




CLOUD REALITIES

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Building a smarter organisation
with Machine Learning with Tom
Godden, AWS42 minutes



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Building a smarter organisation with Machine Learning with Tom Godden, AWS42 minutes

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[00:00:00] what's your normal pizza order? Ooh, it's with, uh, with mushrooms, cheese, and ham. Mushrooms, cheese, and ham. Rob? Uh, I'm a chicken and green and red pepper fan. I think they go quite well together. Chicken and pizza's quite controversial. Well, better than pineapple, though. Come on, let's be honest. True, true that.

Tom, what's your, what's your standard go to? I like a pepperoni and green pepper pizza, especially the next day if it's cold. Mate, we're in the same, we're in the same camp. That's mine. That's my goatee. You don't need it in three minutes. No. I don't need mine in three minutes. Yeah. You can take it, throw it in the fridge.

It's great. The next day.

[00:01:00] Welcome to Cloud Realities, a conversation show exploring the practical and exciting alternate realities that can be unleashed through cloud driven transformation. I'm David Chapman. I'm Sjoukje Zaal, and I'm Rob Kernahan.

And this week we'll be talking about the big subject of the year so far, artificial intelligence.

But what we're going to do is take a bit of a step back and we're going to talk about what it actually is. So what's going on and when we say artificial intelligence, what do we really mean? Also, how adopted is it really so when in a world of chat GPT already it feels like it has this mass adoption, but really does it?

And how is it being used? And then finally, what are the practical tips for dealing with this? You know, quite complex technology and driving some real business value with it.

I'm delighted to say that joining us this week is Tom Godden, a director of enterprise strategy at AWS. And Tom has been speaking widely on the use of. Things like machine learning in organizations. So Tom, huge welcome. Great to see you. Can you say a little bit about yourself and just introduce what you do?[00:02:00]

Yeah. Thanks very much, Dave. Thanks for having me on I am a director of enterprise strategy at AWS. The enterprise strategy team is a team made up of 15 former CIOs and CTOs. Some of my colleagues were technology executives at Coca Cola, McDonald's Capital One, I was the Chief Information Officer at Foundation Medicine, the world's largest cancer genomics company, and we spent time as an organization advising our strategic clients on the softer side of transformations.

Really helping them understand what are the differentiators when it comes to people, process, organization and culture. So we write a lot of books. We have an enterprise strategy blog. I encourage you to check it out. We speak at a lot of large public events and we spend a lot of time doing things like this as well as advising customers on how to be successful in their cloud, digital transformations and with artificial intelligence and machine learning.

Well, thanks for being with us [00:03:00] today. Absolutely. You know, when you look at the industry, there's so much conversation going on about AI at the moment, particularly since the release of chat GPT at the end of last year, which has really like unbelievably accelerated. Some mainstream adoption certainly has driven, you know, dinner conversations, probably the world over on this subject.

But when you look at it from a professional point of view, and you're looking at it from a point of view of like real knowledge of how you adopt. What is clearly going to be a dominant technology in the future? What does the industry look like to you? I, yeah, I think, you know, it, it, it has really exploded here, you know, most recently, as, as you mentioned.

I do think, though, that there still is a long ways to go. You know, a lot of people still go back



and. harken back to, you know, images of 2001 Space Odyssey, you know, where we have HAL 9000 and That didn't go so well, did it? No, it didn't. It didn't. And, you know, I think lots of [00:04:00] people also have a belief that, you know, artificial intelligence or machine learning, and we'll get into that because they are different, you know, um, actually, you know, can solve all problems and, you know, has this, uh, ability in this.

presence to, um, be able to do that. And I think that there's a lot of growth and maturity that needs to occur there. And the fact of the matter is people still matter a lot in this and the technology is fascinating, but people still matter a lot in terms of that sort of level of understanding and level of adoption.

And maybe we can split adoption into maybe at least two categories, like a sort of a base level adoption, and then what you might define as a sophisticated. Adoption of AI in a business context. What are a couple of things to watch out for for you and how do you track how it's really being used at this point?

I think one of the interesting things that we see is, you know, especially as you [00:05:00] mentioned with ChatGTP, that people are sometimes pursuing it because it's the latest thing. It's the latest, you know, shiny object. You know, I w I was meeting with the CEO of a large shipping company, and he had mentioned to me that they were going to have a strategy in this coming year that each one of his direct reports needed to have an artificial intelligence project is part of their corporate strategy.

And I pushed back. Please don't do that. What you need to do is to have the right business strategy and then use the right tools to solve that, of which artificial intelligence could potentially be. But don't just go around with the proverbial have a hammer, you know, in search of nail. And be saying, well, what could I solve with artificial intelligence?

If that's not the most important thing for your business to be solving, then don't do it. So don't get distracted by the shiny object. Just because all the cool kids. are doing [00:06:00] artificial intelligence, don't do it unless it solves a business problem or creates business value. Otherwise, don't do it. Yeah, we see a similar pattern, I think, in terms of data, call it big data, you know, it's just general data where organizations.

I mean, particularly since the advent of big data technologies were going around, you know, with an answer looking for a series of problems. And what we were speculating on the show recently was that things like the economic downturn and perhaps the pandemic before that, but particularly the economic headwinds that the world is facing at the moment.

Are all are presenting very strong problems that things like data can step into and you know, you might look at the optimization of a supply chain, for example, and the need to use data in a different way. Do you see clearly chat GTP coming about as sort of. Made very accessible the sort of technology where we're talking about today.

But do you see things like, [00:07:00] you know, troubling economic times ahead, that kind of thing as being a richer source of problems for a solution like AI? Yeah, because again, check GTP does one. thing. It does that one thing in a compelling way, but artificial intelligence, machine learning, deep learning is so much bigger than just where chat GTP is operating.

You know, today, I think you mentioned it. We're seeing broadly digital transformation being driven and born out of. you know, the pandemic, um, the economic headwinds, all of those are causing, you know, companies that may not have considered themselves to be as dependent, to be as technology driven, to need to reevaluate that, to be able to meet their customers where they are, to become more efficient.



And in doing that, yes, the usage of data, the usage of. Cloud hyperscalers, usage of artificial intelligence, machine learning, but we [00:08:00] could go on internet of things and a variety of other different things are really all coming to bear, you know, chat GPT is good because it's put it into the mainstream, you know, but again, it.

Because it's in the mainstream, we got to be careful. It doesn't turn into that shiny object that everyone's now getting distracted by. No, absolutely. Well, look, we'll come, maybe come back to some use cases in a little while, but let's take a step back and actually just do some one on one about this, because things like machine learning and AI are phrases that you increasingly hear for all the reasons we've been talking about, but actually they're used very interchangeably, they're perhaps not.

not fully understood much beyond the 2001 definition that you talked about earlier. So let's do that. Let's just, AI, machine learning, and perhaps deep learning, what are those things? How do you frame those things up in sort of accurate definitionally? Yeah, so that's a good question. So, You know, uh, artificial intelligence.

If you think of this as a, maybe a Venn diagram a little bit, artificial [00:09:00] intelligence is the broadest body of work in this place, but it's also important to reflect on artificial intelligence is, is not what we've seen. The movie's Minority Report or Terminator, those are what we call pure AI, where the machine works more like a human brain.

And we don't really understand how a brain and all of its billions of neurons work. And the ability to recreate that in Silicon and, you know, we're. We're decades away from being able to mimic that and to be able to put into a computer, curiosity and desire and inspiration and, and reflection that it would take to be able to do that.

AI that's used by machines today takes a, you know, really a small slice of how we make a decision on a specific topic and codifies that into an algorithm in a program. And it completes that algorithm. In a way that exhibits intelligence, [00:10:00] but it's important to know that artificial intelligence, it's codified, you know, so you can think of how you translate a document is artificial intelligence to go from English to Spanish.

Well, that's codified. The computer is not actually learning each time it does it. Someone sat down and said, these English, you know, words, you know, match these Spanish words, or these English phrases match these Spanish phrases. That codified learning is what we call as artificial intelligence. Machine learning is an actual subset.

of artificial intelligence, and it's where we take input raw data and we extract elements around that and really, you know, code and label that information that's coming in and create a model then that helps us predict what we believe will be the likely outcome. And you can set thresholds on that prediction that says, well, I only want to hear things that are [00:11:00] 95 percent confidence, or you can lower it to 90%.

And in that situation, the prediction would be entirely historical data based? Yeah, traditionally, because you're, you know, you're, you have seed data coming in that tells you, you know, how to potentially identify something, you know, a good example is colors of socks. So you can imagine you have a way to, uh, and you might.

Also correlate orange socks are wool socks and white socks are cotton socks. I could really do with an AI that would find all the missing socks. Oh, it won't find them. It'll just help you understand which ones you have. Which ones are missing. Yeah, you know, but within machine learning, there's several specialties.

One is called. Supervised learning and that and that's really where, as we were saying, you're



helping to teach it. And the easy one that we were just talking about there is classification. And that really helps put things into a category of class in which it, um, you know, belongs. Um, you can [00:12:00] You know, do various different types of inference based upon that.

Mm-hmm. Another one is regression and a good one. This is used in, um, real estate often where you could say a 2000 square foot house is worth \$2 million. A 2,100 square foot house is worth 2.1 million. Well, you could probably guess then on a 2,200 square foot house is going to be worth 2.2 million because we have a common regression that's occurring on that.

Um, very basic, very simple example. Most regression models are much more sophisticated. As you can imagine, the regression models, there's a chance to become very, very wrong. Because your data set matters. And that's super important. It also might not consider, you know, completely left field and therefore events that don't have a historical precedent.

So to extend your real estate example there, you know, you might be able to plan really well based [00:13:00] on sort of historically what have the house prices done in that particular area. But then if somebody builds a sewage farm next to that area, which might have then a disproportionate negative effect, say for example, on the growth houses in that area.

If you've not got the data around that sewage farm in the model, it's not going to give you the right prediction. Is that right? Absolutely. And, and, you know, things like pandemics that radically altered, you know, the value of, of real estate. Likewise, if you train your model using real estate data from London, from New York, from Paris, and then you take that same model to analyze real estate in rural America, it's not going to work.

And so, you know, you got to be very careful in what you're using that regression to not only take into account, as you mentioned, an event that could be occurring, um, larger things like the pandemic, but also, you know, the specificity on it. But with that said, you can still tune these models to be [00:14:00] able to very accurately predict, you know, various different things.

Are we at a point yet where the model itself then can learn? So yes, you start out with a basic setup, some map data, some, some models and, and sort of statistical prediction that it can then use to bring the data to a, a particular model and, and therefore predict an outcome. Is it yet modifying its own model?

Yeah, so you're, you're talking about the next kind, which is unsupervised learning. So unsupervised learning really is learning continuously. And this is really where we start to get the computer is thinking. You know, um, in, in a good example of this, it could say, well, You always wear a white shirt with brown pants, you know, and it can have, you know, if it had some way to know what your clothing choices were every single day.

And it might also know, and you tend to do that on Mondays, and so it could observe and learn these things. So [00:15:00] when it's Monday, it could say, I predict you're going to wear a white shirt and brown pants because the computer is doing that type of learning. We also see this happening a lot in anomaly detection.

There's a great example online that you can probably find that exhibits this in a series of pictures and trying to identify whether or not something is a blueberry muffin. Or the face of a Chihuahua. And if you look at a Chihuahua and a blueberry muffin, surprisingly, they look a lot the same. And so you get into this anomaly detection and the computer getting better at detecting, uh, uh, you know, Chihuahuas and, and, uh, And in blueberry muffins, maybe a more, you know, concrete example or practical example is you see this a lot in financial



transactions, looking for fraud in those financial transactions and beginning to look at that.

So that unsupervised learning is that, uh, Is that that growth and the last one just to complete it here for [00:16:00] machine learning is one that we're all very, you know, hearing a lot more about, um, very familiar with is reinforcement learning and reinforcement learning is the logic behind autonomous driving and it basically, you know, allowing the computer to take an action and then giving it a reward of positive feedback that was good or a negative feedback that was bad.

And so you can imagine if the car drove off the road, You would say, bad car, don't do that again, and it would, you know, correct and learn. It is an interesting way to also think, well, how do these cars know what to do before they actually get out on the open road and you can actually simulate these environments.

Um, now I think is what we're learning with autonomous driving. It's hard to simulate every environment. And so there are keeping use cases of. Unfortunately, you know, things as the computers are getting into those, uh, corner cases or, you know, absolute outliers where it may not know what the exact correct step is to take, [00:17:00] but reinforcement learning is that last portion of machine learning from your perspective, then on the last two unsupervised and reinforcement, there is a moral.

Question that starts to creep up around the computers learnt in a way that may be unpredictable or unexpected. And so if it makes a decision, where do you think the moral argument is on AI being used to control things around us like autonomous driving or like making life? decisions about an individual based on the data it may or may not have, which is accurate or not.

Do you think society's geared up to understand the impact that this could have on us in the future? No, I think ethics and AI is, is a huge topic. You know, one concern that we have is you bring historical data, which has the quite high likelihood of having some biases, whether overt or unconscious biases, into that model and codifying that into that algorithm that we just talked about.

And so I think we need to be [00:18:00] very careful to analyze and to understand where we got that data, how we got that data, but then also to have explainability. So that you could explain why one individual got approved for a loan and another individual did not get approved for a loan. So that, you know, you could really, you know, dive in and get to that.

Um, so I think that, you know, ethics and AI is going to be a significant one, especially as we deal with those unconscious biases that may exist. No, maybe a topic to return to it in a future show that because I think, as I think it really is going to explode this year because of the aforementioned tools we've been talking about, I think that question is going to become more and more pertinent, actually, and you can already see it, can't you, in the sense of, I think OpenAI are now about to release a tool that can check for, say, for example, a school essay and whether that school essay has been written by an AI.

So huge subject. Let's come back to that. But what I want to do is [00:19:00] finish off the definitional piece, Tom. Maybe you could return to that and let's talk about deep learning. Yeah, so deep learning is, you know, the last one, and deep learning is a subset of machine learning. So again, AI is the largest element.

Machine learning is a subset. Deep learning is a subset, you know, of that. And deep learning is often compared to the biological processes You know, within the brain and it's using a massive amount of data in a deep interrelationship between multiple elements to be able to



make a prediction. And it's really the heart of such things as speech or image recognition.

And we're actually finding not as many companies are. We're not prepared to use, um, deep learning yet because of the sophistication, because of the amount of data. It actually follows the natural flow that we've just talked about. Most companies start by using artificial [00:20:00] intelligence, things like language translation, things like chatbots, things like speech recognition, and then evolve into machine learning where they're doing that classification, that regression, you know, types of, uh, capabilities, that reinforcement learning.

And then the last. One, the most sophisticated companies are getting into deep learning, but I would suspect that's one or 2 percent of the companies out there in the world today, as a guess, um, are doing deep learning. It's very sophisticated, very, very advanced to get to that point. So let's go on to talk then about adoption and adoption techniques.

Maybe a lot of companies are thinking about this for sure. You know, the shipping example you talked about earlier, but maybe not all of them yet. have managed to move into it, maybe perhaps past the odd chat bot on some of their customer facing channels or something along those lines. So let's maybe start with talking about the right mindset.

So going into this, what's your perspective on, uh, you know, where the [00:21:00] organization needs to be in terms of thinking about this? Yeah, I think one of the most important things is people need to realize that. a, an artificial intelligence or machine learning strategy needs to be an addendum to a business strategy.

And that really goes back to the shipping example I was using before, you know, a company needs to be clear on what its goals and objectives are, and then to use and look at. Artificial intelligence is a means to being able to deliver and to get to that point and look at it as nothing more. It's not something to check off the list and to also be done.

It is quite simply a tool like cloud, like data that could help achieve that business solution. It needs to be the right tool for the job. How do you get to the point though where you've say identified a problem? So let's say you're an organization that might have done some cloud adoption. You may well have done some work on data and some.

analytics and some [00:22:00] visualizations, perhaps. How, if you've not done it before, can you spot a problem that AI might be the right tool for? Do you see what I'm grasping at? It's like, how do you make that first linkage? Yeah, I think it's a good question. You know, the first step is asking that right question, as you mentioned.

And it's quite likely one of the most difficult things in the machine learning adventure. We suggest that people identify something and document it. But keep it simple and write it down in one sentence. If it's more than one sentence, you've overcomplicated it. It needs to be, I need to understand why my customers aren't turning.

There's a lesson for life in that statement, Tom. Well, there really is. If you put punctuation in your problem statement, your problem statement has problems. You know, I mean. That's an excellent adage to that. I'm going to use that copy right now. Yeah. Yeah. Yeah. I'll take a small royalty. You can, we can sort it out later.

You just get like one cent off every time we use it. You'll be a millionaire by the end of the year. Yeah. Pretty good. You know, and [00:23:00] then you need to determine how you will solve it and measure it. And measuring it's an important one in a way that's meaningful to the business. Again, this is where you push back on chasing that shining object.

How will you measure the value that this thing is, um, you know, creating without. Doing



that, you could sink hours into building models and gathering data and doing all those things. And then we suggest assembling a cross functional team, you know, of, of people that's, that's, you know, business people, stakeholders, that's the, your data analysts, your machine learning people, your cloud engineers, um, you know, train them as needed, possibly bring in a partner to be able to do that.

And then develop a hypothesis on how you. think you could solve that problem? And that hypothesis is really, you know, starts with, well, what data do I need? One of the mistakes that we see companies doing is saying, well, step one, I'll go gather all the data I have inside the company and find out what I could do with it.

It sounds like a good idea. It also sounds like a good, good [00:24:00] way to get fired. If you're the CIO, because you're going to spend years gathering the data and showing no value. Go get just the data you need to solve this specific problem. Build a model then that based upon your hypothesis, you know, gather those, you know, that information from the domain experts.

Quite likely the person inside your customer service department who's taken the most phone calls last year. Has a good inkling into what the indicators are, whether or not a customer wants to cancel their account or not, ask them what those things are, you know, develop a hypothesis, see if you're able to predict those types of things.

And then, you know, we talk a lot about this agile, agile, agile, conducting experiment. You know, analyze it, learn from it, you know, change, conduct another experiment, and then when it works, scale it, you know, scale it out. So it is that quite simply, you know, start with, you know, something that's a clearly well defined business problem, you [00:25:00] know, in one sentence, you know, build that cross functional team, gather the data that you need for that, build the models based upon the knowledge and skills of that team that can really help guide you and then iterate and scale.

And maybe just to bring today's conversation at least to a bit of a conclusion. What does good look like for you? So have you seen any particular case studies or examples of something that you were like, not only did they go about that in the right way, but actually the outcomes have maybe outstripped some of the expectation.

Yeah, Woodside Energy is a pioneer in the liquid natural gas space in Australia, and they use reinforcement learning to maintain high levels of plant availability. You know, traditionally that involved a lot of complex, dangerous interactions and maintenance, and they now use a custom built robotics platform that's driven by machine learning to manually shut down pumps, turn the valves in the right sequence to be [00:26:00] able to deliver You know, more consistent and reliable, you know, results in that space.

It's a, it's a great example. You know, another one is LexisNexis here in the United States. Um, you know, they took, you know, thousands of hours converting various different documents into an electronic format, you know, it used to take them hours to do an analysis to find a specific court pleading. But by using both artificial intelligence and machine learning, they can find specific results within their vast legal library in, you know, just seconds because they're using that phrasing and that capability and they can find that citation much quicker, freeing them up to have more time.

To do other things before we go on. Cause that's a fascinating one. Cause that could sound a little bit like a sophisticated search engine. So what's the differentiation there between, you know, maybe a lot of scanned documents that are just searching particular phrases and the specific use [00:27:00] of AI type technology.



Yeah, they're really using it to find more intent behind that and associated, you know, materials and that type of thing. So, uh, yeah, really interesting. And that case study is available in more depth on AWS's website. Yeah, it's fascinating stuff. Another really interesting one that I kind of like, let me, let me give you this one and unsupervised ML Domino's pizza is, uh, I think we're familiar with Domino's pizza.

My kids are extremely familiar with Domino's pizza. That's right. They have a project called 310 that uses Amazon SageMaker and, and machine learning where they are able to start. Making a customer's order for a specific pizza even before that customer has completed ordering that pizza online to make it available that pizza available in three minutes or to be able to be delivered in under 10 minutes, and [00:28:00] they're able, therefore, to have hotter, fresher tasting pizza with over 98 percent accuracy.

So they're predicting everything. Not only what type of pizza you would have, but the likelihood of having it before you've even said yes and processed your payment. They've thrown the pizza in the oven and they've started cooking it. Is that because people just buy pepperoni the whole time? Well, I suppose, and maybe the ones that have pineapple on them, maybe they burn those intentionally, I don't know.

My daughters love a pineapple pizza. As long as it doesn't have pineapple or anchovies on it. It would be tough for somebody to reject a pizza, wouldn't it? If somebody turns up and goes, here's a pizza, you'd probably shrug your shoulders, if it's the wrong way, you'd say, I don't care, I'm going to eat it anyway, don't you?

You definitely don't need AI to predict my pizzas. Probably not. I'm very happy that I always order the same pizza. Can't go wrong. See? And so if you show up on the Domino's pizza website at 5. 30 in the evening on Friday, I think they just go, yep, start making the pizza. Stick it in the oven [00:29:00] now. They're like, we know it's going to happen.

It's a foregone conclusion. Tom, from your perspective then, those are absolutely fantastic use cases, but is there something that really surprised you with AI that you've seen? Something that made you step back and go, wow, I didn't think that would be the outcome we'd get? Or something that just. Took you buy aside and thought you got the real impact of what it could do, or scared you or sc Yeah.

Or scared you . Scared. Either. Either or. I haven't had any that have scared me yet. I, I will, you know, go back and, and talk briefly if I can about Amazon and in, in the Amazon Ghost stores and the Amazon Ghost stores, for those of you who are not familiar or have what we call just walkout technology, so you can.

You know, go into the store, pick up whatever you want and using a variety of cameras that are then doing image recognition, internet of things, uh, sensors. You can then just walk out the store without ever needing to, you know, uh, stand at a checkout counter to pay for the items because it's tracking what you have, whether you [00:30:00] put them in your backpack or in a shopping bag or in a shopping cart, it's, it's able to do that.

And so. Really getting to that level of sophistication starts to explode the mind, you know, in, in what is possible. I will also tell you that, um, recently I was working with a company, a construction company here in the United States that was using artificial intelligence in kind of a VR type of capacity also.

To help guide building plans that were, you know, needing to be done so that the people who are building could do some visualization of what it was that they were building on the site by using VR capabilities as well. So some fascinating types of, uh, applications is certainly when



you're combining AI and ML with things like VR with IOT with.

You know, a variety of other things. The aggregation effect of using other good technologies. Yeah, absolutely. So, Tom, what's the one piece of advice that you would leave our [00:31:00] listeners with if they're trying to work out how to get into this tool set? Well, you know, we covered my one favorite one, the one sentence, no punctuation one, but I think I would also emphasize we've talked a lot about the technology and it's important to talk about the technology and to maybe even be inspired.

by the technology, but don't forget the people in the human element. We see the people, you know, being the differentiator in digital transformations, cloud transformations, and it's equally as true with artificial intelligence and machine learning, how you approach building teams and empowering them to solution and solve these problems, um, as probably as important as any of the technology, you know, that you ultimately use.

So don't forget the people in this, especially as we start talking about ethics and AI, you know, people are worried that their job's going to be replaced by AI. We'll help them. They, you know, we're all, all politics are [00:32:00] local, help them understand how this progression could be good for them and beneficial for their.

careers, don't leave them behind, invest in the people. They're the differentiator.

Sjoukje, what have you been looking at this week? So each week I will do some research on what's trending in tech. And this week I want to dive into the five predictions for AI in 2023. Get your pen and paper ready, Tom. Yes. Yes. Yep. I'm going to ask you some questions, Tom. So several experts in AI have made the following five predictions.

Number one. 2023 is the start of the next evolutionary phase of AI ops. So when it comes to AI for IT, operations organizations are really struggling to get insights into their environments. So as a result, every major player in the IT operations industry is going to have an AI [00:33:00] ops solution. Number two, AI will have a huge impact on school systems.

Last year, a Georgia school district went to considerable effort to block Grammarly, which is an AI driven application that uses machine learning together with natural language processing to suggest. Proper grammar usage. The school system blocked it to prevent students from cheating. So for school administrators that thought grammarly was unsettling, the launch of chat GPT is going to be extremely disruptive.

Some of the largest school districts in the US, including New York, Seattle, and Los Angeles, already have blocked it while other school districts are leaving it open for now. Number three, a bigger focus on responsible AI. We already mentioned it. Much of the data that AI analyzes is derived from the human consciousness, which means it contains cognitive biases that affects [00:34:00] decision making.

This also means that with the rise of AI, the potential negative business impacts of not adapting responsible and ethical AI practices are growing as well. So for every organization that uses AI, responsible AI has transitioned from a nice to have to a must have. Number four, leaders in the AI field will start to emerge in 2023.

This year, we will begin to see certain AI providers separate themselves from the pack. Less money will be put into venture capital, so existing players will have a real advantage here. So we need to expect greater consolidation and mergers amongst AI solution providers. Number five, the last one, the promise of autonomous vehicles begins to come to fruition back in 2019 Gardner already predict that there will be more than 700, 000 autonomous vehicles on the road by 2023.



So [00:35:00] it seems like each year, we hear about the promise of drone delivery and autonomous taxis. So is this really going to happen this year? I don't know. I'm not sure, but we do know that an autonomous taxi service was unveiled in 2022, and companies do have plans on implementing them to other cities in this year as well.

I feel that one is particularly unavoidable, right? I mean, it's like, it feels like the next step. Anyway, go. So my question to you, Tom, what do you think of these predictions? Are they all valid or not? I think that they're they're really interesting. Uh, I I look forward to Being back on your show in a year and finding out exactly how right or wrong I I was on these I'm sure what I say here will be held against me, but that's all right I think the autonomous vehicle one is an interesting one.

I'll start there. That was the last one you mentioned, but it was an interesting one because I think what we're going to see is a continual growth in it. I don't think that we're heading [00:36:00] towards a major, uh, hockey stick, uh, event where, you know, growth is all of a sudden going to take off in, in 2023. I do think that there are some major things that are happening here, certainly in the States where we're getting into, uh, autonomous delivery vehicles.

Um, you know, beginning to emerge and coming on to it. And I think we're all going to progressively get more comfortable with it as the technology becomes more and more pervasive, and we're going to see a continual growth on it. So I think in my mind, it's just going to be a continual growth, but not a.

you know, large explosion. I think, um, that as you mentioned, the leaders in AI will start to emerge. I think we're definitely, you know, beginning to see that occurring. You know, AI is, uh, becoming more pervasive, but I think there's consolidation that's happening within that industry. And AWS is happy to play a large role in that with our SageMaker platform and in our capabilities.

And [00:37:00] certainly, you know, we're continuing to, uh, You know, to lean into that, you know, the school system is an interesting one, as you mentioned, because, you know, on one hand, you know, we, we need people to still learn these things and learn grammar and can't depend upon it. And so I think that there will continue to be that type of, um, restriction, however.

I think we also need to prepare people to exist in the modern world and to understand how they can use these tools. It's analogous. It seems to me to be the introduction of the calculator. It is. It is. Yeah. I mean, and there's a step change to that drove, you know? Yeah. And, and Hey, look, you still got to understand how to formulate a proper sentence, you know?

So, I mean, you, you gotta. You got to have some basics there. But I think it's also important to train the new, you know, students and the new employees that are coming on how to use these tools and how to use them to be more effective, you know, in their jobs. No one at work is going to care whether or not you [00:38:00] used a tool to help you phrase sentences correctly.

They're going to care whether or not you've got the job done. So, uh, you know, I think we need to look at how we're training our workforce and our employees. are students of today more holistically. I understand their point, and it's a valid one, but let's not, uh, I don't think it's binary. It's not either or.

What I find really interesting is how people take this technology and then do amazing,



crazy things with it. I saw a video online the other day. Uh, getting around the detection for the, uh, the school essay thing where they got a 3D printer, put a biro in it, put their paper underneath it, taught it how to write their handwriting, linked it up to the, uh, the AI engine and got it to write its homework for it.

And I just thought, what a brilliant assembly of technology using a 3D AI to answer the homework. So it looks like it's a written response. And it's just, it's things like that. You see, I couldn't have consented, you know, that is brilliant. That is brilliant. That student deserves an A star, star, star, star, star for thinking that one up.[00:39:00]

There's a gentleman who works at AWS who devised a whole mechanism because his cat would go outside at night and then come through the little kitty door and bring him, well, dead mice. You know, every day, and he got tired of seeing the dead mice. So he devised this whole image recognition system and a lock on the door, so that when the cat shows up at the door, it detects, does the cat have a mouse in its mouth or not?

And if it does, Keeps the kiddie door locked. Yeah, I'll tell you what my wife, my cat brings in live mice and lets them go. So my wife Excellent money for that. That's money. You can monetize that I don't know if he still works at amazon or if he's living the good life because he's sold my money Take my money.

Yeah Yeah, great solution. Is my cat bringing a dead or live mouse in the house? Do not let fluffy in the door. I think we've actually got to the epitome of the, of the current exploits in AI right now. There you go. So the [00:40:00] conclusion to this is the decreasing costs and the availability of compute power will enable the bigger and the smaller companies to use. and invest in AI. So it's no longer restricted to only the largest ones. Getting AI into more people's hands will also increase the innovation and will open lots of opportunities. So I think lots of big things are coming in 2023 in the AI field. Thanks, Shell. Good food for thought. And yeah, I think it's hard to disagree with that.

It's going to be absolutely enormous this year. Tom, we end every episode of the show by asking our guests what they're excited about doing next. That could be a good restaurant you've got booked at the weekend, all the way through to an exciting business project. What are you excited about doing next?

Yeah, we're actually working on a presentation right now for some of the events here for AWS in 2023. That really talks a lot more about technology futures. And so we'll get into quantum computing and blockchain and internet of thing and really kind of [00:41:00] take that next level. And maybe we'll see if we can build a cat mouse door 2.

0 using some of those technologies. Blockchain is certainly the answer to make that. Cat detection system, even better. It's saleable. I want one. Can you put me in touch with it? I want to know. I want to that. That's an answer to my problem. I will hook you up. I will hook you up. So a huge thanks to our guests this week.

Tom, thank you so much for being on the show. Thanks to our producer Marcel, our sound and editing wizards, Ben and Louis, and of course, to all of our listeners. We're on LinkedIn and X, Dave Chapman, Rob Kernahan, and Sjoukje Zaal. Feel free to follow or connect with us and please get in touch if you have any comments or ideas for the show. And of course, if you haven't already done that, rate and subscribe to our podcast.

See you in another reality next week[00:42:00]

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