Day 2, Panel 4 Prosecution: Inventorship and the Standards of Conception

Key Terms: Natural Person Requirement, Conception Standard, Reduction to Practice, Joint Inventorship, Inventorship Oath, Inventorship Declaration, First-to-Invent, First-to-File, America Invents Act (AIA), Pre-AIA, Post-AIA, Inventorship Correction, True Inventor Defense, Human Contribution Requirement, AI-Assisted Invention, Agentic AI, Generative AI, DABUS, Thaler v. Vidal, AI as Inventor, Human-in-the-Loop, Prompt Engineering, AI Output, Machine Learning, AI Tool Documentation, AI Ideation, AI Implementation, USPTO AI Guidance, Director Squires, Director Vidal Memo, Vidal Rescission, Federal Circuit Ruling, UC Berkeley v. Broad Institute, CRISPR Interference Proceeding, PTAB Remand, Reasonable Diligence, Section 101, Section 112, Inequitable Conduct, Post-Grant Disputes, Lab Notebook, Inventorship Memorandum, Invention Disclosure Form, Conception Date, Reduction to Practice Date, IP Assignment, Employment Contracts, Consultant Contracts, Terms of Use, Inventorship Documentation Framework, Provisional Application Filing, European Patent Office (EPO), South Africa Patent System, Chinese Foreign Filing License, PCT Application, National Stage Entry, Cross-Border Development, Foreign Filing License, Non-Examining Patent System, Global IP Portfolio Strategy, Jurisdictional Inventorship Standards, IP Due Diligence, Patent Portfolio Strength, Ownership Verification, Acquisition Risk, AI-Related Invalidity Risk, Patent Enforcement, Post-Grant Validity, Joint Research Agreement, Portfolio Management, Claim-Level Inventorship, Thaler v. Vidal, UC Berkeley, Broad Institute, DABUS, Stephen Thaler, Director Squires, Director Vidal, Wilson Sonsini, Morgan Lewis, Sheppard Mullin, Mammoth Biosciences, CRISPR Therapeutics

This panel, Inventorship and the Standards of Conception, was the fourth prosecution panel of the second day for the event, 26th Annual Berkeley-Stanford Advanced Patent Law Institute. This event was hosted by Berkeley Center for Law & Technology, UC Berkeley School of Law, and Stanford Law.

Speakers:
Rachel Herder, Mammoth Biosciences
Alex Nie, Sheppard Mullin
Manita Rawat, Morgan Lewis

[WAYNE]
So, I wanna welcome you back for this session. the moderator here, Sara Patek from Wilson Sonsini, partner at Wilson Sonsini.

We spend, I guess, every Tuesday morning together because we're also planning a big conference in Colorado. So kind of looking at these topics across the world, or across the country, so you do see some blended activities. And this particular idea came out of kind of both of these big conferences looking at this issue together, so this idea of inventorship and the standards of conception, where that was popping up in a lot of questions. We've found the, one

of the things coming from people here and in Colorado was that it's not addressed much, and some were asking, "Does it matter at all?

Do I care?" And it turns out, and I was probably one of those asking, "Why do I care?" It turns out it seems to make a whole lot of difference as the world's going forward from the life sciences side, which was Sara's expertise, now over to the AI world. So with that, Sara, thank you for coming out from Colorado.

[SARA PATAK]
Thank you. What an awesome introduction.

Folks, it's my pleasure. So like Wayne said, I am Sara Patek, partner at Wilson Sonsini.

I do have a practice in life sciences, but we have a wide range of specialists here to sort of touch on this topic, so it is my pleasure to introduce our panelists. Manita Rawat all the way to my left, is a partner at Morgan Lewis.

She represents Fortune 100 companies as their lead outside patent counsel specializing in patent portfolio strategy and post-grant proceedings. To Manita's right is Alex Nie. He's a partner at Sheppard Mullin.

He specializes in global IP strategy for companies developing a wide range of technologies from pharmaceuticals to AI and robotics. And to Alex's right is Rachel Herder.

She's the senior vice president, Legal and Alliance Management, at Mammoth Biosciences here in the Bay Area where she oversees IP strategy for CRISPR-based therapeutics. So thank you all for being here. Let's see. Okay, so today, we thought we would break this down into sort of three topics.

First is breaking down the law of inventorship and the standards of conception under the U.S. law from a historical perspective, so we wanna talk about pre-AIA, the standards that were applicable then, as well as post-AIA, basically to present day, and sort of how those influence the present-day standards. We'll touch a lot about AI-assisted inventions, I think this is top of mind for everybody and how recent case law and USPTO guidance has sort of impacted the way we counsel our clients on this topic. And we'll do some comparative perspective at the end, looking at not just the US, but also Europe and China, and some other jurisdictions where there have been some developments. So we'll just dive in.

Okay, so Manita, you have been practicing for nearly 20 years. Can you share your perspectives on the law of inventorship pre-AIA and sort of how that's influenced in present day?

[MANITA RAWAT]

Yes. So for a show of hands, how many of you guys in this room had been practicing before the America Invents Act? Okay, so quite a few of you. And I think what's important in as we discuss inventorship is the law has not changed in terms of inventorship.

It always required a natural person, and a person that conceived the invention and reduced it to practice. It was never if you were somebody who was merely implementing something that was conceived by somebody else, that would not deem you an inventor. But what was important, I would say pre-AIA, and especially I see that we're the prosecution section, but those of you guys who have also litigated back pre-AIA, it was always important to know who the inventors were because before we became a first-to-file system, the way you could attack an infringement action that was asserted against you was to prove that you were, in fact, the inventor and not the patent owner or patent holder. And so a lot of the litigation back then, if you could show videos or lab books and things of that nature where you could show that you actually conceived the invention, reduced it to practice before the date of the patent or before the other side had conceived it you could prove that you were not infringing 'cause you were actually, in fact, the true inventor.

So inventorship was important for that reason. I would say post-AIA where we became a first-to-file country, using that argument in terms of who the you know, who conceived it first was no longer really an issue. However, now that AI-implemented inventions, or AI-assisted technology are being more prevalent in our society, we're reminding our clients to go back to the lab books, note down who the inventors were and to note down, you know, who conceived it, how it was reduced to practice, make a record of that. Because again, I'm in, in, in terms of the new USPTO guidance, it just really reinforces that inventorship requires a natural person, i.e. a human component, and AI technology cannot be an inventor.

I think it's more likened to an individual who implements a conceived idea. I think that's the way you would have to look at an AI technology, as opposed to conceiving the actual idea.

I don't know what's gonna happen 10 or 20 years from now as AI evolves, but I think it's very clear right now And it always has been, is that inventorship requires this human component, whether it was pre-AIA or post-AIA.

[SARA PATAK]
So Alex, turning to you, you represent clients spanning a number of different industries, pharmaceuticals to AI and robotics. Are you seeing tensions with the current framework as your clients are using automation and AI tools in their product development?

[ALEX NIE]
Yeah, I do think questions about inventorship come up a little more, but I would like to maybe speak about their similarity a little bit. I see kind of inventorship disputes right, way before AI was popular.

For example, inventorship dispute between chemist and a biologist. The chemist would design a drug, the biologist is supposed to test or confirm the drug's utility, right?

And many times, the chemist believed they are the one who conceived the idea, the biologist will be the one who implements it. The same thing between a human and animal, for example, you know, biological drug.

The human may be the one who gives the animal certain antigens, and in the end, the animals give you a new antibody, which is patentable. So you need actually, I've always had the feeling that one day the Supreme Court may pick up such a case and decide, "Hey, in here, you know, a person who gives an antigen to an animal may not be an inventor."

So there is attention as well, which has not come up yet in any case law. The third is now the automation, right?

What if you are the one who designs the AI or is he the one who uses the AI, who is the inventor? I think all this has been in issues before, and this, now it comes out more.

[SARA PATAK]
Yeah. Yeah. So Rachel, can you share a little bit about just being in-house with the current research environment and more automation and AI tools being used in-house and how that's changed over the years? How do you think about the law of conception in terms of how you protect your, you know company's IP?

[RACHEL HERDER]
Yeah. No, it's a great question. I think as things have changed, things have stayed the same. So by that, I mean we certainly are seeing AI used more and more as a tool. In fact, you'd be hard-pressed to probably find a biotech company not using any AI at all for anything.

That said, we still go old school. We do inventorship forms. We document what each person conceived. We always are thinking about IP when it comes to contracts, because as you know, IP is property, right?

So it actually depends who owns it and has access to it. So sometimes it can be a little less contentious to work out, for example, IP ownership or access early on, and then you don't have to have these like amorphous battles about who's an actual inventor, 'cause you've, by contract, you've already figured out what the end of the day is. So that's one of the practical things we do in-house, is just try to have that certainty, and access, and ownership so that we don't have to have these protracted inventorship debates, you know, 10 years later when everybody has rosy pictures of what they thought of, you know, 10 years ago.

[SIENNA PARKER]

That's awesome. So I, I guess I'll stay with you. I know that there was a recent Federal Circuit case clarifying the standard for conception. This was in the UC Berkeley Broad classic CRISPR dispute that's been ongoing.

Undoubtedly, most of you are familiar with it. Can we talk a little bit about that?

[RACHEL HERDER]
Yeah, absolutely. So if there's any law professors here, like, this is, like, the best case that you can use Yeah, you got a great one right there. Yeah.

It's like, you got like, everything, you know, inventorship, everything is contentious. But in this particular case, these are some of, like, the last great interferences that are going on at the patent office, because as you know, like, anything filed on or after March 16th is in post-AIA, but these provisionals, these like there's probably like, you know, over 25 provisionals between five different companies filed straddling the AIA date. Um, so, so we have this patent battle, and, and the biggest in the news has been between UC Berkeley and the Broad.

And in this instance, from the, this particular interference proceeding, they're asking who invented using this technology in eukaryotic cells. And it's pretty clear from the evidence that the, the Broad was the first to actually do it on the lab bench. But it was very clear that UC was the first to file a provisional describing that.

And so the battle really here is about conception, and what the Federal Circuit said is when the PTAB made their ruling in this, they didn't fully take into account reasonable diligence that a person would use after they conceive of an invention. So in this case, UC thought of this idea, they tried to get it to work in eukaryotic cells, and for all of you biologists out there, you know, nothing is easy. And so the question that they asked the PTAB to go back and re-examine on remand is essentially, was UC merely using skills and experiments known in the art to show that this was reduced to practice?

Or did they actually invent or change the inventive concept when they go, went back and tried to do this in eukaryotic cells? So we'll see ultimately what the PTAB decides.

To my knowledge, I don't think they've decided yet, so we'll

[SIENNA PARKER]
Yeah, and I mean, I think one of the conclusions, at least so far as I can tell, is still that it's true that conception

[SARA PATAK]
Conception and reduction to practice are separate. so, in other words, you don't necessarily need to know that your invention is going to work for you to have a complete idea of the invention and satisfy that under the law of inventorship.

[RACHEL HERDER]
Absolutely.

[SARA PATAK]
Awesome. Okay, let's see. So, we'll turn to AI-assisted inventions 'cause I think that's where there have been a lot of developments as of late. And so we start with the Thaler v. Vidal decision. And Alex, I'm turning to you. Can we unpack this a little bit? What is DABUS exactly?

[ALEX NIE]
DABUS is an AI machine program created by this person, Stephen Thaler. He created the machine for the purpose of drafting patent applications, for the purpose of testing the law in certain countries. He filed two applications under the name, inventor name, of DABUS in the U.S. and in Europe and other countries in there. And then, in the notice of filing missing parts, he was asked to fill in the inventorship information, and then he did two things in there.

Number 1, he did say that the AI program was the inventor, and he signed on behalf of DABUS, which is the AI as the inventors, for the declaration. And also, he assigned the rights from the inventor to himself. So, therefore, he has a right to prosecute this application at USPTO.

USPTO, of course, did not accept this response to filing missing parts, and alleged that AI cannot be a machine or cannot be an inventor. So, this case eventually went to the Federal Circuit.

The Federal Circuit actually took two positions. Well ruled that this PTO was correct on two basis. Number 1 is purely on textual, you know, statutory basis, and that is the AIA sets forth the inventor as an individual, according to certain case law in the Supreme Court back in 2012. An individual in a statutory text must mean a human being.

By contrast, a person can mean many other things, including a company, you know, entity as well. So in here, because the law says it has to be an individual, must be a human person.

Second, because the-- because the patent law also requires a declaration or oath the Federal Circuit basically believes that a machine or AI cannot have beliefs, therefore they cannot sign an oath or declaration. So, on procedural grounds, this cannot be filed as patent application.

[SARA PATAK]
Yeah. So Manita turning to you. So, let's talk a little bit about the USPTO guidance that came out just a couple of days ago.

[MANITA RAWAT]
Yeah. And-- and, ha, I would say of-- of the things Squires has done, like getting rid of the PTAB, I think this is the most least controversial in the sense that it-- it hasn't changed anything. And the law is, and always has been, that inventorship requires a human-- a natural person. And it really is just reinforcing that notion.

And again what we have learned from this is kind of taking us back to the pre-AIA days where we advised clients and said, you know, "Make sure you document when you conceive something and who were the joint inventors and, you know, who were individuals in the lab who just worked on implementing your conception versus being a part of the conception." But now we're kind of asking our clients to do the same again. But do it in the sense of, you know, what you are using the AI-assisted technology for with respect to the invention. So again, documenting the conception of the invention, who the contributors were to that conception, and then how the AI-assisted technology was really being used to implement what you as the inventor had conceived.

So that if in post-grant disputes where a lot of these questions come about, as I mentioned, in post-grant disputes like you know, patent infringement litigation, inventorship was attacked to show that if, for example, if you were the accused infringer, you-- Would say well, they're not really the invaders, we were, and we have documentation to prove it. I think with AI-assisted technology, what we're gonna see in the future with these post-grant disputes, for example, in litigation, inventorship may be questioned again. Not in the same capacity, not in, you know, the date of the invention, but more so as, well, that really wasn't your idea.

That was done by an AI-assisted technology, a generative AI-assisted technology. Yes.

Yeah, sure. Yeah, of course.

[IAN SHERIDAN]
Good morning, everyone. My name is Ian Sheridan. I'm a barrister from London.

I was actually just passing through, but I'm going to the airport. But I was here last year, and so I know it's a great event. And I published a book on semiconductors and I mentioned this event, so supposed to be careful what you say. Joking.

I just wanted to pick up on what you're saying. You know, with this case, I voiced this in London and it's in front of some senior judges and it sort of becomes a bit, it's difficult.

But to get to the point, surely this individual is wasting the court's time because if you're an individual, any form of invention, and this would apply if you were using a slide rule 40 years ago and we're now using generative AI, you're ultimately using software which you have uploaded, and you're pressing a Return key. So am I over-simplifying things here, but isn't this a waste of time? It's clearly a human at some point in the loop.

[MANITA RAWAT]
Yeah. At least, and again, for inventorship purposes, who actually conceived it. Like to your point, it was a human who conceived it, right, but just used, for example, some generative AI program and hit Return, that's the easiest way to describe that and generate, for example, a model or an output, right, that is used for the invention. And yes, it may be that it may be a

waste of time, but I think as AI technology evolves and as we use it in different ways, I think there will be ways that it can be attacked, right? And I think that it will likely come to that.

Yes, we may have used whatever technology to really implement the idea that I had come up with. I don't think ChatGPT would have come up with the idea. Right? I believe I wanna touch on this that with the believe that ChatGPT have believes, I think if you put in certain questions to ChatGPT, saying, "Do you believe this?" They will actually output an answer.

So it's really interesting to see how this will continue to evolve, how the technology will continue to evolve, and how people are going to use this technology, right? Because you don't know what kind of questions an inventor may use, right? Like, maybe the question before they hit return is, "How would you solve X, Y, Z?" And the solution, you get an output, right? Maybe that solution is the idea, right?

And so, I don't think it's a waste of time, and I think it's definitely, as we continue to use AI technology more in our lives, I think there will be questions there. And this was just a very simple example. I think it will be more complex, and as we all know, litigation is always complex.

(laughing)

[SARA PATAK]
Well, and I think, yeah.

[AUDIENCE MEMBER]
Can I ask about just a follow-up on that. It's like, I mean, one of the things that concerned me the most about this was the statement that says, "AI is just like a laboratory tool."

[SARA PATAK]
I agree.

[AUDIENCE MEMBER]
And it's like this, it's like no, you can't by fiat change it. I mean, the reality is that AI tools are doing a lot. And so that was the one thing that I said, you know, you can't do that."

Or, I mean, like your example, you just said. You could ask an AI system to say, "Generate something for you." It's like, the person didn't conceive it, the AI system did. So, it's I think it's a more, it's a factual question as to what the AI is doing.

[MANITA RAWAT]
Yeah. And that's why, again, what we are now advising clients on is to really document all this the same way that we had asked pre-AIA document, and ack then we used to look at the date of-- Inventions so conception date and then the date of reduction to practice. And so, we are now kind of going back to that, making sure we document this, but from the sense of, you know, what was conceived, what did you ask AI assisted technology to do?

[SARA PATAK]
Yeah. I also take, I'm bothered by that, mostly because we know that agentic AI is going to change the way AI is being used. It's gonna change the way the internet responds to agents online. I mean, there are agents that are out there that are able to complete financial transactions on your behalf and book your international travel, and you name it, give healthcare advice, and it's gonna be, I think, a whirlwind of catching up in terms of regulatory and legal ways to respond to that. And so, I likewise think that some of this is good.

It's a bit proactive given the tools at our disposal today. But agentic AI is just around the corner for most of us, so something to think about. Well, let's get granular, Rachel. So if we're thinking about how do you get your inventors or how should in-house counsel be motivating inventors to comply with documenting all of the things that they need to and what types of documentation are you asking them to do?

What frameworks are you putting in place?

[RACHEL HERDER]
Yeah, I think that's a great question and I think one job of the in-house counsel is like there's so much uncertainty in many places, and this is just one, and you're trying to do the best you can with limited resources to get, to do what you can. So I think, for me, when it comes to AI, the first thing I want to do is understand it.

What are we using it for? Who is getting access to our prompts, to the data that we input? Who owns the model? Did we generate it in-house or are we using somebody else?

So some of that, the first step that I have to do is understand myself, like to the extent it's tool, are we using it for as a tool? Or to the extent it's beyond a tool, what are we using it for? And then after that, I think about how can we put contracts in place to protect what we do?

So we have, of course, employment and contracts, and consultant contracts that assign IP. If we're using an AI system that we did not develop, we of course have a contract, a terms of use, so what's happening.

So we wanna make sure that that fits with how we're using that AI tool. And then when it comes to documenting, I really we do have a formal process of documenting inventorship. It's important for many reasons from the couple hundred dollars that the inventors get when we file a PCT, all the way up to down the line, having documentation in hand.

So, we try to document it. And as I think about inventorship, I think about how things might change, so I wanna include things like how we use tools or AI or other things. And when it comes to somebody that's maybe on the fence, are they inventor, are they not? You know, this is my own personal opinion, but it's probably often better to treat them like an inventor, get that assignment documented, show that you own it.

It's easier to take an inventor off the application 10 years from now when you have the final claim language than to be like, "Oh, crap. I don't even know where this person lives.

How are we gonna get them to sign an assignment down the line?" So, there's a little bit of trying to be in the real world and think how can you work with these inventors or potential inventors, while you still have contact with them.

[SARA PATAK]
Yeah. And question for all three of you, in at least I know in my practice, I'm constantly having to counsel my clients who are inventors at my clients on here are some of the exemplars of ways that you are an inventor. Here are some of the exemplars of times where you're likely not an inventor under the current standard. So, now that almost everyone is using AI tools, I'm just curious, is that guidance for you guys changing? How are you modifying that when you're working with inventors?

[ALEX NIE]
Well, I have a deep concern on my mind when I work with an inventor that has assistance from AI. And that is, we need to make sure every single claim has a human inventor, not just the entire invention has one inventor. For example, if the person, a biologist wants to mine some data to find a way to diagnose cancer.

And then the key to the invention might be the listing of markers in there. But he dumps the data into AI, AI gives him a list.

So in there, how do I be sure if I list, you know, markers seen on my claim, one of the dependent claims, this claim's entitled to the inventorship of human. So maybe good documentation on how he looks at data and then decides this is a good list, and it screens multiple choices and then decides on one. So, that's on my mind because if in the end, even though he is the inventor, but AI does so much because AI's so powerful and generates data which is in the claims, then we may lose the important claims in there.

[ZARA FREYSS]
Anyone else?

[RACHEL HERDER]
When I have to describe it in the company, I try to just go to first principles and give an example that they're maybe familiar with. So if you're in a graduate student lab and the your boss says, "Do X, Y, Z," and you pipette it, you're not an inventor. But if, if you came up with the idea like, "Hey, I, I'm gonna mix these three things together, and I think, you know, I'm gonna h-- make an explosion," you know, then that is more conceptual.

And I, you know, inventors are often really smart people, so if you can give them a guiding principle, they can help you fill in the details of like, "Oh, actually, I did think of this thing. My boss didn't think of that." So I think I try to explain it at a high level and let them tell me

[ZARA FREYSS]
Yeah. And I guess the way I--oh yeah, of course.

[IAN SHERIDAN]
Just on the example that Rachel gave o-- one thing people talk about hitting the return and giving the prompt to the AI, but there's also the appreciating that what came out mattered. Alex alluded to this.

Mm-hmm. So on the pipette example, you could do a billion, right? And then, but if you have knowledge to appreciate that while that one result is actually interesting and worth patenting, then I think you're the inventor.

[ZARA FREYSS]
Yeah. Not only that, I think the input matters, right? Like, your prompt engineering matters, and what you're asking for, like, maybe you want genes activated in a certain pathway, and maybe you want there to be a genetic significance to a particular disease or indication. I mean, there are ways that you can leverage AI tools, I think, in a way where there is human ingenuity involved, for sure, even beyond just evaluating the output.

So, yeah. I think that's right.

Um, so let's switch to the topic of doing a comparison, and I apologize if you guys can't see the South Africa on the very bottom. Um, but Rachel, so you know, you're managing a global IP portfolio. How are the differences in the way different countries are treating the law of inventorship impacting the way that you manage your portfolio strategy?

[RACHEL HERDER]
Yeah. Well, so, so the so the, the one reason maybe why DABIS wasn't a waste of resources is I have now a little more certainty of what, what might be happening in some countries down the line. Uh, but no, for me, it's all about, like I said in the earlier slide understanding and, and documenting, and then I'm gonna rely heavily on my outside counsel to advise me how things are changing around the globe and help me do the best I can to protect from the day that we file as the claims change and to when the patents are issued and enforced.

[ZARA FREYSS]
Yeah. That makes sense.

[RACHEL HERDER]
So,--

[MANITA RAWAT]
I kind of wanted to, if we can go back to that slide--

[RACHEL HERDER]
Oh, sure.

[MANITA RAWAT]
I know you guys will see South Africa actually does let AI be an inventor, but I wanna caveat that, we made a note there, South Africa does not examine applications. So South Africa's system I think is more akin to our copyright system where you submit an application, it's not examined, and you get a copyright registration.

So it works in the same way. So just because, and I think DABUS may have been listed as an inventor in South Africa, if I it was okay, or it was then challenged in the court.

So, it may pass muster, the South African patent office, it could be challenged in the court, and I think we're still seeing how the case law will play out with that in South Africa. And I think the EPO also is one to note, because it did hint that patentable inventions are not limited to human-made inventions, so I think they are thinking more prospectively in terms of technology is evolving, and we don't know what's gonna happen, I wanna say 10 years, but I think it's like six months from now it could change.

And so they've kind of left that open, and again, a lot of these inventorship issues haven't been legally challenged yet, and I think we're gonna see more case law in this and especially now without the PTAB. I think there's other ways that accused infringers will go after invalidating patents and kind of turning into this, looking at inventorship.

[SARA PATAK]
Yeah, so I mean, it seems like there's some degree of overlap between the approach in the United States, the UK, Europe as well as Chin a with a couple caveats that you mentioned. So, but there are outliers.

There's South Africa and surely there's going to be more lobbying developed in the future. So Manita to you, how are you planning counseling your clients for future inventorship disputes today? Are you using guiding principles under US law?

What are you doing?

[MANITA RAWAT]
Yeah. Yeah, and that, and that comes down to what Rachel says, and, you know, looking at the portfolio, where are they filing where are the products being sold and, and what the law in those jurisdictions would entail. And, and actually, I mean, I'm not licensed to practice in Europe and South Africa, and it would require a lot of communication between me and foreign associates in those jurisdictions and understanding what's going on.

And I think it's not even, and I don't mean to go off-topic, and not even just inventorship. I think we're seeing a shift, at least here with Squires and the Patent Office where a lot of scrutiny that came about with respect to software patent applications being allowed under Section 101 we're gonna see some differences in that under the Squires Administration with the PTO that, you know, we now have a very pro-patent administration at the USPTO. And so we may be able to get, like, broader coverage in some of our claims than we can in Europe and other jurisdictions that really are pretty strict with software inventions.

And so I think this, again, is going to require a lot of fine-tuning and as technology evolves, and as we, again, a lot of this stuff hasn't been litigated yet, but it will be, and then we will get some guidance and some case law to give us some direction.

[SARA PATAK]
So Alex, how are you counseling your clients that are doing cross-border development?

[ALEX NIE]
Well, inventorship issues, in many countries, are not as critical as in the US.

[SARA PATAK]
Yeah.

[ALEX NIE]
So in many countries the in-house lawyers don't do that much work determining who is the inventor, but there are two other issues which can be related. One is, for example, in China there's foreign filing license, because that is, that is determine on whether the invention is partially made in China, and that is related to who makes the, makes the invention, right?

And is that Chinese standard of inventorship is slightly different from the US. In there, they don't really emphasize on conception. They're saying there is a substantial part of the invention is made by a person or made on soil of Chinese land.

So in there, there may be a conflict between a US lawyer thinking of, "Well, this invention is only made by US employees."

[SARA PATAK]
Mm.

[ALEX NIE]
Because these are the ones who came up with the idea. The Chinese CRO only did the, you know, implemented the idea when we tested it, but in there, according to Chinese law, you may have to include certain Chinese employees or, or may even have to file Chinese foreign filing license… for that purpose. So I have to be clear, you know, conscious, conscientious about the differences of, you know, inventorship laws in different countries.

[SARA PATAK]
Mm-hmm. So a, a question for all of you to the extent you have experienced it, and I'm sure that you do, are, are there questions that have come up in IP due diligence, maybe in connection with M&A or, you know, in an acquisition or anything related to conception and inventorship?

[MANITA RAWAT]
Yeah. It's really interesting. I just did a deal a couple weeks ago, and we were on the buyer side, and the company that our client was purchasing heavily their products were heavily in the AI machine learning space. And obviously when we're doing due diligence, there's lots of things we look at, like in terms of we wanna verify ownership and the strength of their patent portfolio.

But now we're even digging deeper when we look at the strength of their patent portfolio, we're looking at some of the weaknesses and in terms of could this be targeted in terms of inventorship? And it was something that well, questioning inventorship when doing a due diligence was not something I had ever considered before.

Maybe pre-AIA we did, and where we would do our own prior art searching to see if their date of the invention could be attacked in any way. But now we're looking at it, and ask, you know, looking for documentation within the documents that are provided, if they provide any information with respect to how they came up with the invention, what tools were used to develop that invention, which we didn't, I, at least from my practice, didn't readily look at that information before.

[SARA PATAK]
Yeah. I mean, I think it's commonplace, like, for at least in my experience, for, like, Big Pharma where things like some of this stuff happens and just for their documentation, they put a memo to a file particularly for, you know, compounds or antibodies that cover their lead commercial products. But, you know, I, myself, I represent startups usually, so it is not part of my practice either to document some of this stuff. You're also filing so many provisionals, your head would spin if you put a memo to the file for every single one. And most turn out to never materialize into anything in 12 months.

Now, I feel like the approach might be different. Now, I think it does make sense for there to be a docket item where it's submit inventorship memorandum to the file.

Just an internal document, but something that lays out at least the basic facts at the time of conception, that you can then go back and refer to, to the extent that turns in to be an important case.

[MANITA RAWAT]
And that's an excellent point. You know, it kind of goes into Sara's practice and my practice.

Sara is in the bio/life sciences space. I'm in the high tech, you know, computer software, electrical engineering space.

And so, it, that's a great distinction because in my space, we would never really consider that, right? Because it isn't like a lab environment in terms of the inventors we worked with or we work with in our space.

But now that AI-assisted technology is being used by inventors even in the software and hardware space, it is something that we are looking at.

[SARA PATAK]
Let's see. Yeah, There we go.

Well, actually we've reached our final slide before questions. And really, these are unresolved questions so we wish we had answers to these for you folks.

But I guess a question for each of the panelists. We mentioned agentic AI tools. And I, I guess I'm wondering, is there flexibility in the framework to to adapt to the use of AI that is autonomous and that by definition requires very little, if any, human intervention?

And if so, what does that look like?

[ALEX NIE]
But not only agenic AI, right? This can be AI tools specifically made for certain one purpose.

[SARA PATAK]
Yeah.

[ALEX NIE]
So in there, the inventor, well, not inventor. The AI tool generator made this tool for you know, creating a compound that is for a particular drug, you know, compound.

So in there, you don't have to even click a button. The AI gives you the compound in there as long as you buy the tool or buy the software. So, I would think that this question become more difficult in the future than maybe today.

[SARA PATAK]
It seems like this administration might be a little bit more, I guess amenable to putting out guidance around this to adapt fairly quickly to, should there be a need to do that. So, we'll see.

[RACHEL HERDER]
I also wonder, the other parts of the patent statute, how are they gonna apply if AI is totally doing it? Isn't the invention obvious?

Or if it's spitting out so much stuff that you don't know which one's the top one, did you really enable it? So, it'll be interesting to kinda balance, you know, inventorship with the other patent statute parts.

[ALEX NIE]
Maybe I can use an analogy in there, say, earlier I talked about that similarity between biology and AI, right, in here. So if you give an antigen to a animal, you can get a new drug potentially in there.

But how you can justify the patentability of the new drug in certain countries, you need to see like-- show that this one is not so routinely made. For example, in Europe, you have to compare your antibody to known antibodies. Maybe in the future, if you have used AI to generate a new thing, you may have to generate multiple things and pick one by human eyes.

So that way, you have justification of certainly a human-made invention.

[SARA PATAK]
Mm-hmm.

[AUDIENCE MEMBER]
Froze.

[ALEX NIE]
Oh, thank you.

[AUDIENCE MEMBER]
Sorry, I have a question.

[SARA PATAK]
You're turn.

[AUDIENCE MEMBER]
Just in time. One is, like, isn't it weird, like, as a patent prosecutor, it's a little annoying and inconvenient to have to worry about who the inventor is. And one question is, why does it matter?

You know, most of my clients are companies and it's important to lock down the ownership, but if an applicant company files an application, should it really matter who the inventor is?

[MANITA RAWAT]
It's kind of interesting, cause I think as patent prosecutors, sometimes we don't always think perspectively, right? Like, our goal as a patent prosecutor is, "Well, we just get it allowed at the PTO." And this is what I mentioned before, the real crust because of it is really at the post-grant dispute stage. So you get this patent allowed and you think, "Hunky-dory."

And all the sudden, the patent that you worked on for a company, they now are asserting it against multiple defendants and the defense that is being used is, "Well, you know, those inventors are not the real inventors. Right? And again, that was the crux of a lot of the defense used pre-AIA and now it, again, may be used in the future.

[IAN SHERIDAN]
My question was more should it be? Should that be a risk? You know, does it matter who the inventors are? Should it matter who the inventors are?

[MANITA RAWAT]
Yeah. Because again, if we want to be the best patent lawyers for our clients, we want to look at every risk and especially the risks that could occur post-grant.

[WAYNE]
And, and I'll add one thing, 'cause I've litigated several patents to invalidity on failed inventorship issues. And one of the things that happens is you can correct inventorship now. It's not like the old days when if you were wrong, you were dead.

But now you can correct it. Good luck finding that inventor 10, 12 years down the road. And that's where these patents break down on enforcement.

[PARTICIPANT THREE]
And wouldn't it be better though if the whole regime didn't require you to name the inventors to begin with, and it didn't matter whether you had the right inventors?

[WAYNE]
Again, if you have President Trump's Truth Social feel free to send that one out.

[MANITA RAWAT]
I just want to note that it's actually Congress that has jurisdiction over the patent law. But again Under Trump, it's obsolete. Right, Yeah, yeah.

[RACHEL HERDER]
You know, it's going back to old school with is it important who the inventors are? Yes, if you're a company, you're the assignee who filed the patent. But what if your employee came from another company two days earlier and then they're the one that brought the idea? Is it really your company's invention if they, you know, bought it from their last company?

Maybe it's their, the other company's invention.

[ALEX NIE]
In the joint research agreement, typically the only issue is determined by the inventorship.

[RACHEL HERDER]
Yeah.

[SARA PATAK]
Well, when the examiners, the first thing they search.

[ALEX NIE]
Inventors.

[AUDIENCE MEMBER ONE]
When the examiners search, the first thing they search is the inventors' names to determine something for double patenting and terminal disclaimer rejections. So, it matters who the inventors are, at least from the USPTO's perspective to find the other related applications.

[MANITA RAWAT]
Question is, how are you gonna prove inventorship? I mean, who's gonna know if indeed you used AI? Are you gonna know, is documentation in the lab notebook gonna become even more important? And also, as a secondary question, picking up on your point about enablement, arguably wouldn't the standard for enablement now go down because you can say, "Well, the person skilled in the art is gonna have AI tools to be able to enable the invention."

So, could you argue that the other way? Well, I mean, I think if you're litigating something like this and again, this is why we're asking our clients to document stuff at the invention stage. I mean, you're litigating this, that could be a question that you as the inventor or the company could be asked during a deposition. "how did you conceive this?" Right?

And if you can't answer it or you make a statement like, "Well, I used this AI tool and asked these questions." I mean, again, these would be very specific questions that you would have to answer at the time of these post-grant disputes. Well, I think as a follow-up, would you, if you did use AI in any way, shape, or form, would you want to now maybe subsequently delete all uses, delete, you know, the download files in some way, shape, so, just like the way you purge email, you purge emails, you know, every three months So you can... Well, hopefully you're advised not to do that after the, after the Enron, uh, case.

(laughter)

But I mean, these are the things, again, that are going to be litigated. Yeah. And they haven't been yet. I have one further follow-up.

I mean, the way AI is going and "super intelligence," what happens when we get to the point that AI is just so superior in coming up, particularly with drug patents or any invention, where, I mean, we've passed the tipping point where in nobody's gonna be doing inventions on their own because AI is just simply superior. So at what point, you know, what does a Patent Office do?

What do we do as a profession when that gets to the point where AI is just, you know, superior to any human mind?

[ALEX NIE]
The patent office may use AI as a patenting examiner so everything's obvious.

(laughter)

[ZARA FREYSS]
Are we There more questions?

[AUDIENCE MEMBER ONE]
Yes...

[ZARA FREYSS]
Hang on. One second. Lots of questions.

[AUDIENCE MEMBER ONE]
With less and less involvement by inventors and maybe even reaching a point where the inventor doesn't understand or can't even comprehend the result that's coming out, he knows it works, I mean, are we creeping up against, you know, unpatentable subject matter again, like laws of nature, natural phenomena? And just, it shouldn't be patentable because no one can really say that they conceived it. They don't even understand it. Like humans don't understand it anymore.

[ALEX NIE]
Isn't there a law, a rule saying that the invention has to be well-defined and has good clarity So maybe it can be rejected under 112?

[IAN SHERIDAN]
I have a question.

[ZARA FREYSS]
Okay.

[IAN SHERIDAN]
Yeah. So this is just in your research, I'm thinking about the South African model. So if you, if you file in South Africa as officer of first filing, did you come across any attempts, maybe it wouldn't have been published yet, to try to file a PCT based on something that was filed in South Africa? How would WIPO handle it?

I noticed, you know, the list of the countries, and if you could do that and just wait 30 months to figure out what other countries do, that would seem to be a good strategy.

[RACHEL HERDER]
I think in the DABIS case, the PCT did have DABIS as the inventor at WIPO. The PCT doesn't examine, so it's just a place--

[IAN SHERIDAN]
But there's no formality--

[RACHEL HERDER]
Yeah,

[IAN SHERIDAN]
It's just like office. Rejections in the USPTO? Yeah. They didn't give you a notice… What is it called? A notice of omitted items or notice to correct. So, so in that case

[MANITA RAWAT]
In fact, whatever you file in the PCT, in terms of inventorship, that really comes about when you're to go to the national stage and you're filing in the different jurisdictions.

[IAN SHERIDAN]
So, so if WIPO accepted it, you could just, you could file in South Africa or if you're a s, uh, if you could use it as a receiving office, you could do that. And then you would have 30 months to figure out all this stuff in all these other countries and then nationalize wherever you could. Just kick the can down the road for 30 months.

I wonder if that's already being done and they're just not published yet.

[MANITA RAWAT]
Yeah, I'm sure it is. I think that's a delay tactic.

[IAN SHERIDAN]
Yeah, just…

[MANITA RAWAT]
That probably is being used.

[IAN SHERIDAN]
Keep

[MANITA RAWAT]
Doing it.

[IAN SHERIDAN]
We'll find out in 18 to 30 months.

[MANITA RAWAT]
Yeah, yeah.

[WAYNE]
One follow-up question. If inventorship becomes such an issue, could you see the patent office, like, requiring further documentation on this inventorship and not just the oath? Actually requiring some submission of the invention?

[MOLLY]
Maybe, and maybe--

[AUDIENCE MEMBER TWO]
Could you repeat the question?

[MOLLY]
Okay.

[WAYNE]
I was just gonna say, as AI inventorship becomes more and more sort of universal or popular, could you see the Patent Office requiring more documentation of inventorship than besides just the oath? Maybe submitting some kind of lab notebook or some other--

[MOLLY]
Certification.

[WAYNE]
Requirement to prove, actually physically prove that the inventor invented it.

[MOLLY]
That was part of the Vadal memo.

[ALEX NIE]
Oh, okay. Yeah, Molly might have an answer.

[MOLLY]
So, right, part of the Vadal memo that was rescinded by Director Squires. Was the notion that the examiner could request more information from the applicant about what AI was used, what tool, how it was used, and everything else along those lines. So, the, the interesting part for me is that was part of Director Vadal's memo on AI guidance. I don't read it to be part of Director Squires'.

So, is that ability still there for the examiner to make that inquiry? And then, of course, like, if the office is asking you something, please be truthful, because if you aren't, then your patent is invalid for inequitable conduct because you lied to the Patent Office.

So, right, like, there's a tension there that I'm not sure where it's gonna go 'cause I think that's now an open question as to whether or not the examiner can require the applicant to ask or to give them more information about what tools were used in creating the invention.

[ALEX NIE]
Yeah, I have one last one.

[WAYNE]
So, we've got to send people to lunch. But you know how to find them. They'll be out there.

(laughing)

Thank you.

(audience applauding)

INVENTORSHIP AND THE STANDARDS FOR CONCEPTION

WILSON SONSINI

Panel: Alex Nie, Manita Rawat, Rachel Herder & Sara Patak (moderator)

Friday December 5, 2025

26th Annual Berkeley Stanford Advanced Patent Law Institute

SheppardMullin

Morgan Lewis

Mammoth Biosciences

AGENDA

- **Introductions**
- **Agenda**
  - U.S. Inventorship Historical Perspective: Pre-AIA to Present Day
  - The Law of Inventorship for AI-Assisted Inventions: Case Law and USPTO Guidance
  - Comparative Perspective: Inventorship in Around the Globe
  - Q & A

US Inventorship Historical Perspective

- Inventors: **conceive** and **reduce to practice**
- Pre-AIA Framework: first to invent
  - Interference proceedings often involve issues of
    - Conception
    - Reasonable diligence
    - Reduction to practice
    - Joint Inventorship
- Post-AIA Framework: first to file
    - Applies to applications filed on or after March 16, 2013
    - Less focus on reasonable diligence
    - New questions re AI in: conception, reduction to practice, and joint inventorship

The Law of Inventorship for AI-Assisted Inventions: Case Law and USPTO Guidance

- Current US Law: An inventor is a natural person who ***conceives*** and ***reduces to practice*** – *Thaler v Vidal* (Fed. Cir. 2022)
- New Nov. 28, 2025 USPTO Inventorship Guidance for AI-Assisted Inventions
  - Replaces and rescinds Feb. 13, 2024 Guidance
  - Inventor must be human
  - Traditional rules apply:
    - Conception standards remains
      - AI is just a tool like laboratory equipment, software, databases etc.
      - Merely identifying a problem is not conception
    - Joint inventorship applies only to human collaborators (*Pannu*)

Comparative Perspective: Inventorship around the Globe

Jurisdiction	Inventor must be human?	AI Contribution	Policy Trend
US	Yes, natural person	AI is a tool	Traditional rules of inventorship apply, AI is merely a tool
EPO	Yes, must have legal capacity	AI does not have legal capacity but board hinted that “patentable inventions are not limited to human-made inventions”	Emphasis on legal capacity; left open possibility that AI-generated inventions are patentable
UK	Yes	AI alone cannot assign patent rights	Open to non-inventor assignee holding rights but a human is needed to assign
Germany	Yes	Inventorship intended to protect inventor’s “personality rights” that a machine [AI] does not have	Left open possibility that a human operating AI could be an inventor
China	Yes	Sufficient disclosure is required – CNIPA Guidelines require clear and complete disclosure due to “black box” of AI algorithms	Encouraging AI innovation with caution
South Africa	No	AI can be sole inventor	Note: South Africa does not examine applications

Comparative Perspective: Inventorship around the Globe

- DABUS Applications
  - Patent applications (US, PCT, EPO, etc.) filed listing only Device for Autonomous Bootstrapping of Unified Sentience (DABUS) as inventor
  - Natural person identified as Applicant/Owner of Applications
- United States
  - US patents issued to "[w]hoever invents or discovers…"
    - 35 U.S.C. 101
  - AI cannot be an inventor
    - 35 U.S.C. 100(f) defines inventor as "individual or… individuals collectively who…"
    - Federal Circuit has held that "individual" is a "natural person"
      - *Thaler v. Vidal,* 43 F.4th 1207 (Fed. Cir. 2022) (cert. denied)
  - Presumably would extend to "Strong" AI as well

UNRESOLVED QUESTIONS

- If AI cannot be an inventor, is an invention "conceived" by AI patentable?
  - AI trained to model and test molecules for pharmaceutical applications
  - AI trained to identify tasks that can be implemented via additional AI models
- If yes, who is the inventor?
  - Person who trains the AI model?
  - Person who runs the AI model?
  - Person who built the underlying model framework?

QUESTIONS?