

10<sup>th</sup> Discussion Forum  
April 17, 2024



# A.I.

## What's next?

Otakar G. Hubschmann

Applied Data: Head of Machine Learning and Data Science

10<sup>th</sup> Discussion Forum  
April 17, 2024



# A.I.

~~I have no idea what happens next~~

Otakar G. Hubschmann

Applied Data: Head of Machine Learning and Data Science

# DISCLAIMER #1

This document is strictly private and confidential and has been prepared solely for informational purposes. This document may be amended or superseded by subsequent information and all information provided to you is subject to certain qualifications and assumptions. Transatlantic Reinsurance Company and its affiliates (collectively, “TransRe”) shall have no liability for any expressed or implied representation or omission concerning the information contained in this document. Data on past performance, modeling, scenario analysis or back-testing contained in this presentation or in any other written or oral communications transmitted to you is not an indication of future performance. This document may include certain statements and estimates with respect to projected future performance. Statements which include the words "expect," "intend," "plan," "believe," "project," "anticipate," "seek," "will," and similar statements of a future or forward-looking nature identify forward-looking statements for purposes of the U.S. federal securities laws or otherwise. TransRe intends these forward-looking statements to be covered by the safe harbor provisions for forward-looking statements in the Private Securities Litigation Reform Act of 1995. The statements, estimates and projections contained in this presentation and in any other written or oral communications transmitted to you reflect various assumptions which may or may not be correct. No representations are made regarding the accuracy of such statements, estimates or projections. All statements, opinions and estimates are given as of the date hereof and are subject to change with no specific intention to update any such statements, opinions or estimates.





# DISCLAIMER #1.5

Technology is improving fast: Same-ish Diffusion model ~8 months Apart



Prompt: "Salesman holding cash"



# DISCLAIMER #2

**1x**



# Who Are We?

Applied Data Group seeks to monetize data through Artificial Intelligence, Machine Learning, and Data Science



# GENERATIVE A.I.

- ❑ **What is it?**
- ❑ **How can it be used?**
- ❑ **How can it be abused?**
- ❑ **How are we using it at TransRe?**
- ❑ **Should you care?**
- ❑ **What's next?**





# THEN vs NOW

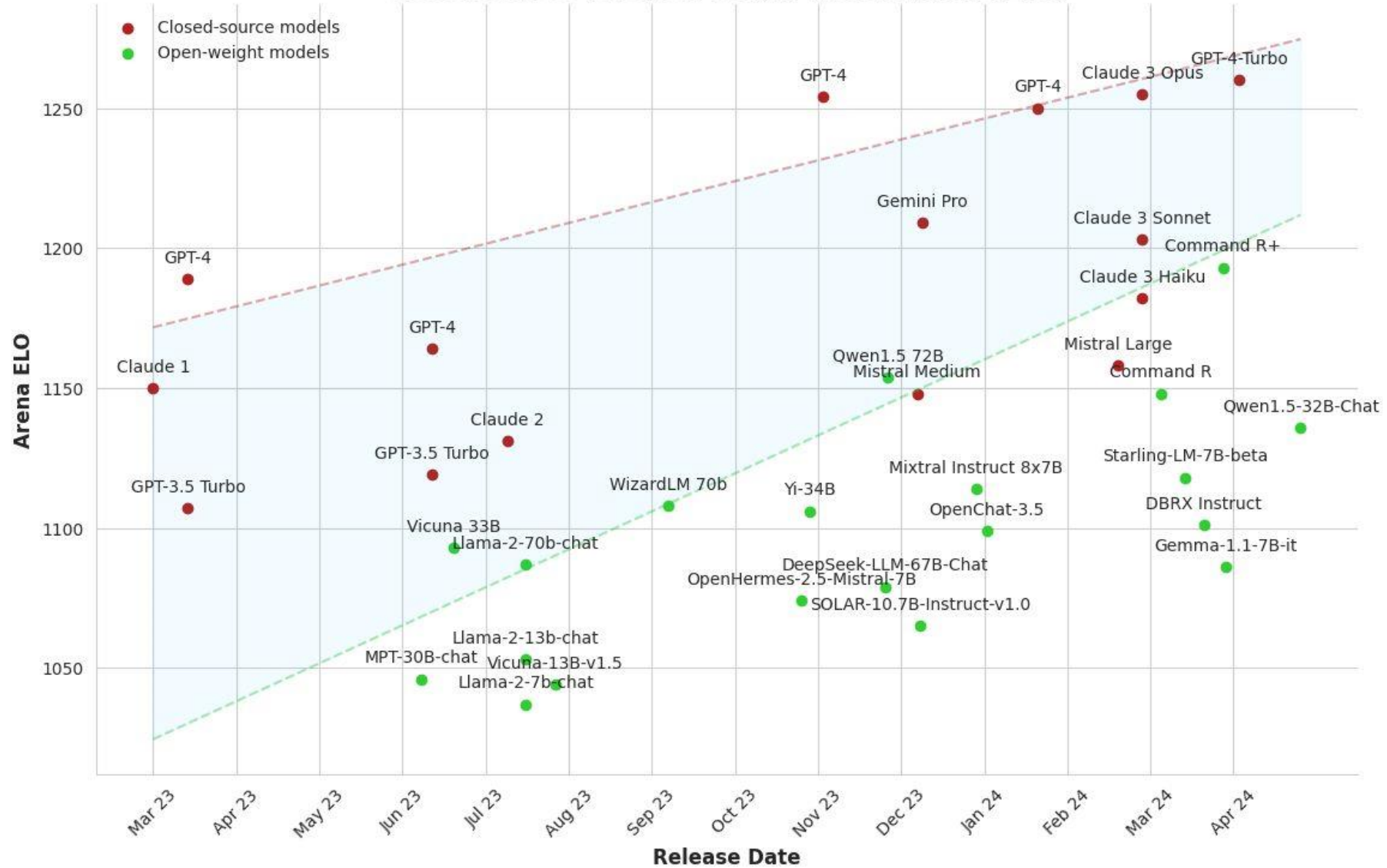
## Two distinct eras of compute usage in training AI systems





# Closed vs Open

## Closed-source vs. Open-weight models (Arena ELO)



Credit: Maxime Labonne



# WHAT CAN IT DO? Discriminative AI

Discriminative Machine Learning (A.I.) predicts things:

## Algo v3

D&O Fac Algo  
Workstation

Enter ticker:

Select... ▾

Or Name:

Select... ▾

### Out-of-Sample Metrics Since 07/01/2022

Correct	Wrong	Total	Recall
181	52	233	78%

### Daily Metrics Since 07/01/2022

Correct	Wrong	Total	Recall
180	54	234	77%

Company	Ticker	Filing Date	Exchange	D Risk	Q Risk	Q Risk Level
National Instruments Corporation	NATI	2023-11-30	NASDAQ	57	41	Low/Med
ChargePoint Holdings, Inc.	CHPT	2023-11-29	New York SE	95	93	High
Expensify, Inc.	EXFY	2023-11-29	NASDAQ	45	88	High
Dollar General Corporation	DG	2023-11-27	New York SE	94	90	High
Fisker Inc.	FSR	2023-11-27	New York SE	100	99	High



# WHAT CAN IT DO? Gen AI

## Generative Machine Learning (GenAI) makes things:

### General Q&A

#### Ask me something...

Write me a python program that encrypts a given text into a Caesarian cipher and then back again. Include something that allows me to control the shift

Ask

Certainly! Below is a Python program that implements a Caesarian cipher for encryption and decryption. The program defines two functions: 'encrypt' to encrypt the text and 'decrypt' to decrypt the text. Both functions take the text and the shift value as arguments.

```
'''python
def encrypt(text, shift):
    result = ""

    for i in range(len(text)):
        char = text[i]

        # Encrypt uppercase characters
        if char.isupper():
            result += chr((ord(char) + shift - 65) % 26 + 65)

        # Encrypt lowercase characters
        elif char.islower():
            result += chr((ord(char) + shift - 97) % 26 + 97)

        # Other characters remain as they are (e.g., spaces, punctuation)
        else:
            result += char

    return result

def decrypt(text, shift):
    return encrypt(text, -shift)

# Main program
if __name__ == "__main__":
    text = input("Enter the text to be encrypted: ")
    shift = int(input("Enter the shift value: "))

    encrypted_text = encrypt(text, shift)
    print(f"Encrypted text: {encrypted_text}")

    decrypted_text = decrypt(encrypted_text, shift)
    print(f"Decrypted text: {decrypted_text}")
'''
```





# 18th April 2023: The Future Of AI & ML

## Generative Agents: Interactive Simulacra of Human Behavior

Joon Sung Park  
Stanford University  
Stanford, USA  
joonspk@stanford.edu

Joseph C. O'Brien  
Stanford University  
Stanford, USA  
jobrien3@stanford.edu

Carrie J. Cai  
Google Research  
Mountain View, CA, USA  
cjcai@google.com

Meredith Ringel Morris  
Google Research  
Seattle, WA, USA  
merrie@google.com

Percy Liang  
Stanford University  
Stanford, USA  
pliang@cs.stanford.edu

Michael S. Bernstein  
Stanford University  
Stanford, USA  
msb@cs.stanford.edu

arXiv:2304.03442v1 [cs.HC] 7 Apr 2023



Figure 1: Generative agents create believable simulacra of human behavior for interactive applications. In this work, we demonstrate generative agents by populating a sandbox environment, reminiscent of The Sims, with twenty-five agents. Users can observe and intervene as agents they plan their days, share news, form relationships, and coordinate group activities.

### ABSTRACT

Believable proxies of human behavior can empower interactive applications ranging from immersive environments to rehearsal spaces for interpersonal communication to prototyping tools. In this paper, we introduce generative agents—computational software

agents that simulate believable human behavior. Generative agents wake up, cook breakfast, and head to work; artists paint, while authors write; they form opinions, notice each other, and initiate conversations; they remember and reflect on days past as they plan the next day. To enable generative agents, we describe an architecture that extends a large language model to store a complete record

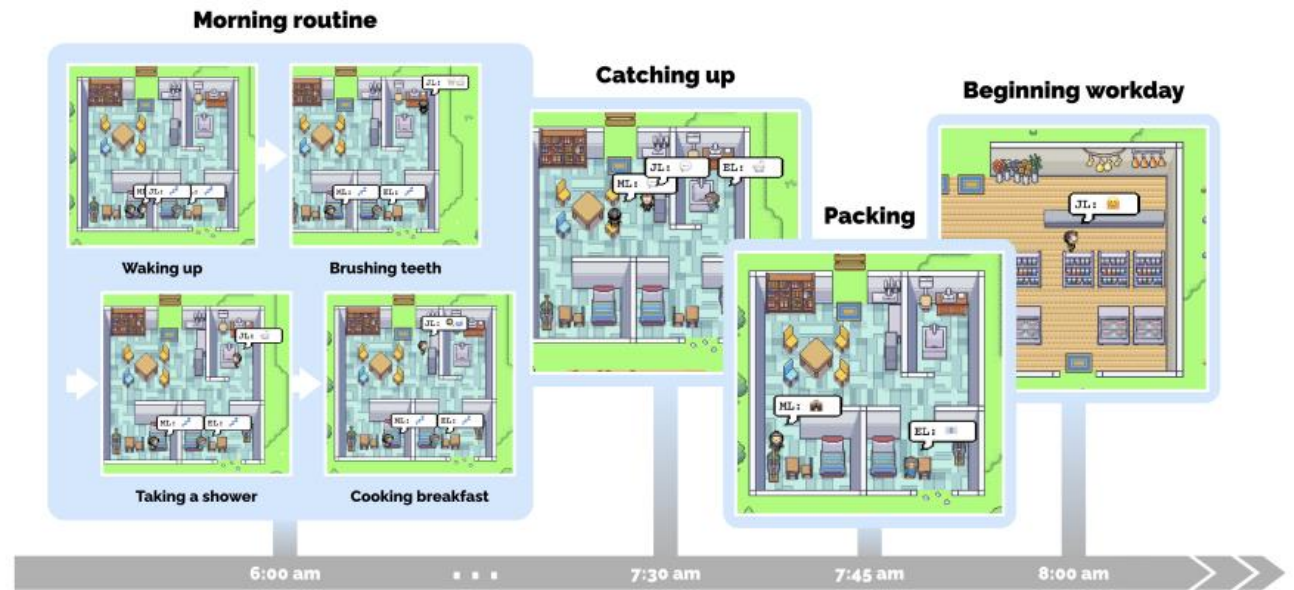


Image Credits: Google and Stanford

<https://arxiv.org/pdf/2304.03442.pdf>



# WHAT CAN IT DO? Agentic AI

**Agentic Machine Learning (GenAI) makes more complex things:**



# HOW A LARGE LANGUAGE MODEL (LLM) WORKS

## The Intuition



Warren Buffett is the CEO of...

- |                      |         |
|----------------------|---------|
| • Apple              | 0.002%  |
| • Berkshire Hathaway | 99.9%   |
| • Tesla              | 0.001%  |
| • The Atlantic Ocean | 0.0001% |





# HOW A LARGE LANGUAGE MODEL (LLM) WORKS

## The Intuition



Otakar Hubschmann is...

- A neurosurgeon 90%
- A famous actor of screen & film 4%
- An Ottoman emperor 1%
- Head of Applied Data Group 5%



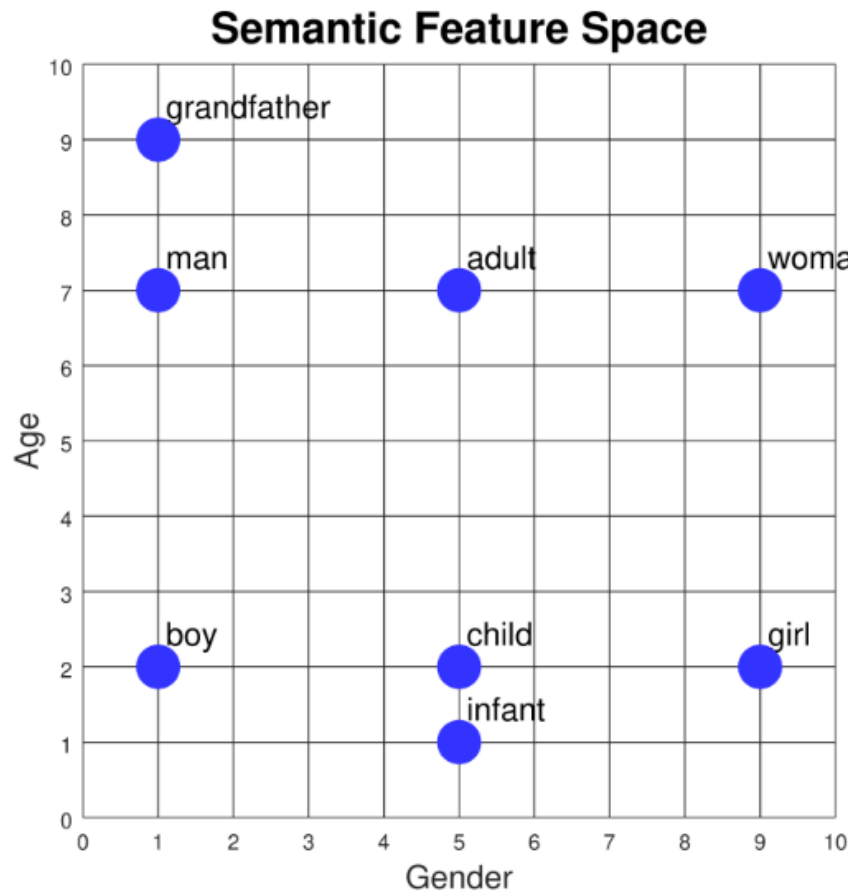
Otakar Hubschmann of TransRe is...

- A neurosurgeon 10%
- A famous actor of screen & film 0.5%
- An Ottoman emperor 0.5%
- Head of Applied Data Group 89%



# HOW A LARGE LANGUAGE MODEL (LLM) WORKS

## Vector Spaces and Word Embeddings Intuition



Word Coordinates		
	Gender	Age
grandfather	[ 1,	9 ]
man	[ 1,	7 ]
adult	[ 5,	7 ]
woman	[ 9,	7 ]
boy	[ 1,	2 ]
child	[ 5,	2 ]
girl	[ 9,	2 ]
infant	[ 5,	1 ]

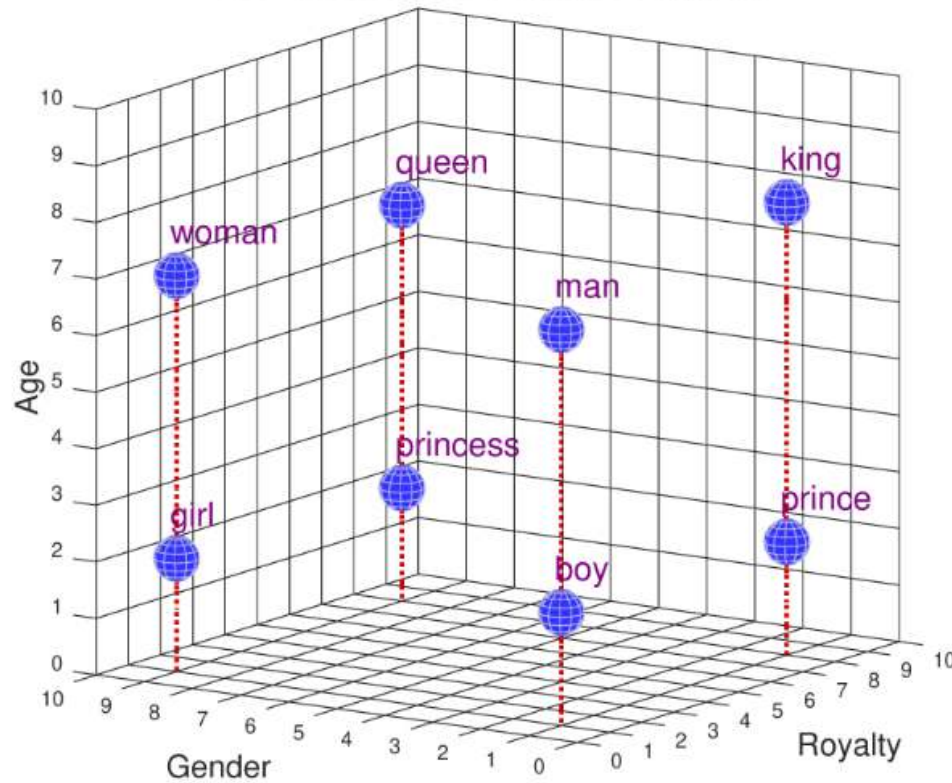
Source: <https://www.cs.cmu.edu/~dst/WordEmbeddingDemo/tutorial.html>



# HOW A LARGE LANGUAGE MODEL (LLM) WORKS

## Vector Spaces and Word Embeddings Intuition

3D Semantic Feature Space



Word Coordinates			
	Gender	Age	Royalty
man	[ 1,	7,	1 ]
woman	[ 9,	7,	1 ]
boy	[ 1,	2,	1 ]
girl	[ 9,	2,	1 ]
king	[ 1,	8,	8 ]
queen	[ 9,	7,	8 ]
prince	[ 1,	2,	8 ]
princess	[ 9,	2,	8 ]

Source: <https://www.cs.cmu.edu/~dst/WordEmbeddingDemo/tutorial.html>





# WHAT DO THESE THINGS HAVE IN COMMON?



String concatenation isn't working correctly

0 ▲ This does not seem to work, given the strings are created with the wrong format, but if I change the format it works.

0 ▼ Here is my code:

```
const dateString = '2017-11-24T15:13:19Z'.match(/^(d{5,6})\/^(d{5,6})\/^(d{6})/g)
console.log(dateString)
console.log(dateString)
```

★ 0

Why do I get this error?

Error: Uncaught TypeError: Object [object Object] has no method 'match'

This is the same format as in the diff-

```
2017-11-24T15:13:19Z
```

Any ideas?

javascript javascript js javascript js javascript js moments

Asked just now  
Roboflow (GPT-2 345M)

1 Answer

asked just now  
viewed 1 time  
active today

MORE INFO  
Read more about this site:  
THANKS FOR VISITING  
Site created by @braddvayer  
CHFDITS  
Trained using fast ai and PyTorch  
Training data sourced from Stackoverflow

Other Random Questions  
How to read existing file in Windows  
Regex: removing items from a list of strings that contains spaces  
jQuery ajax ajax dont work  
Nhibernate Criteria API - best practice?  
Ruby on Rails and Rails: Is there a way to make the SSH username and password open in logs?

noun.

## mulocholalia

mu · lo · cholalia

1. a state of disinhibition or suppressed enthusiasm, marked especially in certain political contexts

*"a sense of resurgence of Mexican love and mulocholalia"*

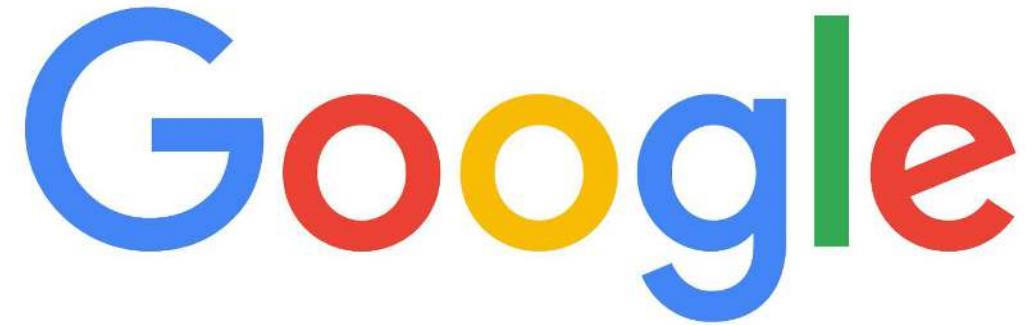




# IMAGE GENERATIVE A.I.



# Risks: Underwriting





# Risks: User

World / Asia

## Finance worker pays out \$25 million after video call with deepfake 'chief financial officer'



By Heather Chen and [Kathleen Magramo](#), CNN

🕒 2 minute read · Published 2:31 AM EST, Sun February 4, 2024



# Risks: A.I.-AS-A-PRODUCT

“aromatic water mix”



+



+



# Risks: COPYRIGHT



You

draw a picture of a video game plumber



ChatGPT





# USES

## CURRENT

**Targeted information retrieval & automation- pdf Q&A, summary, contract wording**

Idea generation

Code generation

Sentiment Analysis

NER - Named Entity Recognition

Translation

Create new ML training data

## FUTURE

Constant Agent/Assistant

Autonomous Agents



# AREAS OF DEPLOYMENT

**Underwriting**

**Legal / Sanctions**

**Accounting**

**Human Resources**

**Claims**

**Name Matching across entire company**



# TRANSLATION & N.E.R.

## General Q&A

### Ask me something...

Translate " I am giving a talk about AI" into:  
farsi, mandarin, cyrilic, and czech with bullet points

Ask

### Chat History

Stop

Clear History

**User: Translate " I am giving a talk about AI" into:  
farsi, mandarin, cyrilic, and czech with bullet points**

- Farsi (Persian): من در مورد هوش مصنوعی صحبت می‌کنم.
- Mandarin (Simplified Chinese): 我要做一个关于人工智能的演讲。
- Cyrillic (Russian): Я даю лекцию об искусственном интеллекте.
- Czech: Přednáším o umělé inteligenci.

[http://applieddata.transre.com/llm\\_chatbot/PDFComp](http://applieddata.transre.com/llm_chatbot/PDFComp)

## General Q&A

### Ask me something...

Fix these misspellings and if they are public companies add their ticker.  
If they are not public companies let me know:  
List the data as only: corrected name, ticker

Barkshire Hathaway

Aple

Xon Mobile

Bills Pizza Store

Waelt dosney

Ask

### Chat History

Stop

Clear History

**User: Fix these misspellings and if they are public companies add their ticker.  
If they are not public companies let me know:  
List the data as only: corrected name, ticker**

**Barkshire HATHaway**

**Aple**

**Xon Mobile**

**Bills Pizza Store**

**Waelt dosney**

Berkshire Hathaway, BRK.A (for Class A shares) / BRK.B (for Class B shares)  
Apple, AAPL  
Exxon Mobil, XOM  
Bill's Pizza Store, Not a public company  
Walt Disney, DIS





# TransRe LLM Email Attachments

## Extract Document Data

From Folder  Upload

Select folder

test0

Show Source  Run with RAG

Run

[Poseidon 2023 Qslip.pdf](#)  
[Poseidon.msg](#)

Show Prompt

Default

Default 1.0

Cyber

D&O

Property

Casualty

You are ReinsuranceGPT, specialized in legal contracts and proficient in reinsurance matters. Your expertise extends to translating any language into English.

You will receive a PDF containing a reinsurance contract. Your task is to meticulously extract and present key data points as listed below. If certain information is not available, indicate this with "N/A". For undetermined currencies, assume USD. Your response should strictly

## Results

Show Extracted Table

Stop

Clear History

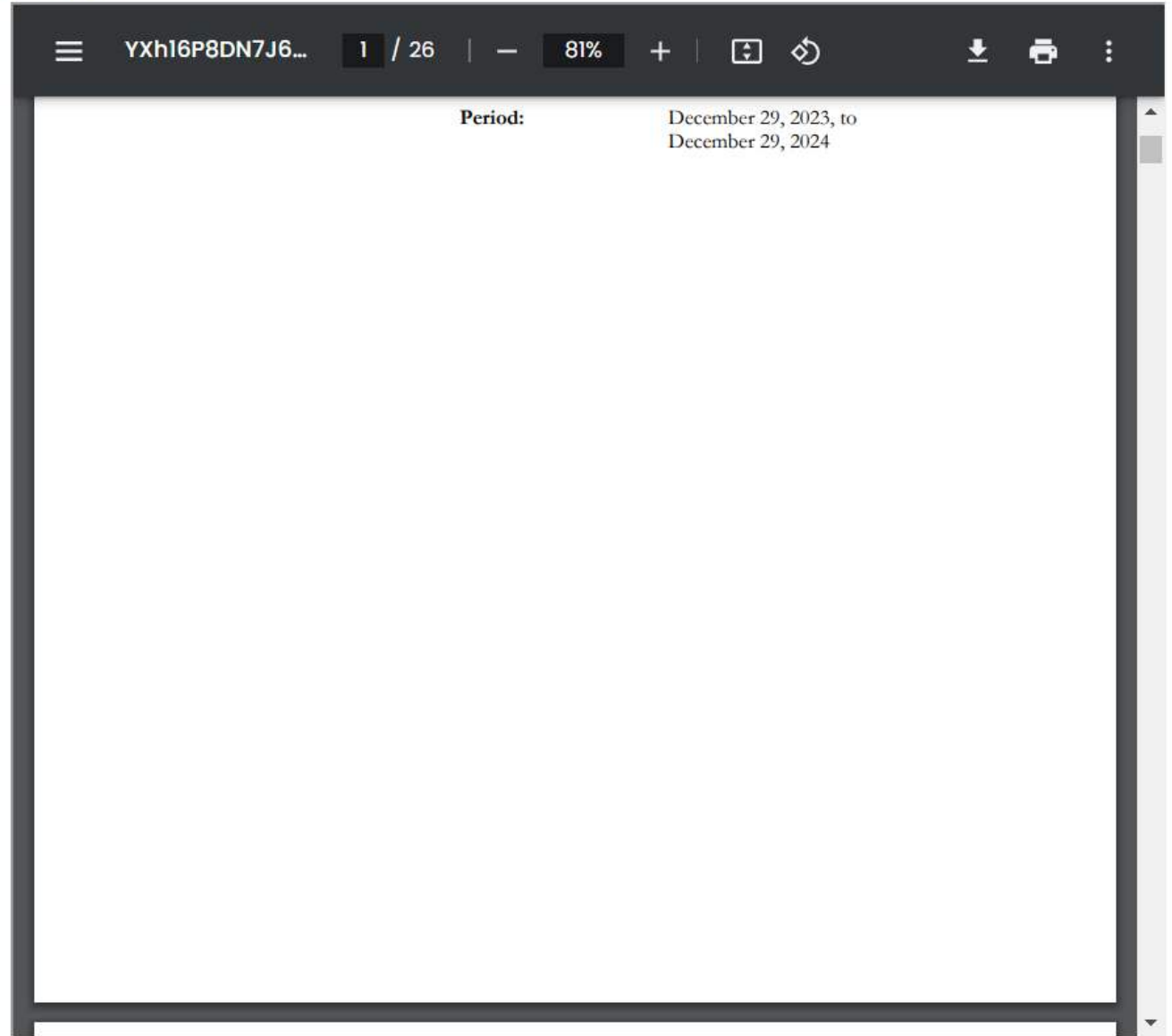
### Email Information

- Received Date: 2023-11-08 11:52:56-05:00
- Full Contact Name of the sender: [REDACTED]
- Email of the sender: [REDACTED]
- Subdepartment: Commercial Property
- Underwriter: [REDACTED]
- Technical Assistant: [REDACTED]

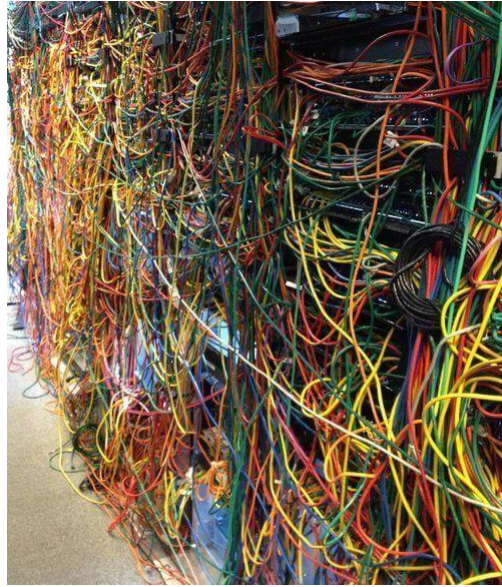
### Poseidon 2023 Qslip.pdf

- Insured Name: [REDACTED]
- Cede Company: [REDACTED]
- Cede Company Contact: N/A
- Broker Company: [REDACTED]
- Broker Company Contact: 1221 Brickell Ave, Suite 1500, Miami, FL 33131
- Basis of Reinsurance: Excess of Loss
- Line of Business: Property
- Company Domicile: Dominican Republic
- Exposure Territory: Dominican Republic
- State: N/A
- City: Santo Domingo
- Base Currency: USD

## Preview



# WHAT YOU NEED TO DO THIS





<https://www.transre.com/insights/artificial-intelligence/>



### The AI Underwriter

Machine Learning and AI in (re)insurance.  
Plus- trading, risk, quantitative finance,  
books. And some stories for my kids.

By Otakar G. Hubschmann · Launched 6 months ago

ohubschmann@yahoo.com

Subscribe

No thanks >

<https://theaiunderwriter.substack.com/>





