

Morgan Lewis

# TECHNOLOGY MARATHON

**AI and IP:**

**Important Copyright and Patent Issues for Generative AI**

Ron N. Dreben and David V. Sanker, Ph.D.

**June 16, 2023 | 11:00 am -12:00 pm PT**

# Presenters



**Ron N. Dreben**



**David V. Sanker, Ph.D.**

**Morgan Lewis**

# Before we begin

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# Overview

- Artificial intelligence (AI) is creating content and inventions that could be protected by copyright and patents if the authors/inventors were human.
- AI is generating images, text, video, music and software.
- Are AI generated content/inventions subject to copyright or patent protection?
- Does AI generated content/inventions infringe copyrights or patents (or trademarks or rights of publicity)?
- Does use of third-party content for machine learning databases constitute copyright infringement?
- What policies should companies implement with respect to AI use?



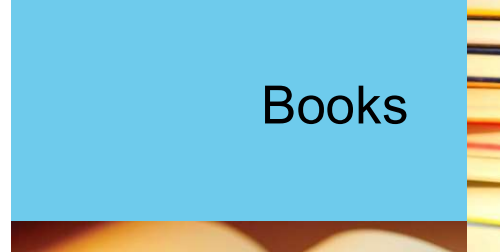
# Copyright

- An original work of authorship fixed in a tangible medium of expression
- Copyrights last a long time
- Key exclusive rights: Reproduction; Derivative Works; Distribution; Performance; and Display
- In the United States, a copyright registration is generally a prerequisite to filing a copyright infringement action.
- Registration requires a human author

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Art/Images



Books



Songs



Video

# What's Old is New: Non-Human Authorship *Before AI*

- The question of “human authorship” is not new:
  - [T]he constitution is broad enough to cover an act authorizing copyright of photographs, so far as they are representatives of original intellectual conceptions of the author.” *Burrow-Giles Lithographic Co. vs. Sarony*, 111 US 53, 58 (1884) (rejecting per se rule that “a photograph is the mere mechanical reproduction of the physical features or outlines of some object . . . and involves no originality of thought”).
- What does it mean to be “created” by a human being?
- What is the requisite amount of human contribution?
  - The Copyright Office “will not register works produced by a machine or mere mechanical process that operates randomly or automatically without any creative input or intervention from a human author.” Compendium § 313.2



New York in the 1800s.

# Selfie Taken by Monkey



**Naruto vs. Slater, No. 16-15469 (9th Cir. 2018)**

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# GPT-2 (Generative Pretrained Transformer)

Input text: Malfoy hadn't noticed anything.

GPT2 Continuation: "In that case," said Harry, after thinking over it, "I suggest you return to the library."

He then walked over to a bookcase at the back of the library and pawed through it. For a few seconds he stared at it, almost careering through the counter, then he turned and went back to the bookshelves and started up again, but in a little while a new book had appeared. It was *Hogwarts and Its History* by Gilderoy Lockhart. He let out a long, soft sigh of relieve and seized it with both hands.

Hagrid strode into the room, his large feet gleaming in the lamps, a mixture of shock and awe on his face.

"Professor – yes?"

"Hello, Hagrid, it's good to see you," said Harry, but he also knew that whatever he'd written in the note would be read by everyone in the school – Professor McGonagall, the Headmistress, the rest of the teachers, and even some third-year students who just started class.

Hagrid climbed carefully over the stack of books and opened the book, shining gold letters high in ...

<https://deeplearninganalytics.org/train-a-gpt-2-transformer-to-write-harry-potter-books/>

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# AI and Copyright Today – GPT 4

Please write a few paragraphs for a new chapter in the Harry Potter series that starts with "Malfoy hadn't noticed a thing"

## Chapter XX: Shadows and Secrets

Malfoy hadn't noticed a thing. He had been too engrossed in his own thoughts, pacing back and forth in the Slytherin common room, the greenish glow of the underwater windows giving his pale face a spectral appearance. His silver-blond hair, usually combed to perfection, looked a bit disheveled as he ran his hands through it with frustration.

Harry, Ron, and Hermione watched him from the shadow of the concealed entrance they had discovered quite by accident, an overlooked side effect of one of Fred and George's mischievous inventions. The Extendable Ears came in handy once again as they strained to pick up Malfoy's mutterings.

"I don't understand," Malfoy was saying to himself. "The Dark Mark... it can't be..." He shook his head, as if to shake the disturbing thought out of his mind.

Harry exchanged a glance with Hermione, whose eyebrows were creased in worry. It wasn't often that they saw Malfoy in a state of confusion or vulnerability. In the past, it might have brought Harry a sense of satisfaction. But things had changed, and now, it only added to the unsettling feeling that had been haunting him for the past few days.

Suddenly, a movement caught their attention. A girl with thick, curly hair was approaching Malfoy. Pansy Parkinson. She said something that made Malfoy's face darken. Hermione gasped softly as they both disappeared behind a tapestry, leaving a chilling silence in the common room.

Whatever Malfoy hadn't noticed had certainly stirred the waters. The intrigue thickened, making Harry's heart pound in his chest. The trio retreated back into the shadows, a new mystery unfolding before their eyes. The nature of the Dark Mark Malfoy referred to remained to be deciphered, but one thing was clear - their fifth year at Hogwarts was far from over.

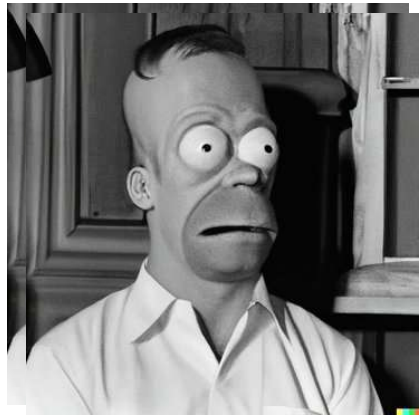
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# DALL-E and other Text-to-Image Tools

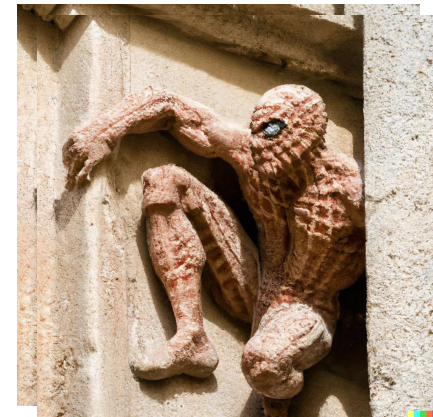
- It is reported that some images were licensed from Shutterstock to train the DALL-E model. Shutterstock says artists whose works are used in this way will be compensated.
- DALL-E 2 “trained” on approximately 650 million image-text pairs scraped from the internet, learning the relationships between the images and the words used to describe them.
- Where did Homer go?



SpongeBob in Best Buy



Homer Simpson in Psycho



Spider-Man in Ancient Rome

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# DALL-E MODIFIED OUTPUTS

Spider-Man in Ancient Rome v1



Spider-Man in Ancient Rome v2



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# Software Code Helper


Technical preview

## Your AI pair programmer

```
fetch_pic.js  push_to_git.py  JS_d3_scale.js  JS_fetch_stock.js  JS_material_ui.js

1  const fetchNASAPictureOfTheDay = () => {
2    return fetch('https://api.nasa.gov/planetary/apod?api_key=DEMO_KEY', {
3      method: 'GET',
4      headers: {
5        'Content-Type': 'application/json',
6      },
7    })
8    .then(response => response.json())
9    .then(json => {
10     return json;
11   });
12 }
```

Copilot

 **GitHub Copilot**

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# What Does “Heart On My Sleeve” Tell Us?

- This is not the big AI copyright music case I’ve been waiting for
- This new song may have been written by ghostwriter977, who claims to be a real song writer
- However, he replaced his voice performing the song with the voices of Drake and The Weeknd, which were generated by AI (essentially deepfake voices)
- The takedown requests by Universal Music were largely successful because the song was alleged to include some third-party copyrightable material
- The big AI music case is yet to come



# Will the Beatles Help Define AI Authorship?

## *Paul McCartney Says A.I. Helped Complete 'Last' Beatles Song*

The song was made using a demo with John Lennon's voice and will be released later this year, McCartney said.

# Deepfakes



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# Zarya of the Dawn – What AI Output Can Be Protected

- A copyright registration was granted for a graphic novel using the commercial AI art generator Midjourney
- The Copyright Office originally registered both the entire work and individual images contained.
- The Copyright Office has the authority, under CFR 17 § 201.7, to cancel a registration after giving a claimant 30 days to defend their registration.
- Applicant was unable to show sufficient human authorship over individual images.





# U.S. Copyright Office – Policy Statement

- Issued in direct response to Zarya of the Dawn registration.
- “The Copyright Office issues this statement of policy to clarify its practices for examining and registering works that contain material generated by the use of artificial intelligence technology.”
- “... when an AI technology determines the expressive elements of its output, the generated material is not the product of human authorship.”
- “... applicants have a duty to disclose the inclusion of AI-generated content in a work submitted for registration and to provide a brief explanation of the human author's contributions to the work.”



# Thaler Challenge – Why Can't Machines be Authors?

- Stephen Thaler used DABUS, an AI system he built, to create the work pictured to the left, *A Recent Entrance to Paradise*.
- Copyright Office refused registration, citing lack of human authorship.
- Thaler filed suit in D.C. District Court challenging the Copyright Office's refusal.



# Does AI Output Infringe?

To establish infringement, two elements must be proven:

(1) ownership of a valid copyright, and

(2) copying of constituent elements of the work that are original. *Feist Publications vs. Rural Telephone Service Co.*, 499 U.S. 340, 361 (1991).

Whether AI's use of copyrighted materials to train AI models and generate output constitutes infringement or fair use may be the copyright question of the century, and the answer will likely depend on the facts of each situation.

# Is a “Napster Moment” Coming? AI Training and Copyright

- Case against Stability AI, Midjourney and DeviantArt
  - Class action filed by a class of visual artists
  - They allege that companies used artwork without permission to train AI algorithms.
- Case by Getty against Stability AI
  - Alleges that defendant copied 12 million images to train its AI model ‘without permission ... or compensation’
  - Getty licenses its images for AI training
  - Getty has many copyright registrations
- Planner 5D v Meta (Facebook) et al (consolidated cases Northern District of California)
  - Planner 5D alleged that Facebook, Princeton and other institutions copied, misappropriated and shared a very large dataset of room-decoration objects and scenes for machine learning purposes



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# Copyright Infringement – The Fair Use Factors

In determining whether the use made of a work in any particular case is a fair use, the factors to be considered shall include:

1. the purpose and character of the use, including whether such use is of a commercial nature or is for nonprofit educational purposes;
2. the nature of the copyrighted work;
3. the amount and substantiality of the portion used in relation to the copyrighted work as a whole; and
4. the effect of the use upon the potential market for or value of the copyrighted work.

17 U.S.C. § 107.

# Fair Use Cases Likely to be Considered in AI Cases 1

*A.V. ex rel. Vanderhuyse vs. iParadigms, LLC*, 562 F.3d 630 (4th Cir. 2009)

- **Fair Use:** Commercial plagiarism-screening service converted student papers into digital code for use in a database to compare the similarity of typewritten characters used in other student works. The Fourth Circuit held that such use was a “highly transformative” fair use because its use of the “works was completely unrelated to expressive content and was instead aimed at detecting and discouraging plagiarism”

*Google Books*, 804 F.3d 202 (2d Cir. 2015)

- **Fair Use:** “Complete unchanged copying . . . justified as fair use when the copying was reasonably appropriate to achieve the copier’s transformative purpose and was done in such a manner that it did not offer a competing substitute for the original.” Here, the purpose was “to provide a search function,” which the court viewed as “a transformative use, which augments public knowledge by making available information about [] books without providing the public with a substantial substitute for [] the original works or derivatives of them”

*Authors Guild, Inc. vs. HathiTrust*, 755 F.3d 87 (2d Cir. 2014)

- **Fair Use:** “Without foreclosing a future claim based on circumstances not now predictable, . . . we conclude that . . . fair use allows . . . Libraries to digitize copyrighted works for the purpose of permitting full-text searches.”

*Image Search Cases (Perfect 10, Inc. vs. Amazon.com, Inc. (and Google)*, 508 F.3d 1146 (9th Cir. 2007) and *Kelly vs. Arriba Soft Corporation* 336 F.3d 811 (9th Cir. 2003))

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# Fair Use Cases Likely to be Considered in AI Cases 2

*Fox News Network, LLC vs. TvEyes, Inc.*, 883 F.3d 169 (2d Cir.), cert. denied, 139 S. Ct. 595 (2018)

- **Not Fair Use:** Company recorded TV programming to create searchable database, which allowed customer to watch up to 10 minutes of the selected programs. Even though use was “somewhat transformative” in making access more efficient – it was not fair use because it **did not alter the content itself or the purpose for which it was used** – and content owners were entitled to license such use.

*Andy Warhol Foundation for the Visual Arts, Inc. vs. Goldsmith, et. al.*, No. 21-869, 598 U.S. \_\_\_\_ (2023). *Recently decided by Supreme Court!*

- **Not Fair Use:** The “purpose and character” of the Andy Warhol Foundation’s particular commercial use of Lynn Goldsmith’s photograph was not a “fair use”. Goldsmith also licensed her work to magazines. Key point for AI: does copyright claimant license its works for AI purposes? But note: Supreme Court in this case only focused on 1 of 4 fair use factors.



# AI Use Policy Issues

- Consider confidentiality of inputs/prompts/coding in real time
- Consider protectability of the outputs – human authorship still required
- Beware of possibility that output may infringe. Available filters may reduce that risk
- Check for accuracy of outputs
- Make outputs your own with modifications
- Consider AI tool attribution/acknowledgement requirements
- Consider enterprise version of AI tools v. publicly available versions
- Training may be offered
- Keep a record of how AI tools are used
- Identify related company policies
- This Policy may be updated frequently!





# Generative AI in the Patent Realm

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# Generative AI and Patents – AI Inventors

What is an AI inventor?

- An AI Inventor is a complex system that autonomously creates a new process, device, system, or composition of matter.
- An AI Inventor is generally designed to handle a specific category of inventions, and usually has a set of input parameters that are user-specified.
- An AI Inventor generally works iteratively, with each iteration evolving from the previous iterations and testing the current version.

# The History of “DABUS”

What is DABUS?

What did DABUS allegedly invent?

Patent filings throughout the world.

The court history in the United States.

The decisions in the UK, Japan, Korea, and Australia.

South Africa is an outlier.

# USPTO Request for Comments about AI Inventors

On February 14, 2023, the USPTO posted a “Request for Comments Regarding Artificial Intelligence and Inventorship,” which included 11 questions. Here are some of the questions:

3. If an AI system contributes to an invention at the same level as a human who would be considered a joint inventor, is the invention patentable under current patent laws? For example:
  - a. Could 35 U.S.C. 101 and 115 be interpreted such that the Patent Act only requires the listing of the natural person(s) who invent(s), such that inventions with additional inventive contributions from an AI system can be patented as long as the AI system is not listed as an inventor?
  - b. Does the current jurisprudence on inventorship and joint inventorship, including the requirement of conception, support the position that only the listing of the natural person(s) who invent(s) is required, such that inventions with additional inventive contributions from an AI system can be patented as long as the AI system is not listed as an inventor?
  - c. Does the number of human inventors impact the answer to the questions above?

# USPTO Request for Comments about AI Inventors

On February 14, 2023, the USPTO posted a “Request for Comments Regarding Artificial Intelligence and Inventorship,” which included 11 questions. Here are some of the questions:

4. Do inventions in which an AI system contributed at the same level as a joint inventor raise any significant ownership issues? For example:
  - a. Do ownership rights vest solely in the natural person(s) who invented or do those who create, train, maintain, or own the AI system have ownership rights as well? What about those whose information was used to train the AI system?
  - b. Are there situations in which AI-generated contributions are not owned by any entity and therefore part of the public domain?

# USPTO Request for Comments about AI Inventors

On February 14, 2023, the USPTO posted a “Request for Comments Regarding Artificial Intelligence and Inventorship,” which included 11 questions. Here are some of the questions:

6. [Should the USPTO require applicants to provide an explanation of contributions AI systems made to inventions claimed in patent applications? If so, how should that be implemented, and what level of contributions should be disclosed? Should contributions to inventions made by AI systems be treated differently from contributions made by other \(i.e., non-AI\) computer systems?](#)

# USPTO Request for Comments about AI Inventors

On February 14, 2023, the USPTO posted a “Request for Comments Regarding Artificial Intelligence and Inventorship,” which included 11 questions. Here are some of the questions:

9. What statutory changes, if any, should be considered as to U.S. inventorship law, and what consequences do you foresee for those statutory changes? For example:
  - a. Should AI systems be made eligible to be listed as an inventor? Does allowing AI systems to be listed as an inventor promote and incentivize innovation?
  - b. Should listing an inventor remain a requirement for a U.S. patent?

# USPTO “Listening Sessions”

Yes, the USPTO is listening.

Some input provided by some of the speakers:

- Some speakers argued that there really isn't a problem.
- Some speakers argued that patent attorneys should include a “few pages” in a patent application to describe the role of AI in the invention.
- Some speakers argued that if AI inventors are not specified initially, it will have to be fixed later in litigation.



# Submission in Response to the USPTO Request

I submitted a response to the request, and the full text is available at:

<https://www.regulations.gov/search/comment?filter=PTO-P-2022-0045-0060>

# Submission in Response to the USPTO Request

## Key Point #1

If an invention is created entirely by AI, it is not patentable. But extremely few inventions are going to fall into this category. The much bigger group is inventions with hybrid human and AI inventors.

Option #1 – not patentable at all.

Option #2 – patentable, subject to the usual rules of 101, 102, 103, and 112.

Option #3 – carve out the claim elements created by AI and evaluate patentability based solely on the human contributions.

# Submission in Response to the USPTO Request

## Key Point #1

Option #3 sounds appealing and is analogous to what the copyright office has done. Except that it has several substantial legal and practical problems.

- Patents are granted on claims as a whole, not individual claim elements. In many cases, this would lead to an invention not being patentable at all.
- In many cases, it is impossible to label a particular claim feature as belonging to a particular inventor. Consider the case of new drug discovery.
- Even if it were possible to associate a claim feature with a particular inventor, this would require substantial additional work by patent attorneys. There is no statutory basis to require it.
- Imposing such a requirement would also create a substantial incentive to minimize disclosure about AI and downplay the role of AI.

# Submission in Response to the USPTO Request

## Key Point #2

There are ownership issues. Let's consider two different aspects:

- (a) Are there any ownership rights for those who create, train, maintain, or own the AI system have ownership rights as well? What about those whose information was used to train the AI system?
- (b) An AI system cannot sign an assignment document, so how can rights be assigned or conveyed?

# Submission in Response to the USPTO Request

## Key Point #2 (a)

- (a) Are there any ownership rights for those who create, train, maintain, or own the AI system have ownership rights as well? What about those whose information was used to train the AI system?

Perhaps the best way to understand this is to ask exactly the same question when there are just human inventors. To conceive of an invention, a human inventor uses a wealth of knowledge gleaned over many years from teachers, professors, colleagues, textbooks, scientific articles, online research, and other sources. These sources have “trained” the human inventor. In addition, the human inventor may use a variety of hardware and software to perform experiments, such as a computer, simulation software, a microscope, or many other tools.

There does not appear to be any compelling reason to grant patent rights to tenuous indirect sources that helped a person conceive of an invention. If AI inventors are eventually permitted under the law, the same analysis should apply.

# Submission in Response to the USPTO Request

## Key Point #2 (b)

(b) An AI system cannot sign an assignment document, so how can rights be assigned or conveyed?

My colleague Jianbai Wang and I have been writing about this since September 2019. We have suggested an adaption of patent laws. A human surrogate signs assignment and declaration documents on behalf of an AI inventor, helping clarify a chain of title of the invention from the initial creation to the applicant (the human surrogate may or may not be the applicant). Like current declarations in the United States, the human surrogate is subject to criminal penalties for perjury. (This also encourages the development of AI systems that are transparent and auditable.)

# Submission in Response to the USPTO Request

## Key Point #3

Another issue to address if AI inventors are permitted is to precisely define what is considered an AI inventor. This is not a “purely academic” exercise.

For example, should different instances of the same AI system be considered as a single inventor or distinct inventors? Unlike humans, AI systems can be easily cloned and used independently. For example, two or more distinct companies could use instances of the same AI system to create the same or a similar invention. If the instances are considered as separate AI inventors, then each could create prior art to invalidate the other. On the other hand, if the AI system is considered a single inventor, ownership is less clear, particularly if the instances are sharing data, and it is unclear whether prior art from one instance can be used against another instance. This issue becomes even more complex when considering software upgrades and updated training of AI models. If data from multiple instances is used to retrain all of the instances, how would the instances maintain any meaningful identity? In sum, to contemplate allowing AI inventors would require deciding how to handle both cloning and merging of AI system instances.

# Practical Advice when using Generative AI

1. Always have at least one substantial human inventor.
2. Because there has been no patent ruling on mixed inventorship, take reasonable precautions against potential future litigation that could invalidate your patents. It could be useful to have contemporaneous emails or documents that clearly show the human inventive aspects. If possible, document how the human inventors have used the AI system as a tool.
3. Consider Trade Secret protection as an alternative to patents. If the inventive aspects are not easily reverse engineered, this is an important option to consider.



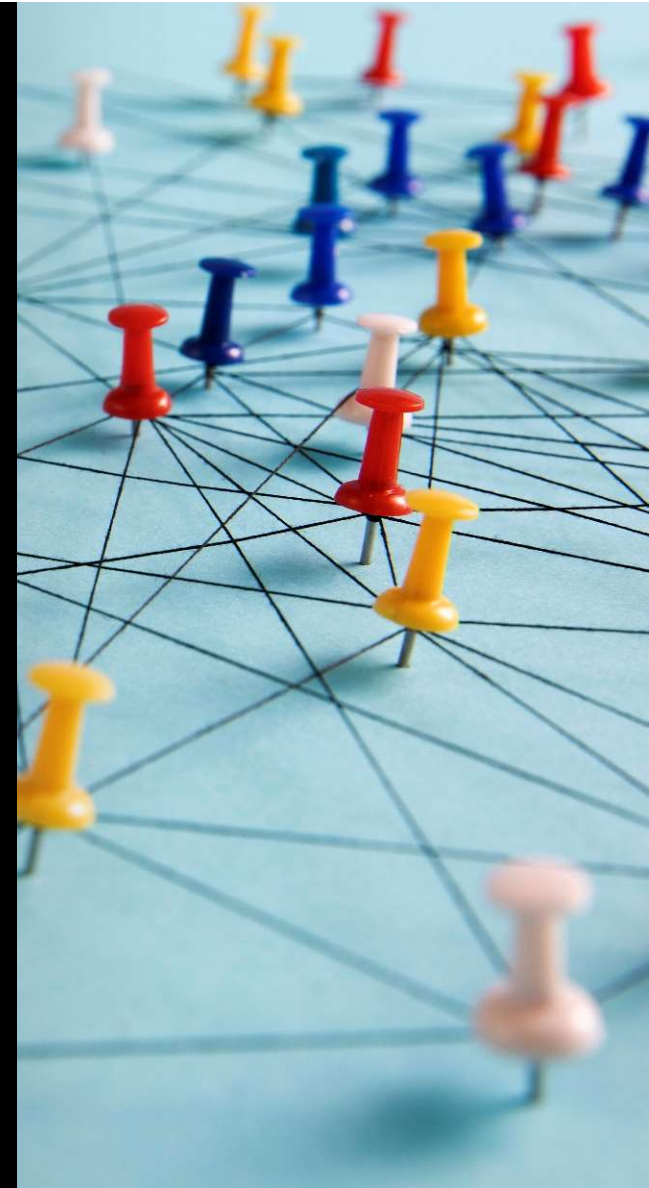
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Ron N. Dreben advises clients on intellectual property and technology issues in business transactions. Ron provides advice in connection with mergers, acquisitions, and licensing arrangements, as well as trademark, copyright, trade secret, and related IP law. A certified information privacy professional (CIPP), Ron helps companies assess privacy and information security issues. Recently, he has written on nonfungible tokens (NFTs), copyright, and diligence, and spoken on artificial intelligence and copyright, including authorship of AI developments, machine learning database issues, and challenges presented by deepfakes.

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# Biography



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Drawing on 12 years of experience in software development and database architecture, David V. Sanker, Ph.D., works with clients to build strong patent portfolios in a variety of areas, including artificial intelligence (AI), machine learning, natural language processing, data visualization software, large-scale database architecture and storage infrastructure, data analytics software, and touchscreen technology. As AI tools have become widely available, inventions that use AI have become an increasing portion of his work, including inventions in industrial automation and life sciences.

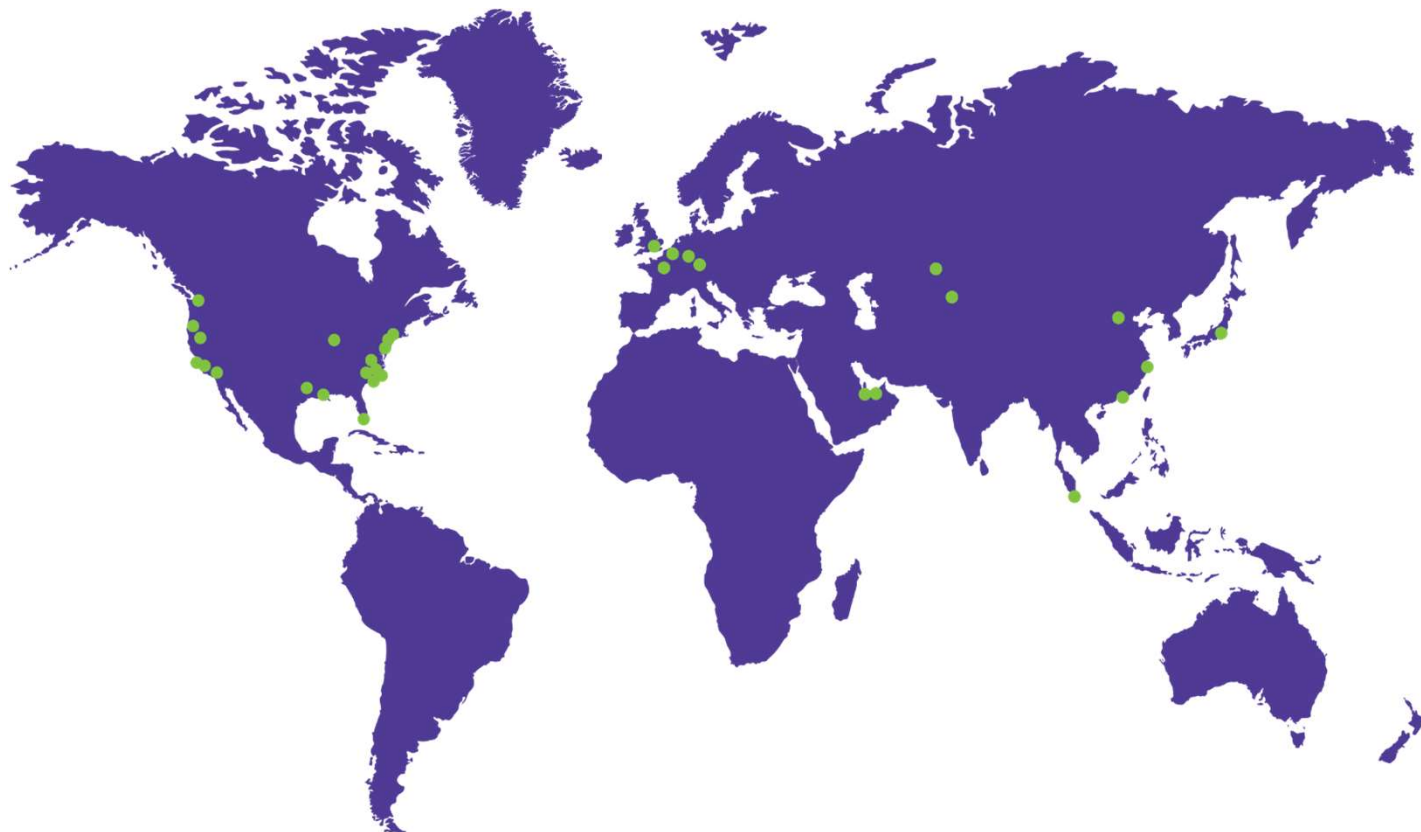
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