terres.



## / innovation

Home / Innovation / Artificial Intelligence

# Cloudera's Hilary Mason: To make AI useful, make it more "boring"

Hilary Mason, the former chief data scientist at Bitly and founder of Fast Forward Labs, is now the key AI executive and thought leader at Cloudera. So it may surprise people to learn that she thinks our obsession with AI's cool factor is impeding progress, and inhibiting AI's successful application in the Enterprise.

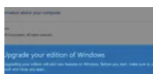


Written by **Andrew Brust**, Contributor

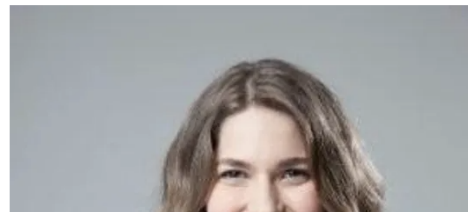
Feb. 16, 2019 at 8:00 a.m. PT



## / must read



How to upgrade Windows Home edition to Pro



## / related



Tech giants promise to combat fraudulent AI

**THE  
VISION**

**HIDDEN DOOR IS  
THE PLACE FOR FANS  
TO FIND, DISCOVER, AND PLAY  
IN THEIR FAVORITE FICTIONAL WORLDS.**



**KINDA  
LIKE  
THIS**



**THE ORIGINAL STORY  
[BOOK, COMIC, MOVIE, SHOW]  
FANS FALL IN LOVE WITH**

**KINDA  
LIKE  
THIS**

**THE [STORY]  
UNIVERSE FANS  
CREATE WITH  
HIDDEN DOOR**



THE  
GAME

A CASUAL WEB-BASED  
SOCIAL EXPERIENCE  
INSPIRED BY TABLETOP  
ROLE-PLAYING GAMES,  
WHERE EVERY CHOICE  
MATTERS.



A character card for Gabriel, a Punk Rocker. The card features a black and white illustration of a woman with short, dark hair and a choker. The card is tilted and partially overlaps another card below it.

SHE / HER  
**GABRIEL**  
Punk Rocker

**SINKING**  
A cramped, dark space, falling deep into the earth where the dead are laid to rest.

**A GRIM AWAKENING**  
In a nightmarish realm stained with the blood of the wicked, a vengeful spirit rises from the grave, its thirst for retribution insatiable.

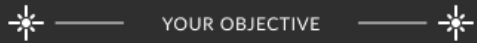
A small, white, stylized icon of a winged figure, possibly a spirit or angel, located at the bottom of the card.



THE CROW  
TRAPPED

You stir, emerging from the darkness of your makeshift prison.

Your eyes fly open as you take in the confines of **the coffin**. 'I'm trapped!' you gasp, panic surging.



YOUR OBJECTIVE

Free yourself

Type a word or phrase

I try to recall any details of what happened before I ended up here.

I whisper a rough incantation from my criminalism skills.

I examine the coffin's trap mechanism for weaknesses.

MORE

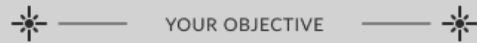
CONTINUE →



THE WIZARD OF OZ  
THE MYSTERIOUS SWAMP

You stumble upon a strange, murky swamp while exploring the **Enchanted Forest**.

The footing is treacherous, and strange sounds escape the dense vegetation, hinting at potential hidden dangers... or treasures.



YOUR OBJECTIVE

Explore the forest

Type a word or phrase

I wade into the swamp.

I make loud noises to scare away any creatures.

I consult my map to look for a nearby town.

MORE

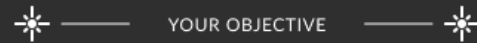
CONTINUE →



CALL OF CTHULHU  
THE DISTURBING DEVICE

You enter the cavernous halls of the **Astronomical Observatory**, its grand design filling you with a sense of wonder and purpose.

A feeling of peace consumes you, oblivious to the sinister forces that linger just out of sight.



YOUR OBJECTIVE

Consult the orrery

Type a word or phrase

I examine the instruments, searching for anomalies.

I look for surveillance devices.

I scream, to hear the echoes.

MORE

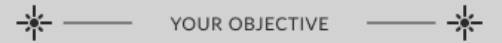
CONTINUE →



PRIDE AND PREJUDICE  
A PARTY ON THE EDGE

You arrive just in time at the **Opulent Estate Garden**, eager to enjoy the high-society gathering.

As you drift through the crowd, you detect hints of tension beneath the veneer of polite discourse.



YOUR OBJECTIVE

Find your host

Type a word or phrase

I explore the grounds.

I ask the gardener for information.

I start dancing like nobody's watching.

MORE

CONTINUE →

**THIS IS NOT ABOUT MAKING  
FILM/BOOK/TV/GAME/STORY  
DEVELOPMENT CHEAPER.**



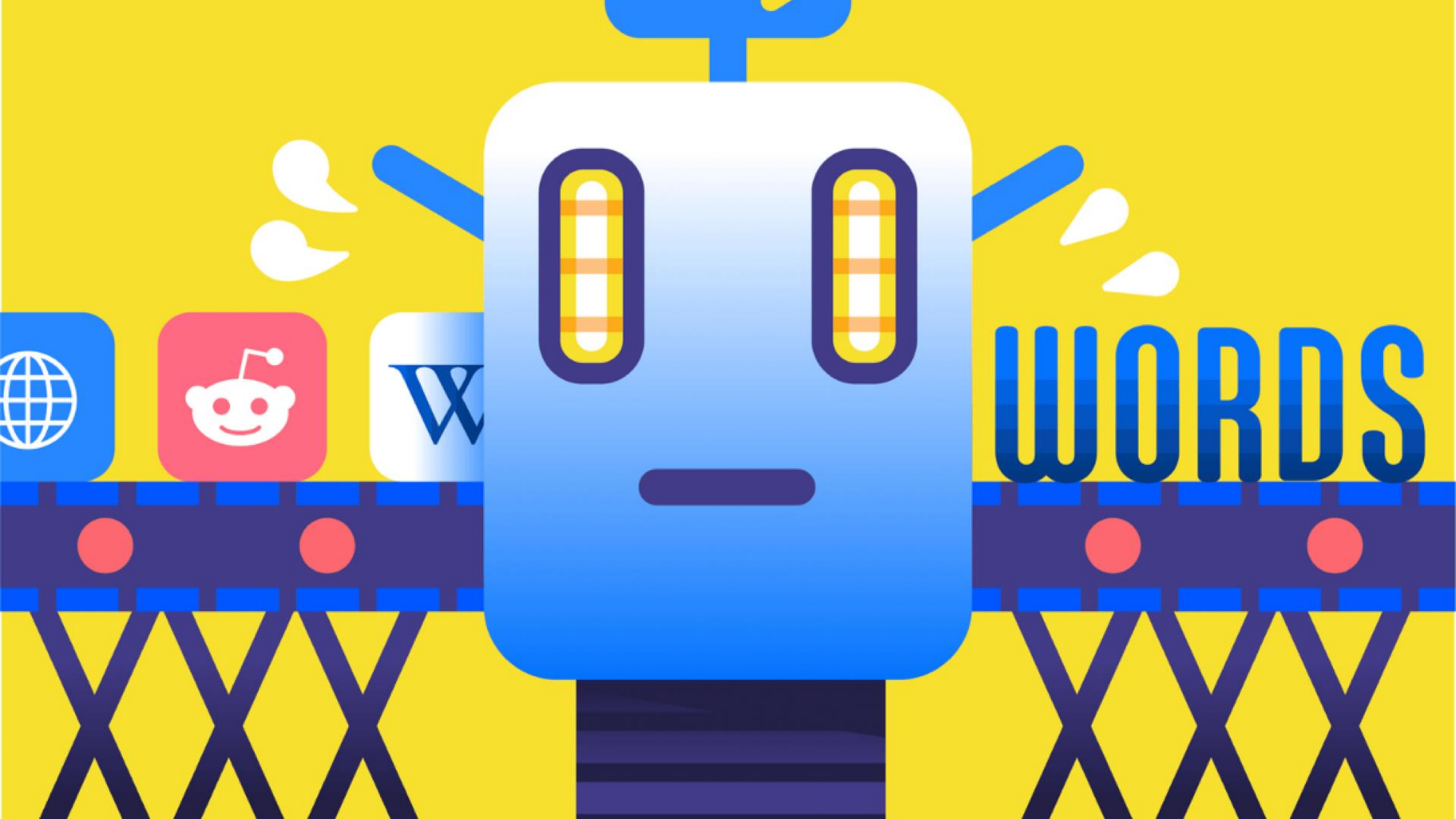
# THE BUSINESS VALUE IN AI:

**1) REDUCE COSTS**

**2) ENTIRELY NEW OPPORTUNITIES**



# WHAT DOES “AI” BRING TO ENTERTAINMENT AND CREATIVE WORKS?



**WORDS**

**LLMS ARE AN ENGINE  
FOR PRODUCING THE  
MOST MEDIOCRE  
OUTPUT.**



# HALLUCINATIONS ARE A FEATURE



We gratefully acknowledge support from the Simons Foundation, member institutions, and all contributors. [Donate](#)

arXiv > cs > arXiv:2401.11817

Search... All fields Search

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Computer Science > Computation and Language

[Submitted on 22 Jan 2024]

## Hallucination is Inevitable: An Innate Limitation of Large Language Models

Ziwei Xu, Sanjay Jain, Mohan Kankanhalli

Hallucination has been widely recognized to be a significant drawback for large language models (LLMs). There have been many works that attempt to reduce the extent of hallucination. These efforts have mostly been empirical so far, which cannot answer the fundamental question whether it can be completely eliminated. In this paper, we formalize the problem and show that it is impossible to eliminate hallucination in LLMs. Specifically, we define a formal world where hallucination is defined as inconsistencies between a computable LLM and a computable ground truth function. By employing results from learning theory, we show that LLMs cannot learn all of the computable functions and will therefore always hallucinate. Since the formal world is a part of the real world which is much more complicated, hallucinations are also inevitable for real world LLMs. Furthermore, for real world LLMs constrained by provable time complexity, we describe the hallucination-prone tasks and empirically validate our claims. Finally, using the formal world framework, we discuss the possible mechanisms and efficacies of existing hallucination mitigators as well as the practical implications on the safe deployment of LLMs.

Subjects: **Computation and Language (cs.CL)**; Artificial Intelligence (cs.AI); Machine Learning (cs.LG)

Cite as: [arXiv:2401.11817 \[cs.CL\]](#)

(or [arXiv:2401.11817v1 \[cs.CL\]](#) for this version)

<https://doi.org/10.48550/arXiv.2401.11817>

### Submission history

From: Ziwei Xu [[view email](#)]

[v1] Mon, 22 Jan 2024 10:26:14 UTC (291 KB)

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ChatGPT 4o ▾

Share



please make a picture of a presenter at the World Summit AI conference in Amsterdam



Here's the image of a presenter at the World Summit AI conference in Amsterdam. If you'd like any further adjustments, just let me know!



AN ASIDE

IMAGE  
GENERATION IS IN  
A GOLDEN AGE OF  
ALMOST  
READABLE TEXT



**YOU WILL HEAR ABOUT  
RAG AND RLHF AND  
AGENTS.**

**THESE ARE TECHNICAL APPROACHES TO MANAGING,  
BUT NOT FIXING, THESE THINGS**



**WHAT ARE THE TECH  
CAPABILITIES THAT ARE  
USEFUL?**

# EMBEDDINGS



# TRANSFORMATION

TRANSFORMING INFORMATION FROM ONE FORMAT TO ANOTHER

# CONTEXT-AWARE MULTI-MODAL GENERATION

ALLOWING ELEMENTS OF AN EXPERIENCE TO BE  
GENERATED AT PLAY-TIME

**WHAT DOES AI  
BRING TO ENTERTAINMENT?**

**IT WILL NOT LOWER COSTS,  
IT CAN SHIFT THEM  
AROUND.**

# AI ENABLES A CREATIVE DANCE

PLAYERS CAN INFLUENCE CONTENT  
IN REAL-TIME.

IT'S A COLLABORATION BETWEEN  
THE DESIGNER/DIRECTOR, THE  
SYSTEM, AND PLAYERS.

EXPERIENCE DESIGNERS ARE MORE  
LIKE DIRECTORS.

# PLAYERS CAN CHANGE THE WORLD

WE WRITE BEGINNINGS, BUT THE PLAYERS TELL US HOW  
THEY WANT TO GET TO THE END.



# MORE ACCESSIBLE EXPERIENCES

EVERY BELOVED WORLD CAN BE A CINEMATIC  
UNIVERSE



# IT WILL TRANSFORM THE INDUSTRY

WE BRING SOFTWARE ECONOMICS TO CONTENT  
ENTERTAINMENT INDUSTRY BUSINESS MODELS WILL CHANGE

**THIS IS HARD.  
HOW CAN WE DO IT WELL?**

**FIRST,  
PRINCIPLES.  
LET'S HAVE SOME.**

O'REILLY®

# Ethics and Data Science



Mike Loukides,  
Hilary Mason  
& DJ Patil

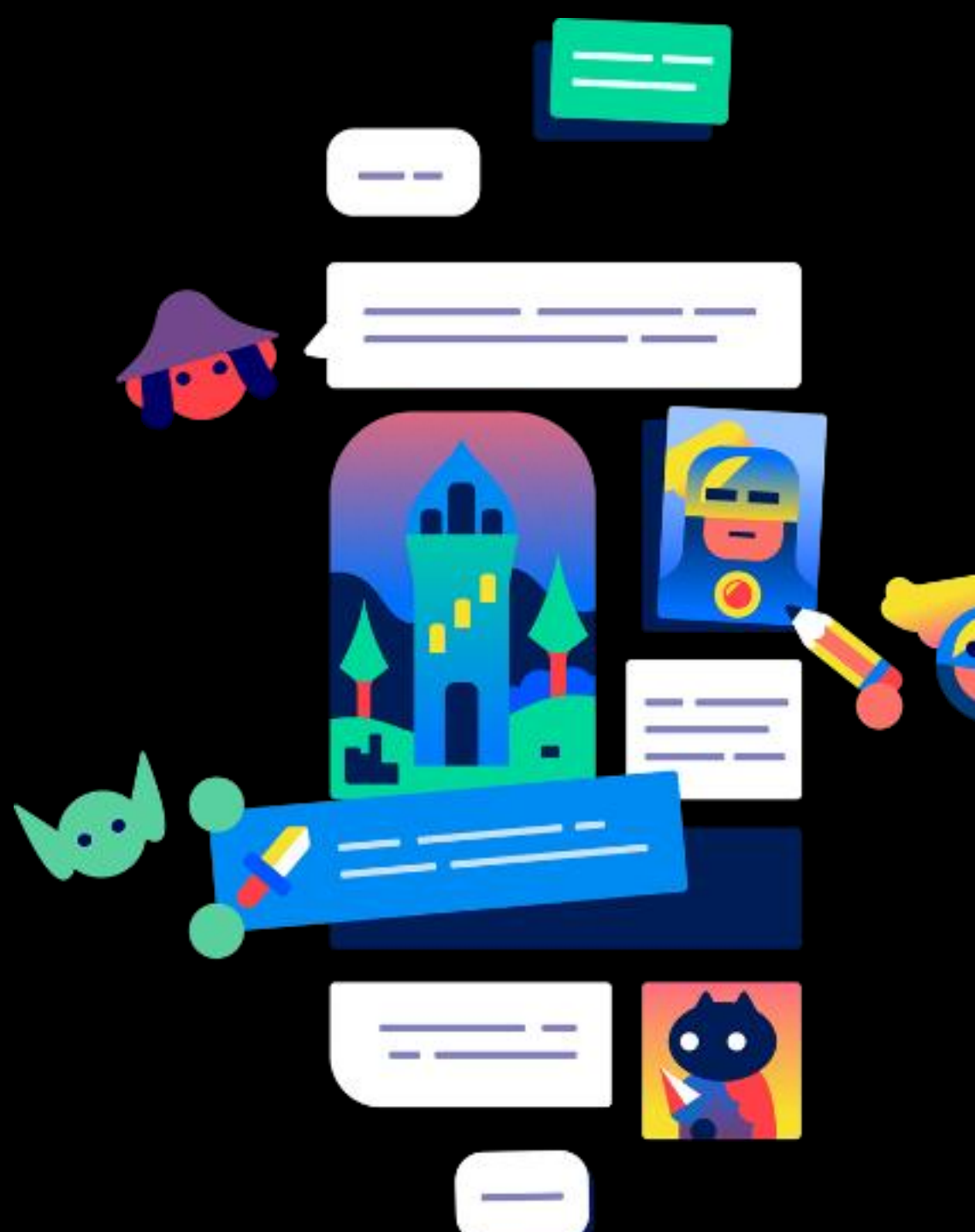
**MACHINES ARE NOT  
CREATIVE, PEOPLE ARE.**

**PEOPLE'S CREATIVITY IS NECESSARY**



# DESIGN AI BUSINESSES FROM THE MATH TO THE CODE TO THE PRODUCT TO THE DESIGN TO THE BUSINESS

IT'S ALL ONE STACK, AND IT'S DIFFERENT



# THIS IS A TEAM SPORT!

THE SKILLS NEEDED ARE NOT JUST LLM-PROMPT-  
"ENGINEERING", BUT PEOPLE WHO CAN THINK FROM  
EXPERIENCE TO CODE

**AI HAS ALREADY MOVED FROM AN  
ENGINEERING PROBLEM TO A DESIGN  
PROBLEM.**



**USE AI FOR WHAT IT'S  
ACTUALLY GOOD FOR**

# PLEASE: PICK THE RIGHT EXPERIENCE TO BUILD



ARTIFICIAL INTELLIGENCE / TECH / GOOGLE

## Google promised a better search experience – now it’s telling us to put glue on our pizza



Illustration by Cath Virginia / The Verge | Photos by Getty Images

/ Google’s AI Overviews feature is delivering incorrect answers faster than ever.

By [Kylie Robison](#), a senior AI reporter working with The Verge’s policy and tech teams. She previously worked at Fortune Magazine and Business Insider.

May 23, 2024, 3:27 PM EDT



205 Comments (205 New)

Imagine this: you’ve carved out an evening to unwind and decide to make a homemade pizza. You assemble your pie, throw it in the oven,

**IGNORE HYPE, BE PRAGMATIC,  
MAKE EXCELLENT THINGS!**



**THANK YOU!**

**HILARY MASON  
CO-FOUNDER & CEO  
HIDDEN DOOR**



**COME PLAY WITH US:**

**[HIDDENDOOR.CO](https://hiddendoor.co)**