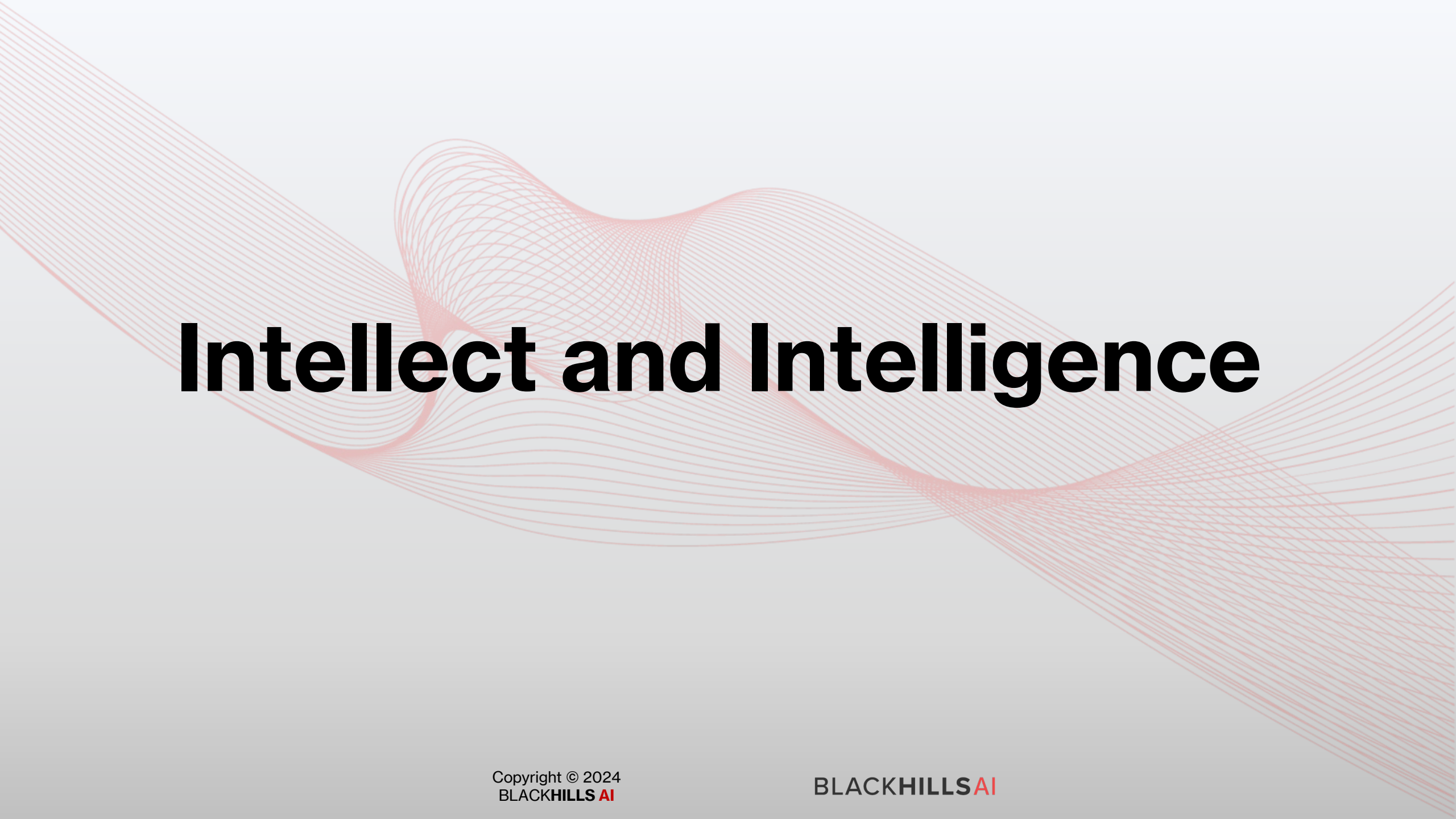
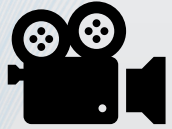


The background features a series of thin, red, wavy lines that flow across the frame, creating a sense of movement and depth. These lines are layered, with some appearing more prominent than others, giving the background a textured, almost liquid appearance. The overall color palette is a mix of light greys and soft reds.

Intellect and Intelligence

Before We Get Started



Recording

A link to the recording and slides will be emailed to all registrants.



Recording

Type in the question box, and we will answer in real time or during the Q&A.



Social

Follow us on LinkedIn, Facebook, Youtube, and/or Instagram or visit blackhills.ai to see upcoming and on-demand webinars.

Panel



Jim Hallenbeck

*Chief Executive Officer and
President, Black Hills AI*



Thomas Marlow

*President, Black Hills Renewals
Chief Technology Officer, Black
Hills AI*



Manjeet Rege

*Director of Center of Applied
Artificial Intelligence and Professor,
University of St. Thomas
Advisor to Black Hills AI*

What can LLMs be used for?

- **Writing**

- Using an LLM to generate

- **Reading**

- Using an LLM to interpret

- **Chatting**

- Conversing with a user about products/services provided.

What can LLMs be used for? - *Writing*

Detailed Prompt:

Prompt: "Generate innovative ideas for digital marketing strategies tailored to the e-commerce industry, with a focus on enhancing customer engagement and driving sales. Provide concrete examples and data-driven insights, drawing inspiration from successful online retailers."

LLM Generated Output:

"In the e-commerce realm, leveraging augmented reality (AR) technology to allow customers to virtually try on products before purchase could revolutionize the shopping experience. Additionally, implementing personalized email marketing campaigns based on past purchase behavior and browsing history can significantly boost customer engagement and loyalty. Statistical analysis suggests that integrating gamification elements into the shopping process, such as reward points and interactive quizzes, can increase conversion rates by up to 30%."

LAST TIME

What can LLMs be used for?

- **Writing**

- Using an LLM to generate content

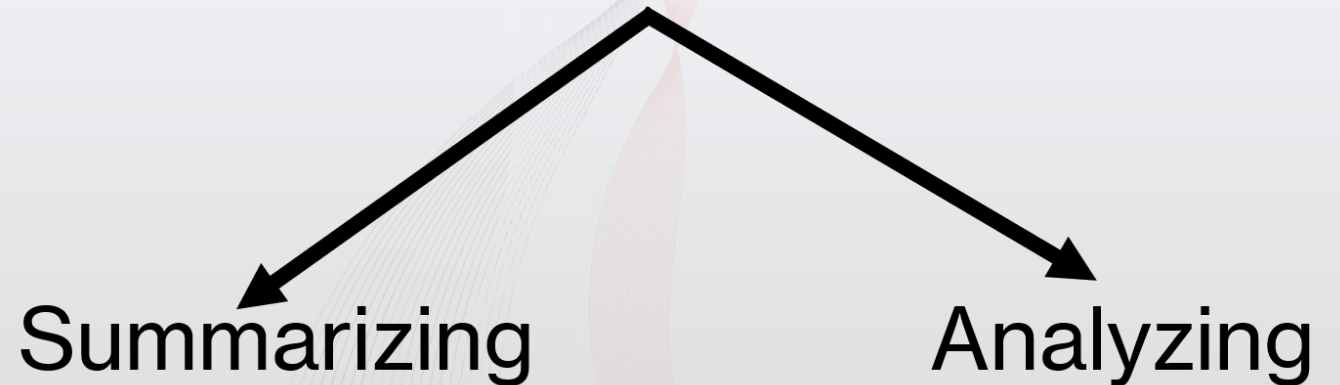
- **Reading**

- Using an LLM to interpret content

- **Chatting**

- Conversing with a user about products/services provided.

What can LLMs be used for? - *Reading*



What can LLMs be used for?

- **Writing**

- Using an LLM to generate ideas or create new content.

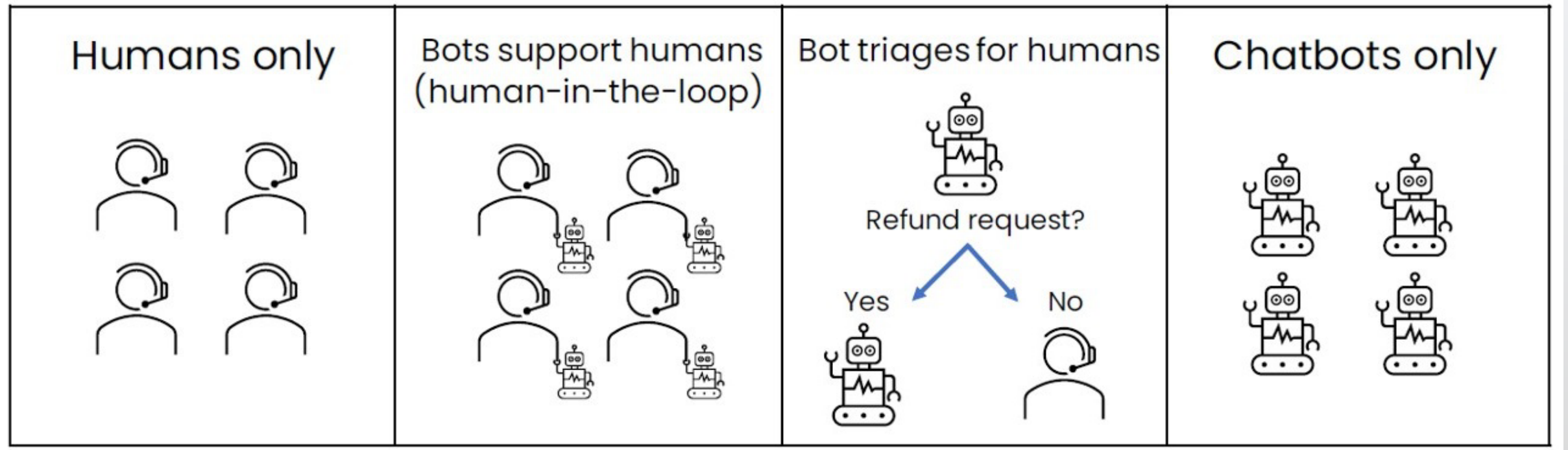
- **Reading**

- Using an LLM to interpret the text provided.

- **Chatting**

- Conversing with a user about products/services provided.

What can LLMs be used for? – Chatbots for Customer Service



Best practices for deploying chatbots

- Implement an in-house chatbot system:
 - Engage employees in evaluating the chatbot's interactions
 - Prevent errors in a customer-facing context
- Start with human-in-the-loop to monitor for errors.
- Permit the bot to interact with customers only once it is verified as secure.

Limitations of LLMs

- Can a summer intern follow the instructions mentioned in the prompt and complete the task?
 - **Determine if the customer email is regarding a product return.**

Dear Customer Service,

I recently purchased a table lamp from your store (Order #12345), but unfortunately, it does not suit my needs as expected. The lamp is untouched and in its original packaging. Please provide instructions for the return process and the necessary shipping label. I appreciate your prompt attention to this matter.

Limitations of LLMs

- Can a summer intern follow the instructions mentioned in the prompt and complete the task?
 - **Determine if the customer email has a positive or a negative sentiment.**

Dear Customer Service,

I am writing to express my dissatisfaction with the table lamp I received from my recent order, #12345. It has unfortunately fallen short of the high standards I anticipated, with [specific issue, e.g., the lamp being defective, not as described, etc.]. I had higher expectations from your reputed store, and this experience has been quite disheartening. Please advise on how we can resolve this issue promptly.

Limitations of LLMs

- Can a summer intern follow the instructions mentioned in the prompt and complete the task?
 - **Without any context, write a press release regarding a new office location.**

[City, State] – [Date] – [Company Name], an innovator in [Industry/Field], is proud to announce the opening of a new office in [Location], marking a significant milestone in its mission to broaden its service horizons and foster collaborative innovation. Situated at [Address], the modern facility is designed to accommodate a growing team, stimulate creativity, and enhance client service in the region. “[Quote from a senior executive about the new office's potential],” said [Name], [Title] at [Company Name]. The opening, slated for [Date], will feature a ribbon-cutting ceremony and opportunities for community engagement. For more information, please contact [Contact Person], [Title], at [Email] or [Phone].

Limitations of LLMs

- Can a summer intern follow the instructions mentioned in the prompt and complete the task?
 - What if we provide the necessary context in the prompt?

Write a press release for the company ABC Inc. a mortgage company about a new office location that they will be moving to starting June 2024. The new location will be in St Paul, MN. The current location at Atlanta, GA will be closed down.

St. Paul, MN – [Company Name], a trusted name in mortgage services, has announced the opening of its new office in St. Paul, MN, set to become operational in June 2024. This strategic relocation from the current Atlanta, GA office to the heart of Minnesota's vibrant capital will allow ABC Inc. to leverage local market opportunities and continue delivering exceptional mortgage solutions. The transition to St. Paul reflects the company's commitment to growth and its vision for a future aligned with the evolving needs of homeowners. ABC Inc. extends its deepest gratitude to its Atlanta clients and partners for their years of support and looks forward to serving the St. Paul community with the same dedication and excellence.

Limitations of LLMs

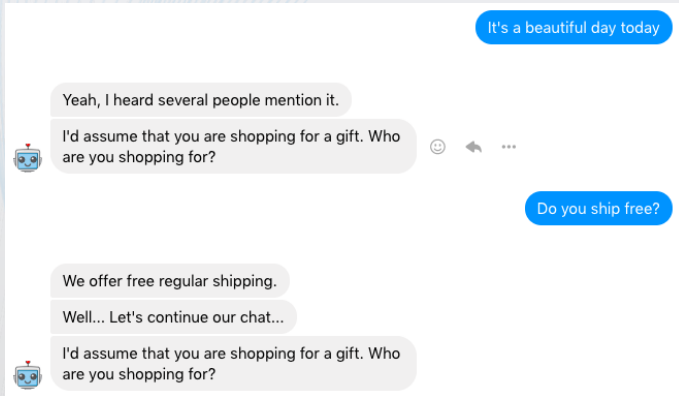
- Can a summer intern follow the instructions mentioned in the prompt and complete the task?
- Assumptions:
 - There is no access to the internet available.
 - No prior training has been available to the intern.
 - For every task, you get a new summer intern. That is, an intern does not have any memory of the task completed previously.

Generative AI is not suited for structured data

- Problem: Given age, income, education level, predict if the product will get purchased.
- Supervised Learning would work better.

ID	Age	Income	Education Level	Purchased Product (Y/N)
1	28	55000	Bachelor	Y
2	22	34000	College	N
3	35	72000	Master	Y
4	45	61000	Bachelor	Y
5	31	43000	High School	N

Generative AI works well with unstructured data



Text



Image

```
def square_numbers(numbers):  
    """Return a list of the squares of t  
    squares = []  
    for number in numbers:  
        squares.append(number**2)  
    return squares
```

Code

Image Generation with Diffusion Model



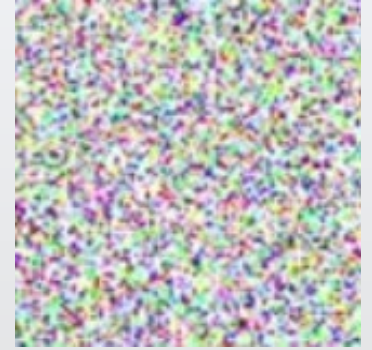
Img 1



Img 2



Img 3



Img 4

Supervised Learning

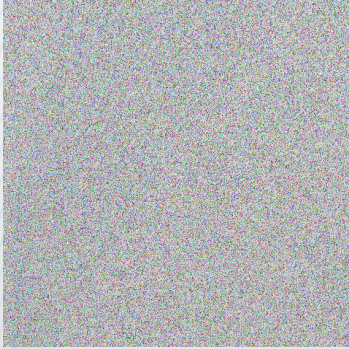
Noisy image → Less noisy image

X

Y

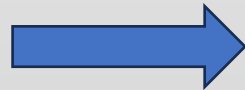
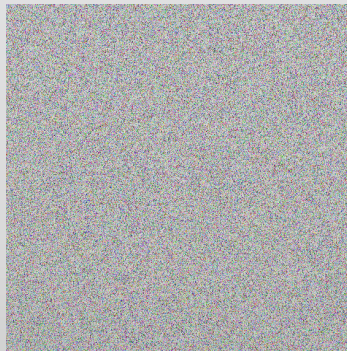
X	Y
Img 2	Img 1
Img 3	Img 2
Img 4	Img 3

Image Generation with Diffusion Model



Img 1

Input



Output

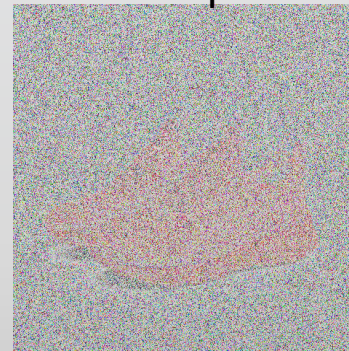
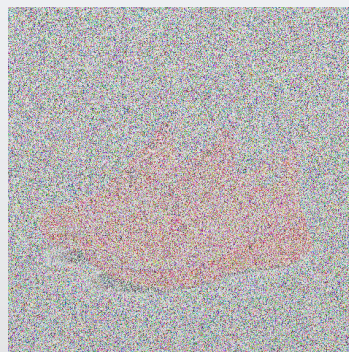
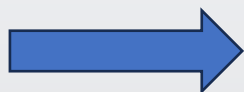


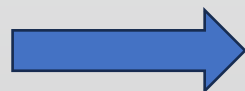
Image Generation with Diffusion Model



Img 1



Input



Output

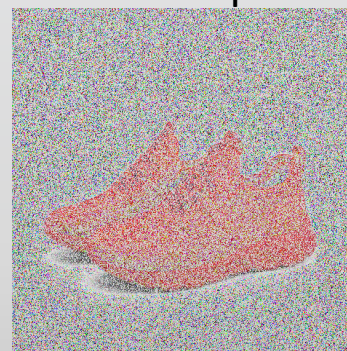
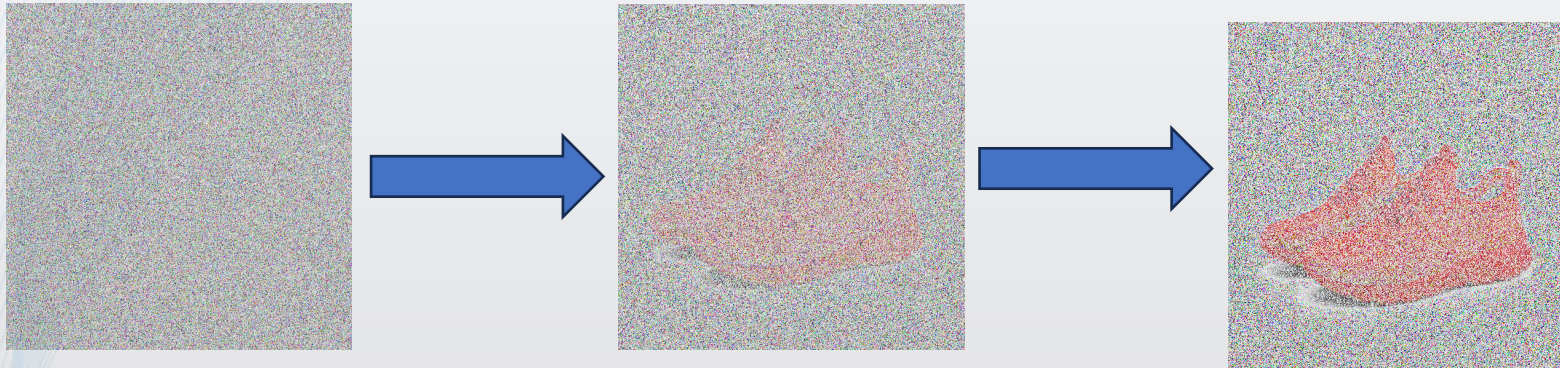
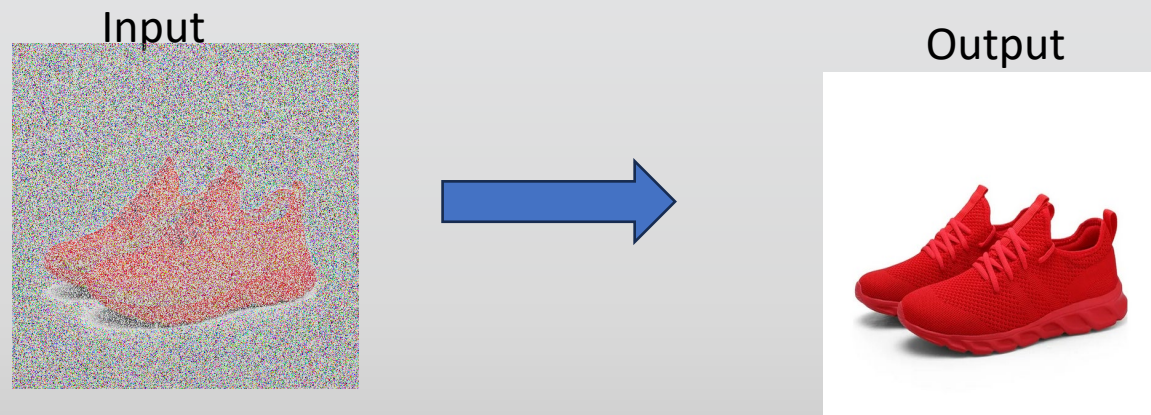


Image Generation with Diffusion Model



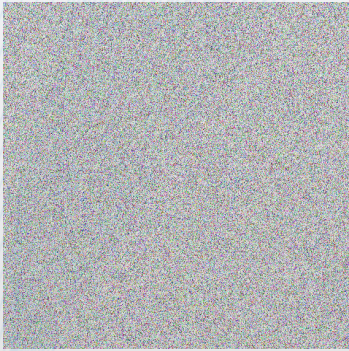
Img 1



Input

Output

Image Generation with Diffusion Model



Img 1

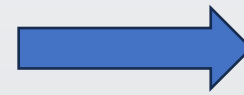
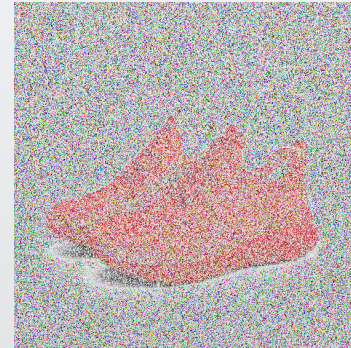
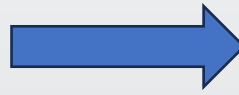
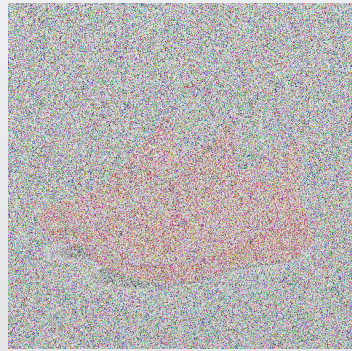


Image Generation with Text Prompt



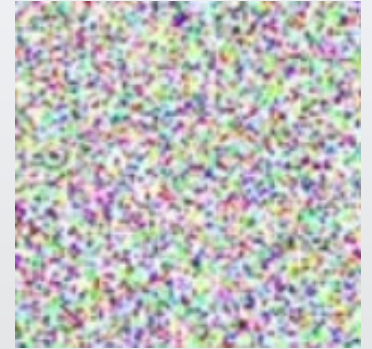
Img 1, "dog"



Img 2



Img 3



Img 4

Supervised Learning

Noisy image and caption → Less noisy image
X Y

X	Y
Img 2, "dog"	Img 1
Img 3, "dog"	Img 2
Img 4, "dog"	Img 3

Image Generation with Text Prompt



Input



, "blue suv"

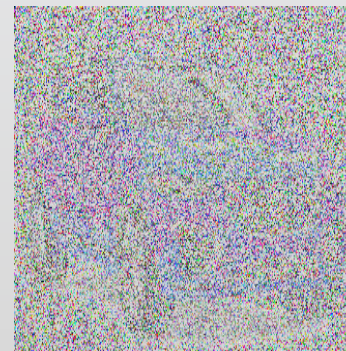
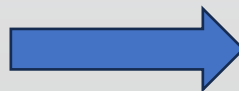
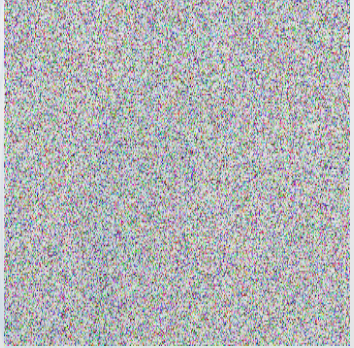
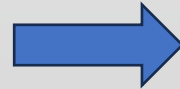


Image Generation with Text Prompt

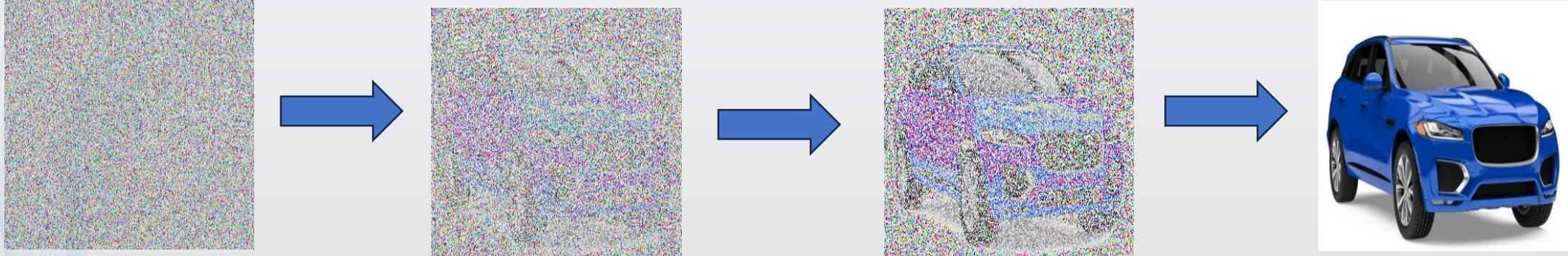


, "blue suv"

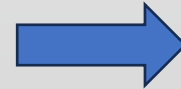


Input

Image Generation with Text Prompt

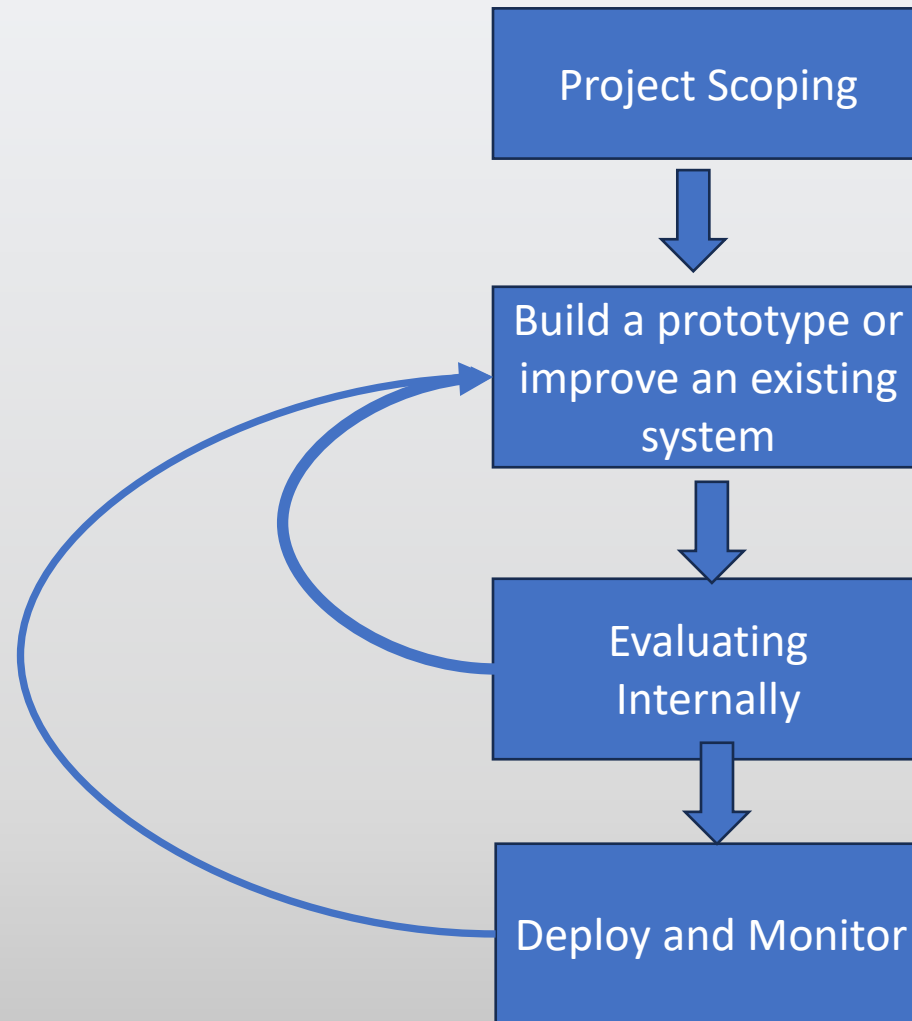


, "blue suv"



Input

Generative AI Project Lifecycle



Quality In -> Value Out

- Data is important for useful AI responses
- What is being collected?
- What will be useful/necessary for valuable analysis?

More Than Just Data

- It's about how it is organized, labeled and accessible
 - Timeliness
 - Data consistency and quality
 - Accessibility

The Process at Black Hills AI

- Years of data processing
- Central Data Hub
 - Organized
 - Up to date, connected
- Key: Useful and accessible

Select A/N
18478306

OPEN

Q

EVENT DETECTION SYSTEM

Filed: September 29, 2023 Inventors: Yupeng Gu, Xiaolin Shi, Jie Luo

Power Prosecutor™

File History

References

Search

Filter by Date

US References ^

US 20110246463 A1
October 6, 2011

Foreign References ^

Non-Patent Literature ^

No documents found.

US 20110246463 A1

PDF TEXT

US 20110246463 A1

(19) United States

(12) Patent Application Publication

(43) Pub. No.: US 2011/0246463 A1

(43) Pub. Date: Oct. 6, 2011

(54) SUMMARIZING STREAMS OF INFORMATION

(52) U.S. CL. 707/737; 707/E17.089; 707/754

(75) Inventors: Charles C. Carson, JR., Cupertino, CA (US); Sean Andrew Suchter, Los Altos Hills, CA (US); David James Gemmell, Danville, CA (US)

(73) Assignee: Microsoft Corporation, Redmond, WA (US)

(21) Appl. No.: 12/753,909

(22) Filed: Apr. 5, 2010

(51) Int. CL. G06F 17/30 (2006.01)

(57) ABSTRACT

Concepts and technologies are described herein for summarizing streams of information. A stream of information is obtained and analyzed. One or more entities are identified in the stream. The data in the stream is grouped into one or more clusters corresponding to the identified entities. The data in the clusters is summarized, and a timeline corresponding to the data in the cluster is determined. In some embodiments, a format can be selected for presentation of the summarized stream data. The data in the stream can be formatted in the selected format, and the summarized data can be presented in the selected format. In some embodiments, an update feature can be used to update the data in the summarized stream. The data in the stream can be updated, and the updated summarized stream can be formatted and presented.

SERVER 104

STREAM 104

102A

NETWORK 106

100

SEARCH SERVER 108

SEARCH ENGINE 108

STREAM 104

102B

COMPUTER 114

SUMMARIZATION SERVER 102C

STREAM 104

SUMMARIZATION ENGINE 110

SUMMARIZED STREAM 112

Ask Otto

Please summarize the reference.

This patent describes techniques for summarizing streams of information such as blog posts, news events, social media updates, comments, etc. The key steps include:

1. Obtaining a stream of data from sources like websites, social networks, news feeds, etc.

2. Identifying entities (topics, people, events, etc.) present in the stream data.

3. Grouping the data into clusters corresponding to the identified entities.

4. Summarizing the data in each cluster and determining timelines for when the data in each cluster occurred.

5. Generating a summarized stream that presents the summarized data clusters along with their associated timelines.

6. Determining a format (timeline view, tree diagram, etc.) to present the summarized stream data.

7. Formatting and presenting the summarized stream in the chosen format.

8. Optionally updating the summarized stream with new data from the original stream over time.

The summarized stream allows a user to quickly understand major topics, sentiments, and how a story/event evolved over time without reading through all the raw stream data. Filtering based on time, location, social networks etc. is also supported.

Message

Copyright © 2024
BLACKHILLS AI

BLACKHILLS AI

Select A/N
18137685

OPEN

METHOD AND APPARATUS FOR GENERATING A DOCUMENT AND DATA PROCESSING

Filed: April 21, 2023 Inventors: Steven Lundberg, Elliott Higgins

Power Prosecutor

File History

References

Search

Filter by Date

OA.EMAIL | Email Notification

CTNF | Non-Final Rejection

July 26, 2024 Incoming

N417.PYMT | Electronic Fee Payment

AMSB | Amendment Submitted/Entered with Filing of Continued Prosecution Application (CPA)/Request for Continued Examination(RCE)

REM | Applicant Arguments/Remarks Made in an Amendment

RCEX | Request for Continued Examination (RCE)

CLM | Claims

XT/ | Extension of Time

July 26, 2024 Internal

WFEE | Fee Worksheet (SB06)

July 26, 2024 Outgoing

CTNF | Non-Final Rejection

PDF TEXT

Office Action Summary

Application No.
18/137,685

Applicant(s)
Lundberg et al.

Examiner
NICHOLAS AUGUSTINE

Art Unit
2178

AIA (FITF) Status
Yes

~ The MAILING DATE of this communication appears on the cover sheet with the correspondence address ~

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTHS FROM THE MAILING DATE OF THIS COMMUNICATION.

Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.

If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.

Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).

Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(d).

Status

1) ☒ Responsive to communication(s) filed on 07/26/2024.

☐ A declaration(s)/affidavit(s) under 37 CFR 1.130(b) was/were filed on ____.

2a) ☐ This action is FINAL.

2b) ☒ This action is non-final.

3) ☐ An election was made by the applicant in response to a restriction requirement set forth during the interview on ____ the restriction requirement and election have been incorporated into this action.

4) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under Ex parte Quayle, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims*

5) ☒ Claim(s) 1-20 is/are pending in the application.

5a) Of the above claim(s) ____ is/are withdrawn from consideration.

6) ☐ Claim(s) ____ is/are allowed.

7) ☒ Claim(s) 1-20 is/are rejected.

8) ☐ Claim(s) ____ is/are objected to.

9) ☐ Claim(s) ____ are subject to restriction and/or election requirement

* If any claims have been determined allowable, you may be eligible to benefit from the Patent Prosecution Highway program at a participating intellectual property office for the corresponding application. For more information, please see http://www.uspto.gov/patents/init_events/oph/index.jsp or send an inquiry to PPHFeedback@uspto.gov.

Application Papers

10) ☐ The specification is objected to by the Examiner.

11) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

Priority under 35 U.S.C. § 119

12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

Certified copies:

a) ☐ All b) ☐ Some** c) ☐ None of the:

1. ☐ Certified copies of the priority documents have been received.

2. ☐ Certified copies of the priority documents have been received in Application No. ____.

3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

** See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

3) ☐ Interview Summary (PTO-413)

2) ☐ Information Disclosure Statement(s) (PTO/SB-06a and/or PTO/SB-08b)

4) ☐ Other: _____

U.S. Patent and Trademark Office
PTOL 326 (Rev. 11-13)

Office Action Summary

Part of Paper No./Mail Date 20240822

Ask Otto

Please summarize the office action.

Here is a summary of the key points from the office action:

- This is a Non-Final Rejection for application 18/137,685.

- Claims 1-20 are rejected under 35 U.S.C. 103 as being unpatentable over Jessen (US 2016/0350886 A1) in view of Lee (US 2013/0047066 A1).

- The claims are directed to a method, system, and medium for assembling a document by:

- Receiving inputs like application number, document template type, customer selection

- Extracting elements from a repository

- Assembling a document shell from the elements

- Automatically updating elements when changes are made in a truth source

- Receiving indication of an edit to an annotation and automatically updating portions referencing the annotation

- Jessen teaches most of the claimed limitations related to assembling a document shell from extracted elements and automatically updating based on changes.

- However, Jessen does not specifically teach annotations. Lee is combined to teach receiving edits to annotations in a document and automatically updating portions referencing the edited annotation.

- The motivation to combine is that Lee provides tools to work with intellectual property documents using automated analysis.

- Dependent claims are also rejected based on the combined teachings of Jessen and Lee.

In summary, the key rejection is Jessen in view of Lee for automatically assembling and updating a document shell, including portions with annotations, based on extracted data elements and changes to a truth source.

Message

Copyright © 2024
BLACKHILLS AI

BLACKHILLS AI

Thank you for your interest.

Questions?

Jim Hallenbeck
jhallenbeck@blackhills.ai