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ALEX MAIERSPERGER: Today, you're going to learn about generative AI and the speed at which it's evolving, and the immediate effects it's having in health care and life sciences and across industries. You'll hear what AI will do for health care outcomes, how it might not drive down health care costs, and the potential for questionable ethics. You'll also learn about robots, humanoids, and what comes next. Is it going to make things better?
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We disagree on the quality of food in Italy, but we do agree on the important role technology will play in a healthier future. I'm Alex Maiersperger, host of The Health Pulse podcast. Today, we're joined by one of my favorite leaders, coworkers, and Italian friends-- Marinela Profi, AI Product Strategy Advisor here at SAS. Welcome, Marinela.
MARINELA PROFI: Hi, Alex. I should say, ciao, Alex. Thank you for having me in your podcast. I'm so excited to be here.
ALEX MAIERSPERGER: So excited to get to ask an AI product strategy advisor all of my AI questions. AI has been around for a while. And generative AI is relatively new in comparison. But if you asked a random member of society, my guess is they would probably tell you that AI is Gen AI. AI to the non-technical person is essentially a chatbot. That's what you'd think. What is the distinction between AI and Gen AI? Or are you going to tell me that they're the same thing?
MARINELA PROFI: I'm going to tell you those are two sides of the same coin. Let's put it that way. So generative AI is essentially just a subcategory of AI. So it's not new algorithms have been invented. It's just the same algorithms that have been used in AI for decades applied to much larger data sets. We have billions and trillions of data today available. And using much more computing power. So that's it. And the only main purposes of generative AI, which is different from AI, is to generate new content. So it learns from all this huge amount of data taken from every kind of source. It could be code. It could be video, images, audios, 3D systems, just consolidates all that knowledge into one single artificial brain. And then based on human prompts or voice command, it generates something.
And again, that something could be image, video, audio, text, code, 3D systems, et cetera. So main takeaway is essentially is a subcategory of artificial intelligence to generate new content.
ALEX MAIERSPERGER: You talked about Gen AI being a new, generative technology. And so it's relatively new within the last few years. How fast has it evolved since it came out? What are you seeing?
MARINELA PROFI: Wow, well, I feel like-- well first of all, I can't believe ChatGPT has been around just a year and a half. I don't even remember anymore my life before ChatGPT. So it was this explosion where everyone just-- we passed from one day where we never heard about it and then the other day everybody was talking about it. And today, it's literally just part of lots of many people's lives. But I think that there has been a lot going on. There has been so much innovation on, I would say probably on a daily basis at this point.

One thing that I love is, for example, if we look back at a year or so ago, the wow moment was literally the image generation. You can still ask DALL-E or GPT to generate some images. But then, we passed into the conversational experience. You can see here an example of uploading the image of a bike into ChatGPT. I'm using ChatGPT-4 version here, asking to solve a problem, lowering the seat in this case. You upload the user manual. You upload your toolbox because you have no idea which tool to use or you don't want to read all the user manual.

And so ChatGPT is actually going to tell you here is the tool from your toolbox that you need for this specific problem. And here's a piece of information from your user manual that you need to apply to solve the specific problem. And so we entered into this more conversational interaction experience with these tools that is not just text based but also image based, et cetera.

And then a couple of months ago, we moved into video generation, videos that are generated completely by AI. Nobody recorded them. There was no one with a camera recording it. It's just generated by AI. So human typing a prompt and these so realistic videos are generated. And then literally like a couple of weeks ago, we had Nvidia that announced their project GR00T, which is essentially humanoids, humanoids designed to understand our language and emulate movements by observing human actions and quickly learning things like coordination, other skills in order to navigate, adapt, and interact with the real world.

And so this is just a quick example to show you how much things have evolved. And even 18 hours ago, Apple announced that they are investing into home robots. So a lot has changed. It's just so exciting to be in this world, and sometimes also overwhelming, obviously. I can understand people that are like, I'm challenged to keep up with all of this.

ALEX MAIERSPERGER: We went from fixing the bike seat to robots who are bigger and stronger than us real quick. Help me understand a little bit of the hype then. Large language models and gen AI helped you solve the distinct problem on the bike, and so uploading the user manual, getting that problem. Are they going to solve all of our problems? Is that a true or false statement?

MARINELA PROFI: No. That's a short answer. They're not going to solve all our problems. From a personal, individual perspective, the systems obviously are going to accelerate a lot of our daily tasks. Even people that have no idea what AI is, they are going to interact with the AI without even knowing it. For example, my mom just takes a picture of her house, uploads it in this app, as she calls her, and generates design advices for her for her living room. That's generative AI.

She has no idea. She's like, this is so cool. But she's actually using generative AI. And so that's from a personal standpoint, from an individual standpoint. When it comes to business organizations, implementing this technology to solve business tasks, accelerate business productivity, that's where a whole new world opens. And let me tell you, just in the past year and a half, talking to customers, talking to partners here at SAS, if there is one thing that I've learned is that LLMs do not solve business tasks. They do not.

Just taking ChatGPT and giving it to a bunch of your employees is not going to bring you much value in the medium, long term. You need people, you need developers, you need engineers, and you need systems that integrate, govern, orchestrate these huge models, and most importantly help you to explain how they generate these results. Are those accurate? We hear a lot about hallucinations, the lack of accuracy of information.

In fact, if you go on ChatGPT, there is a disclaimer. It can generate nonsensical, not accurate results. I wish some humans came with that disclaimer. So that really means that in a business context, these LLMs are going to need more capabilities to actually deliver business value. And there is research and data that are already showing that organizations in fact are struggling mainly with four things.
Number one is improving ROI, so the ability to really measure the benefit that they're getting out of this investment, out of this usage of this large language models. And the reality is that the formula to translate the a-ha moments into numbers is not there yet. And I'm afraid it's not going to be there yet for quite some time because we're not going to see actual benefits until the entire business processes get redesigned. And then another challenge is data-- data privacy, data security, hallucinations. And then the third is technology. So systems in place to actually govern and implement these. And then the fourth is talent. So even though these systems are so smart, and sometimes someone could argue even smarter than us in doing some things, you still need to be able to know how to use them. I love a recent tweet by one of the co-founders of OpenAI that says, the coolest, more programming language is going to become English. That doesn't mean that we won't need to know how to code any programming language anymore. It just means that the skills in knowing how to ask something to these tools are really going to become key in order for us to use them at their best.
ALEX MAIERSPERGER: Sounds like I'll be needing to brush up on my English.
MARINELA PROFI: Well, me for sure. For sure. My Italian-English.
ALEX MAIERSPERGER: So it sounded like we're not getting my hope and vision of all of our problems getting solved, but there's certainly some problems that are getting solved. And maybe the length of time that we'll be able to measure sort of what's getting solved will improve. And we'll be able to see some immediate returns. It's often said that health care and life sciences are, from a technology standpoint, 10 to 20 years behind some of the other industries.
Clearly, some of the most pressing challenges that we have are in health care and life sciences. It's so human to have care needs and to go through the mortal experience that we all go through. In this AI revolution, I'd love to hear your cross-border, cross-industry expertise of where you see AI really making a difference right now.
MARINELA PROFI: Well, I really think the power of AI has been cross-industry in the past decades, right? And I think that will continue to be the case. So we're going to see a potential of applicability of these technologies across many, many different industries for sure. There are a couple of industries that I'm more excited about. And one of them is health care.
AI, generative AI has really the power to, I think, accelerate and help doctors and physicians or health care providers or whoever works in the health care space to accelerate their tasks. I can give you some use cases that I'm excited about. The first one is, for example, this collaboration that we did with the University of Cambridge, where you use computer vision models essentially for kidney transplant.
So kidney transplant is a really, really manual process. Especially, when somebody needs a kidney transplant, the doctor has to manually identify which kidney is best for which patient. And that takes a lot of time. So you might have a patient that's waiting to receive the transplant. And that's a long time process. So with the usage of AI, we've implemented a system that essentially is able to match the best kidney with the best patient in a super fast time, accelerating all that decision process, and so bringing the best quality organ to the appropriate patient at the fastest time possible.

And so I think that it's really going to be the case. Another one is breast cancer. I'm sure I'm speaking for all women here that one of the issues, and sometimes this is actually something that we don't speak enough about, I think, women's breasts, sometimes the majority of the cases are very dense. And so if you go on the search engines, you can see that there are researches that prove that a high number percentage of women, their traditional systems, or just the human eye is not able to see the cancer in highly dense breasts because of the characteristics of the breast itself.

And so what happens is that with the leverage and the usage of artificial intelligence, you can improve the accuracy of the systems of the mammograms, we're hearing now mammograms in 4D, that are able to detect and have higher accuracy in detecting breast cancer, in this case, the applicability could be broader in the health care system.

Other use cases-- financial institutions, fraudulent transactions, and all the fraud space, I think, has huge opportunities. Just getting a little bit out of the health care world is, for example, detecting fraudulent transaction, the ability-- you're probably asking, how do you use generative AI there? It's a fraud, it's a fraud, or it's not a fraud, right? You either detected or it's a detection problem. It's not a generative AI problem, right?

But the reality is that fraudulent transactions are actually less in quantity than non-fraudulent transactions. And so it's really hard to train a system, an artificial system, to be really good in detecting something for which we have scarcity in our data as of today. And so the way that generative AI helps is that you can use your few real world data that you have of fraudulent transactions to generate synthetic data.

So the field of synthetic data generation has become really important in the past, I would say, probably couple of years, especially with the era of large language models that we're entering, where you really need to feed high-quality data to these systems to be able to get something accurate. Synthetic generated data are great technique to be able to address some of those challenges in data, whether it is biased, whether it is we don't have enough data. Or we have private data that we cannot use for analysis. This is a field, as you can tell probably, I'm really passionate about. And at SAS, we're investing a lot in this. We are recently launching our new SAS solution for generating synthetic data. And so I am really excited about, and we've had already some customers using it with great results. And so this is just a couple of examples where generative AI and AI in general can bring value. But there are so many others as well.

ALEX MAIERSPERGER: I really liked how you talked about the health care outcomes. And so you have better testing, better diagnostics. You're able to see things from a computer perspective that maybe a human can't. And so you're getting a better outcome for someone. How about the cost side? You mentioned governance, data, maybe you have to buy data or you have to generate data, you mentioned people, all the processes. Is AI going to solve the cost side in health care? Or will the expense of building and maintaining all this new technology add up to the same or more than where we're at today?

MARINELA PROFI: All right. Well, I'm going to give you an answer that probably you might not like or people that are watching us or might not like. But we might get to a point where, we're actually unfortunately already seeing some cases where some institutions are charging more for patient if they want to have the result that was validated or generated by artificial intelligence, because supposedly, it's more accurate. So we're seeing some of those situations where-- as a professional, I wouldn't be honest if I say, no, we're not going to see an increase in costs.

I mean, this technology is expensive. So we're putting money into implementing this technology. Health institutions are going to put money in implementing this technology. And so there has to be some kind of return on investment, right? But the thing is that who is going to fill that gap? Should it be the government? Should it be the patient? Those are all conversations that I would really love to see where authorities and where decision makers are going to convey at at a final result.

But I would not be surprised if we see up charging or costs being charged to someone to be able to leverage, have access to some more AI generated results. Now disclaimer-- not always something that is generated by AI is more accurate. I think that a best practice for health care system to start to consider is adding some sort of disclaimer to all the results that are generated by AI. Something like, hey, I am predicting that you might have breast cancer in 10 years, but here is the accuracy of this. This is accurate at 85%. Up to you as a patient, as a human, to decide if you want to take any next step or not.

So I think that is going to be somewhere where you still can ensure that the patient is part of that human in the loop feedback that has to remain there, right? I don't see a world where humans are going to be left out of this. And health care specifically shouldn't be one of them.

ALEX MAIERSPERGER: That definitely gets into the ethics of all of this. So we talked about the quality and then the cost. How about just the ethics of this? Is this going to make some of the disparities that we see in health care worse? Is this like a box that we should have kept closed that now is open?

MARINELA PROFI: Well, I always say that there are some top priorities when we talk about generative AI that enterprises are going to face, right, are going to have to deal with. And ethics and bias is definitely one of them. So obviously, these computers didn't just grow out of brain out of themselves. They are trained from us. And as humans, we have bias. We like it or not, we naturally, inherently have bias. And so we transfer some of that bias that we naturally have into these systems.

And so it's going to be really, really important to have systems in place that are able to detect that bias. Absolutely. We have seen with the past decades of AI many incidents happening. Actually, let me show you this. I think you're going to like this. There is actually an entire incident database out there that shows all the incidents that happened on a daily basis or on a regular basis with AI. And everybody can just see it. You go on incidentdatabase.ai, and you can see like a list of some of the incidents that have been created by artificial intelligence worldwide.

And there are some really wild examples that can be created. Some of them are really, really bad and sad and things that we really need to make sure how do we stop it. A few examples that I like to bring on is a man that was crushed to death by a robot that mistook him for a box of vegetables in South Korea. A New Jersey high school student that created use generative AI to create deepfake of a student, deepfake news and making it look so real.

These are real world problems that we-- it's not like we will have to deal with them. We are already dealing with them. And so this incident database is a collection of it. And what I did, just because I like to play with data, I basically downloaded all the results and project them into a graph. And you could see how, from 2013-2014, there has been an exponential increase of these incidents happening. And we could say with a certain level of degree that that could be associated because all the deep learning algorithms, computer vision, that's when they start to really become popular. It was 2013-2014.

So there has been an exponential increase. And now with large language models, the potential for that to really going out of hand are high. And even going even more, if you're wondering, what type of message does AI create, in which categories mostly? And if you divide incidents that are reported in the database

by category, you'll see that race, gender, and religion are the top three categories by which AI in general creates incidents in the world.
And so I think that we can confidently say, I can confidently say that human oversight will remain mandatory for a long time. And I would say hopefully and thankfully so, because we will need to continue to talk-- we cannot stop the debate around how we're going to regulate this system. And I'm not saying that we're going to get to a point where we're going to be able to prevent every incident.
Let's be honest with ourselves. There's always going to be bad actors out there, right? And this is not just AI. It is applicable to everything. The point is, how can we prevent as much as possible from that to happen? And how can we detect or track when it's happening to be able to say, OK, and trace it to the person or the individual or whoever did it? And I'm thankful that I'm seeing governments around the world coming with regulations already and starting to activate some sort of regulatory frameworks.
ALEX MAIERSPERGER: I don't know how scared I should be. I think you showed the couple of examples. And I clearly feel like I need to turn off the internet for a few days. And so maybe it is a box that we open.
MARINELA PROFI: That is always a good choice, let me tell you. That is always a good choice.
ALEX MAIERSPERGER: You did mention human oversight. And in different parts of the conversation, you've talked about the people aspect. It does sound like AI will affect jobs. How, and maybe more importantly, and maybe selfishly, who?
MARINELA PROFI: Who? OK. So yeah, obviously, that's the other million dollar question these days. Am I going to lose my job? I think that if we look back at the history of human beings, there has always been historically timelines where some disruption happened in the job market. Think back to Ford, the cars, right, Taylor and Ford. It used to take tens of people to do one car. And then we had the Industrial Revolution. And then today, you have two people needed. And then everything else is just managed by robots or automated mechanically.
And obviously, generative AI and AI is going to create some of that disruption. We are already seeing some of that disruption happening through the news or other places. Personally, I think that jobs are going to be impacted in different ways. So we are going to see jobs that today exist, but they're going to become AI empowered. I don't see a content marketer not being an AI empowered content marketer. I don't see a product manager not being an AI empowered product manager. I don't see a podcast producer not being an AI empowered podcast produce.
So I think a lot of the jobs are going to have that AI empowered kind of unofficial title before their official title. And I think that's great. We're going to see jobs that do not exist today that will exist in the future. For example, just by taking a guess, today, we have movie producers. I would say we're going to have movie developers. Or advertisement developers. You're going to have to take somebody that is really good in prompting to create an entire campaign, an entire movie. Why not? Maybe working in conjunction with movie producers, right?
Obviously, there are going to be jobs that exist today and are going to disappear. They might not be needed, but they're going to transform into something else. So definitely the job market is going to evolve. Personally, I think that the number one skill that is never going to be dismissed, and it's only going to be increasingly demanded, is data literacy. So whoever's watching this video, take a data literacy course. Make your mom take a data literacy course. I forced mine. Everybody that you know. That's a way, I

would say, to stay relevant, make people you love to stay relevant. And in this new educational era that we live in, that it's completely empowered by AI.
ALEX MAIERSPERGER: Well, joke's on you because I'm actually on the beach right now. And it's my AI avatar that is doing this conversation.
MARINELA PROFI: Good for you.
ALEX MAIERSPERGER: You have your pulse on the market trend better than anyone I know. How are you seeing the market for what organizations are investing in? Are they buying data? Are they buying platforms? Are they buying point solutions? Is it war on talent right now? What's the sort of overall organizational market investing in?
MARINELA PROFI: Yeah, so I think that-- during my day, I pass from customers, a CTO of a bank that tells me, I'm experimenting on 452 use cases on generative AI, to people that are like, no way in hell I'm going to use this. My employees cannot use ChatGPT. That's completely prohibited. And so we have these two extreme sides of the coins. And then obviously, we have many shades of gray in the middle.
I think that if we look at areas of general investments, if we could break down into macro categories, I would say the first one is this concept of copilot. We've seen Microsoft launching copilots, and many others players in the industry launching copilots. So the first investment is definitely this concept of having a personal assistant that accelerates routine tasks, whether it is generating code, or opening a report, or generating a report, or running some sort of data analysis in the background.
Second, I mentioned before, synthetic data generation. This is something that we are seeing organizations very, very interested in how they can use synthetic data to protect their own data, to augment their own data, to increase the quality of their current data. So that's another one. And if you want to talk more future trends, I mentioned this briefly before, digital twins and robotics, especially the last one, I think it's going to really, really be the biggest investment of the future-- the concept of robotics and humanoids.
ALEX MAIERSPERGER: Yeah. AI was the hype. And maybe before that, obviously, there were other hypes. But it was AI and then now gen AI is the hype. The next hype, it sounds like, humanoids, robotics?
MARINELA PROFI: I would say so. I would say so. And when we think about humanoids and we think about robots, we think about this object that really looks like a human being, not skin made but iron made. And it's not always the case, right? Humanoids and robots, they are already used in many industries. Think of automotive, right? Are extensively used since the industrial revolution.
And then we're going to see applicability into more daily lives of humanoids, like cleaning the house even more than the current existing one, cooking for us, or delivering things for us. Now when it comes to this, I obviously see a lot of different reactions. People that are like, this is going to be the coolest thing in the world. People that are like, this scares me so much.
And I think that's fair, because every new technology creates different reactions. If we think back on 2007 when they launched the first iPhone, I remember people saying, why the hell would anyone want to keep pictures in this thing? That was one of the reactions, right? Can you imagine that today, looking now after decades? And so it's fair that people are scared.
Personally, the way I see it, just my personal opinion obviously, I think similarly humanoids are going to be-- I see it as in the same way humans have leveraged animals in our existence to help us, to give us company, to do things, like horses to ride or to move as a mean of transportation, or cows for milk and others for food, and to do things for us or give us company.

Animals have not replaced humans. We found a way to live in the world together and help each other. And I think that humanoids are just going to be that next breed that we are going to have to learn how to live with in this world at our service. So yeah.

ALEX MAIERSPERGER: Pretty exciting. Marinela, this was so fun. I have learned so much. I'm convinced that our listeners or viewers-- there's at least one of them that will have learned so much about AI and gen AI today that they will be selling a course as an AI expert because of your conversation. So thank you again so much for joining The Health Pulse podcast today.

MARINELA PROFI: Thank you, Alex. Thanks everyone for watching. Ciao.

ALEX MAIERSPERGER: And to the listeners and viewers, you could spend your time anywhere. Thank you so much for spending a little bit of that time with us. If you'd like to be a guest or to join the conversation, please leave us a comment down below, or reach out to us directly thehealthpulsepodcast@sas.com. We're rooting for you always.

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