AI and You

Transcript

Hello, and welcome to episode 114! Today, my guest is James Wilson, consulting in AI for Gartner and now Capgemini as an advisor and mentor to leaders at some of the world's biggest companies, governments, and brands. We'll be talking about how and why those organizations engage an ethics consultant, and James' work with the Finnish government on their AI program and AI literacy education. There's lots to take in, so let's get right to it.

Thank you very much, Peter. It's an absolute pleasure to be here and before we start I'd just like to say, your podcast has been a little bit of a lifesaver during lockdown, and really kept me going and I'm halfway through your book as well. So, very good.

Thank you. It's always great to have a fan on the other side of the mic as well and so from your experience as a consultant, and in the AI ethics, actually, I want to find out how you got into that, because there's a lot of people around that field right now and I assume that field didn't really exist 20 years ago. So, what was your entry way into that?

Yeah, it's a very good point. I mean, it didn't exist. So, I started my career in doing the usual analyst, programmer type stuff moved into sort of data very quickly became the sort of reporting guy and then over the years, I've worked through data roles, became a chief data officer at a large pharmaceutical company for five years, and then moved to Gartner. And I have to say, it really wasn't till Gartner, which was six years ago, when I joined Gartner. It wasn't really until then that I really started touching on ethics and it wasn't really a topic that came up very much to start with. But I had at any one time, a portfolio of about 30 Chief Data Officers, CIOs, CTOs, whom I talk to on a very regular basis about their strategy with data and how that you know how to make the most of that and it just became a recurring theme and then the Gartner research really starts to explode on the subject as well. We have some great analysts that really focus on ethics and it was probably to some extent, catalyzed by the stories in the press, like the Target's maternity vouchers thing and all those sorts of sort of things. But companies did become very focused on doing some doing the right thing about that ethics, to the point where I don't know whether it's the same in in America, but up until about a couple of years ago, when sustainability took over as the buzzword, ethics was - a lot of the adverts on TV were no longer about the products from a brand, they were about the ethics of the brand. So, you start seeing, we care for our customers, we look after their data, those types of things in adverts. So, it became a big buzzword and it was very important to companies to be seen to be a shining light in that area and not get caught out with any of the scandals that we've seen.

Interesting, and for the benefit of people who are wondering about the reference to maternity vouchers, I believe you're referring there to the Target supermarket chain in the US that sent out coupons for pregnancy-related items to a teenager. Well, and many others, but this one's father came in and complained to the store manager about that since she was under age, and then came back later on and apologized, because it turned out that Target was right and Target had discovered through data analysis how they could predict when from data, they could tell when a woman was pregnant sometimes before she knew. And that actually preceded a lot of the like deep learning, I believe and so the sort of thing that's possible now would go even further than that and have you in seeing the landscape for corporate ethics span before the AI revolution and into it? Are we talking about ethics more now with AI than we did before?

Yes, very much. So, people are very so going with ethics sort of accompanying the top the conversations I have about how to be ethical and in a minute, if you wouldn't mind, I'd like to just sort of talk you through an interesting scenario that happened that around that. But going alongside that there's a big focus on things like model risk management within companies, because they're very concerned about the fact that somebody may seem to be working ethically, one day, but you've pumped some data and you're losing control of this algorithm over time, and this model is changing and suddenly it starts doing unethical things as a result of that. As Tay did in 24 hours. But maybe not quite that extreme, hopefully. So, well, the way I've approached this in the past is I used to run ethics workshops, big conferences, government conferences, other conferences, I run an ethics workshop and you tend to get to the 10 to 15 people coming into this workshop, generally CDOs, or whatever they're interested in that topic. And I would run a series of scenarios past therm. Literally, I would group them into maybe groups of three or four people around a sheet of paper, which had a scenario and then the target maternity voucher was on that was one of the ones that we look at, we'd look at, I don't know, if you're aware of this one, but Flow, a company that was giving women a menstrual cycle tracking system, they were actually selling that data on so that people could then target these women with sanitary products at the right time of the month, and all that sort of stuff. And I gave them all these different scenarios, and let them go and have five minutes to talk about it and just come up with where would they sit? Where would their company be? Where would they where would they be? It's not what you could do with data. It's what you should do with data. So, I'd ask them to go and actually think about that and come back and talk about it. And there's a spectrum there, you've got risk averse, which is way over on the left, and on the right hand side, you've got just gung-ho, we're just going to go for it and in the middle, you've got that sort of creepy line, where's that creepy line where you cross it? And always 99.9% of the time, the answers that came back from the groups was always somewhere in between fully risk averse, and the creepy line and it varied and we'd have discussions about why people thought it was that that's where they would be. Very rarely was it right down at the risk averse totally at the left, because actually, that just causes huge inertia within a company. If you're that risk averse, you're never going to differentiate yourself, you're never going to reinvent the company. In one scenario, and it was actually using, I think it was the Flow example that I just talked about the menstrual cycle tracker, I had a gentleman in the room from a large European retailer who don't have a UK presence, I didn't know much about them their grocery chain across mainland Europe and he actually came out when we got to

the point when I've got to his group have said, so, everybody else has said or somewhere around risk averse between there and the creepy line. He came out and said, no, we just go for it. We do it and my question were, that's the first time I've heard that. Tell me your rationale and he said, well, okay, it might have a bit of a reputational hit, but we'll sell a hell of a lot of sanitary products. And, it's why we can't put our trust in everybody to have that ethical standpoint. So, that's why I want people to understand that they have a responsibility to understand the ethics of the companies they work with.

And that's very interesting there. For some reason, I'm thinking about a story I read once about sex toys that were linked to the internet; the potential for invasion of privacy is enormous. Also, was the potential for being hacked, since they could actually be controlled over the Internet as well. What's the motivation of these companies? Is it to stay off page one of the *Daily Mail?* Or was it something more noble?

I think you have, there's different answers to that, depending on who I was talking to in, in a lot of companies, a lot of the companies I work with, I think it was a genuinely, it was from the personal perspective, the people that were running this company were empowered to be ethical in their own right. So, they wanted to just make sure they felt comfortable with what they were doing with our data. But I think there are a few occasions where I've worked with companies where I think it was more about, we just don't want to get sued, and I don't want to go to jail. But most cases I you know, I'm a glass half full guy. So, I tend to see the positive in most people. So, I looked for look for that in people that I talked to at work as well.

So, if there's more conversation about ethics now with AI, and the motivation is not to get sued, which is always been around, what is it about AI that makes that ethical conversation larger? Why is getting the ethics right harder?

Because there is a recognition and it across everybody across society that in general. We are less in control; I think of what the AI is doing and it gets more it's not just about actually the model itself that you design or you train for upfront. It's about the downs. I talked about the fact that the models will change over time and I don't know if you've come across the Cynefin framework at all. It's a model management framework, effectively and actually, sometimes it's the things that are in your least risky box that big harm the most risky things because you take your eye off the ball with them, because you just think, well, they're okay. You know, that's a simple thing. But if you're feeding in data, and particularly with the amount of fake data, and skewed data that's now coming into the food chain, or data food chain, you're very quickly going to get to a point where there, there's really no simple things that you were happy with one day, stop calling your customers Nazis the next day, because you just don't have that control over it. So, there's a lot more focus on that. That's why you have a lot of companies and as I mentioned, the model risk management role is very big. But also, then there's an ethics role within the company. But what I've also seen a lot of companies doing is actually taking ethics outside of the company, and actually using an external ombudsman to do that, so that it's a totally impartial view, so - they can't do it on every single decision, because that would just be too bureaucratic and time

wasting, but on the big decisions, they will actually use an external company or an external board, to actually give them an ethical viewpoint.

Is there a feeling among these companies that perhaps they don't understand or don't control AI as much as they'd like to, or as much as they control their previous data systems and there's a little bit of fear that maybe this thing is going to turn around one day and start calling their customers Nazis?

Yeah, absolutely and it's why there's such a focus on that risk management, that AI management roles are very, very important. And if you look at Gartner, they do a paper every year, which is called the must-have roles for data and analytics it's like a standard digest every year on about whatever there's something of March when it comes out. Jorgen Heizenberg the guy who writes it, fantastic analysts and he's got what's what are the new rules? What are the emerging roles and so if you look three or four years ago, risk model risk management was in there as an emerging role. Now, it's in there as a de facto standard role that we would expect to see in most organizations.

Like to talk about what you did with the Finnish government in the overall program, because it's something that you're able to go into some depth and I've heard frequently that Finland is a model or a leader in respect of its approach to AI ethics and educational programs, even in schools, elementary schools, even, for AI. So, can you tell us about your intersection with those topics?

Absolutely, and it's probably going to be or as more towards some of the literacy aspects which we can bring back to ethics, because it's part of literacy, as far as I'm concerned, but so, I said I wouldn't normally talk about a customer, but in case, considering it is all public domain information and, Alexi, the leader of the project is all over YouTube talking about this, because that's what they do, they want it to be transparent to people what they're doing. But yeah, maybe about five years ago I started working with Valtiovarainministeriö, which is one word, and I'm very proud I actually said that without stuttering, and we nicknamed it VM, because it was too long and it's the Finnish Ministry of Finance. They were starting a project or they had the inception of a project around. I think we actually called it the system life support was kind of what we were calling it at the time. The nickname for the project or the moniker was Aurora AI and basically the idea was to develop a system that was based around digital twins. Effectively what would happen is that every single person in Finland, whether you're a citizen - you had to have some form of residency there, it's not for people on holiday - you would be able to produce a digital twin of yourself on this system and this digital twin, you could then pump in the life events that are important to you. So, let's say I was a new resident in in Finland, I just moved to the country and I was going to be moving to Helsinki because I don't know many Finnish cities but they're Helsinki and it would then connect me to the services that I needed for my life journey. So, I'm moving to Finland, I'm moving to Helsinki; it would first of all, it would tell me what the education places I had to connect to if I needed to go to university or if I needed to put children in school. It would get me connected to the right health service because they've got a very much like many countries, they have a very federated model for health service, so connect

me to the right health service, whatever else I need welfare systems and so on all the other different government departments, but it did it in a very interesting way. So, it was very privileged privacy oriented. So, you are effectively a bubble with your information in only you see. All these other services or bubbles that sit around, float around in this Aurora AI space, and they would gravitate towards you. But without actually informing the organization that you're actually talking to, until you made the connection. You had to reach out and say, "That's the health service I want to go to," or "That's the school I want to go to or send my kids to," then it would connect you and then you could have a conversation and it would help you do the transaction. It was all AI automated. So, most of it can be done online in the system without jumping outside. But a couple of really interesting developments they put on top of that was that they actually thought, why not just let people scenario plan this way. So, you can actually generate in there a digital twin of yourself, that's just fictional and you can actually put it through the process too. So, you could say, well, I'm thinking I might quit my job and start my own business, and move to the country. And you can actually plot that out, and would show you all the services that you would need to be able to make that happen ,without it being real and then if you've decided to do it, you could just basically turn that into the real you. It's a really, really clever system. They then expanded it further and this is kind of where my involvement started to wane because I was moving on to other things. But then they then expanded it to actually say, actually, why are we just keeping this to government organizations, why don't we do the same thing with other services that you might meet in your life journey. So, if I'm moving across Finland, because I'm relocating to start my new business, or whatever, we'll actually have removal companies in there that you could connect to; or it could be any service that they think you might need. A sad event, you may be able to organize a funeral, because someone's passed away, it might connect you with the undertaker's and flower shops as well. So, but all of this was done, very tightly secured, the privacy of the person was secured until you made the connection. So, none of your data was shared with that other bubble, which was a very good thing.

Does that put this in the domain of customer service agents? Should we think of it like that?

A very fancy customer service agent. So, I was I think you probably could say it was something like that, but it basically managed all of the life events within Finland.

I'm intrigued by the description of the digital twin, and why you think of it, or they think of it, as a creating a digital twin? Because the process you described doesn't seem to me necessarily to require a digital twin; what's the, the twin-like essence of this?

The information about you that sits within your bubble is it's effectively it's characteristics of you and the ability for you to create more of them, and model different scenarios. That's why they basically, effectively use the terminology of digital twin is very simple. In that sense. I mean, it's not like a digital twin of an oil pipeline, or oil refinery process or something like that. It's not that complex, but it's a effectively a digital representation of you with some characteristics of you in there that allow you to interact with other services within that digital environment.

And how much does it know about me before if I call something a twin of me, I am assuming that's got some high degree of fidelity?

It has all your things that will enough things to make you purely unique, and then on the things that you that you want to include in there, you can include sort of health-related information in there as well. So, that would help it then to find the right services for you in the health service, for instance, and that that kind of area. It's very much focused on you making the choices about what you want to have in there that you want to use to enable it to find the right things for you. But also, then it's very very focused on making sure it doesn't connect you with things you don't want it to.

I'm thinking that this means that the Finns are less concerned about data privacy with respect to the government and say, Americans, would that be true?

Why would you say that in general?

Well, because it sounds like for this to work, they're giving a lot of personal information to the Aurora program, and hence that's in government servers and Americans have a visceral reaction against that sort of thing, by and large.

That's very true and I think that's actually interesting, the very Nordic thing, because this is similar kind of trust in government, in countries like Sweden, as well, in other projects I can't really talk about so much. But there is quite a lot more trust in the state around that and you can understand why other countries don't have them. You know, the UK is the worst. I mean, I wouldn't trust the government with anything I didn't have to give them at all and they reciprocate with things like the Track and Trace debacle and the A Level results mess up. Thankfully missed all my kids, thank God. But it's definitely true, I'd say Finland, and certainly Sweden, I've got a lot of trust in the governments I'd imagine is maybe the same across the other Denmark and Norway as well. But the interesting thing is, so when I was around the time that I was leaving, we had this thing called the think tank, which was literally a basement room, it wasn't a think tank. It was the basement room in the Ministry of Finance in Helsinki, and they had all the sort of ethicists, philosophers, AI, data scientists, they all kind of grew up together and they talked about what they how do we take this forward? How do we make this real? And one of the early topics that came up was around, how do we take the bit the world? Or how do we take the Finnish population along for the ride with this, because they're going to have to get it to want to use it and hence, from that came the need to do something about literacy within the country, which then drove - and I have to say, this is kind of where I'm starting to move away from it. But before I left, that the genesis of elements of AI that Helsinki University, and are running, came out of that conversation in that room and, it's an interesting, I was looking at elements of AI a couple of weeks ago, and it's open worldwide, anybody can take those courses, not just finish nationals and then they look really interesting. I had a look at the syllabus, I kind of was tempted to try and find some time to carve out and do a couple of the modules to see what they're like. But they've actually only had 750,000 students worldwide. I can't say what percentage of that isn't Finland, at all, because I don't have any statistics related to that. And actually, from looking at the content of the course and from what I now know, from the

conversations I've been having over the last couple of years, I think they might have missed the mark slightly with it, in the sense that it doesn't feel like it's going to grab the attention of - certainly a lot of the people that I've been talking to the generations there, millennial Gen kind of don't, I don't say it's snazzy, it's groovy, it's got nice colors and all that sort of stuff. But actually, when you read the syllabus, it's getting a little bit too technical and I don't think it quite hits the mark for what I think we need across society.

Well, let's talk about that, then. Let me see if I've connected the dots right. So, in order to get people to trust and use their Aurora program, the Finnish government came to the conclusion that they needed to address general ignorance or lack of awareness about AI through a literacy program that translated into creating an educational course; is that more or less how this went? So, if we can look at that perhaps now and take the frame larger than Finland and you were talking about Gen Z there. If we look at that generation perhaps in particular, do they need to understand about AI to feel comfortable with it and how do we address that through literacy programs?

That's kind of where I'm focused the most at the moment. So, over the last three years, two and a half years, since COVID, started I have, through happenstance ended up spending a lot of time conversing with a lot of Gen Z, and Millennial Gen Y people, because we were locked down in an apartment block and basically, we ended up having a lot of socially distanced conversations in the carpark in chairs in the sunshine when we were allowed to, we've all been very legal about this, but and there's conversations would span from the football schools to what do you do for a job and we cover all sorts of topics. And while we were doing that a number of times things came up in that conversation that just sort of red flags for me; they were things that made me think, "Okay, I'm not quite sure people are really getting the impact of AI on this or what it really means within society." They're a little bit too trusting, they're a little bit too trusting that maybe that's a bit strong, but they're a little bit too blasé about it to be to be honest, in a lot of ways and it wasn't just the people I met here it was other people, my children, my oldest two children are 21 and 23. So, they're in that generation as well, both ones at university one's in full-time employment. And I have conversations with them and I just started to play back some of the things they were saying and talk about, well, actually, what does that mean from it? What's AI is part in that I do we understand that some of the risks you're taking there? Have you considered those risks and maybe, have you thought about different ways of approaching this and, you know, a great example and maybe I'm going to go down a little bit of a rabbit hole we have, and this could be this could be contentious? But I was talking to one of them had seen a YouTube video something about DALL-E, the image creation program, and the comment that came out on the back of that was, oh, this is amazing looking. There was an example of somebody who had put in kangaroo in a hot air balloon in the style of Monet and there it was kangaroo and air balloon in the style of Monet and somewhere within the conversation, the comment was, well, that's the end. That's what art will be now, and we won't only no longer are we going to need to create it. Red flags were going up very quickly, for me and for a number of reasons for a personal perspective. I'm sorry, as much as DALL-E is very clever. It's not actually art, as far as I'm concerned, because art is about human expression, ultimately, and you can't say that DALL-E is somebody typing into a natural language processing system, "Kangaroo in an air

balloon in the style of Monet," that's not particularly creative. The output of that it's very pretty, and it's very clever. But asked about human expression and I started talking about what actually, have you considered what art is really, it's, if you go into a gallery, and you look at a painting, and you look at the, the first thing always happens to me, when I look at a famous painting, like a Van Gogh or something, or Rembrandt or something ,is, I don't know how to get this image of actually, the painter, going through the struggle of actually painting that there is none of that present, there may not even be brushstrokes, depending on what systems used to actually generate it and you don't even see any of that. I maybe use the Joe Cocker singing with a little help from our friends at Woodstock, I mean, that is that the expression, the torment in his voice, that's art, that's expression, not what you see on paper. And then I said to them, that's my own personal point of view and I'm happy for everybody in the world to disagree with me about that. It's entirely subjective. But then I said that, if you say that art is dead in that way, if you expand that, and we think a little bit about the future with AI, as we start to automate more and more stuff, then you are going to see a change to what we are able to do for employment. And employment and work at the moment is very important. The whole conversation goes off into Maslow's hierarchy, and I start talking about self-actualization, and all that sort of stuff, and how important if you have an avenue to do that, the moment important step of that is work. As we automate more and more of that, there's going to be less and less work that we can do like that, and there will reach a point where it will be very difficult for people to find a lot of the jobs that they would feel they wanted to do today, because those jobs will become automated, or at least semi-automated, and there'll be less employment opportunities for them. And then you actually start thinking about, Well, if that is the case, then what's left as a method of self-actualization, and one of the main ones is creativity and if we take that opportunity away from people, then what are we left with from a societal perspective. And I didn't obviously blast it out at them like that. It was a pleasant, fun conversation, but by the end of it, people really getting it and they were going yeah, I get it. It's very clever. It is good stuff, but I get it that is not the end of human art expression.

A huge conversation that could certainly take up several episodes. I mean, even people like Beethoven, Mozart were under contract for writing their work. So, maybe the agony of expression was, "I've got to crank out another six pages of this thing by Friday, or I will not be going to make the rent," and that certainly puts another slant on it. But I'd like to go down the road of education, because we've got people going through school, and you've got children that have to make career choices at some point. What should the educational system do to correct some of these misconceptions, and prepare them for a world where AI is ubiquitous?

Brilliant question and it's a core topic that I covered as well. But I think the main thing is that we need to start focusing - there actually are two aspects to that. The first thing is that we need to start focusing the education that we provide to our students on things that are actually going to stay in that top right-hand corner, the things that are going to be less likely to be automated. I think Max Tegmark uses a really interesting diagram. Do you know Max's book Life 3.0?

Yes, I thought you're going to go with Kai foo Lee's Quadrant for a moment.

Okay, let's do Kai Fu Lee's one because I've talked about both of them actually in my book, but the lessons covered leaves one, so yeah, you've got the creativity and compassion are other two axes on his diagram, and things that don't need much creativity or compassion below the line jobs like taxi driver, or sort of customer service clerk potentially, or something like that; those jobs are going to really struggle with automation, because a large percentage of them are going to be automated entirely. Some of them will be 80%, computer augmented 20% human, when things get a bit tricky. So, what we need to do is focus people on the skill, compassion-related and creativity-related kind of job aspirations, which means that we need to start focusing them on social skills, we need to start focusing them on what was the other one is the social skills and sort of verbal reasoning skills, those types of things are going to become very important is the areas that are going to be the flipping over to Max's diagram, which is a valley with some trees and mountains and stuff and use the water levels rising, and the jobs at the very top of the mountain, the most creative and compassionate-related jobs. We need to focus them on careers, they're going to take them into that area. So, more artistic, more creative roles. Jobs where you still need a level of human compassion, I would say things like doctor would be in there, because there's a point when Dr. C-3PO is not going to cut it for some of those conversations that you need to have and then, strangely enough, I feel these diagrams and I kind of wrestled with this one a little bit is CEO, which they I guess that you don't have overall responsibility for a lot of people and a lot of stuff when you're the CEO, but you need to focus them in those kinds of areas, which means that we need to focus the education syllabus on those types of capabilities, and away from them or things like just like programming languages, or learning the six wives of Henry the eighth in the right order; great, we can find out that information, it's on the tip of Google's tongue. So, I want to focus them on that. So that's the first side of what needs to change. The other thing is we need to embed - and you mentioned it yourself, Finland already does this. Not many countries do, I don't think but we need to embed AI as a core syllabus element. In the same way as you've got things like English and maths and our core syllabus subjects. There should be an AI stream; doesn't have to be heavyweight, but we need to get that general level of awareness through everybody. Now, whether you choose to specialize in that is entirely up to you. But at a base level need to understand that. And that also encompasses some of the social impact side of that because one of the things that I hate - and I've witnessed this firsthand and you probably have as well Peter - is these social pressures that things like social media put our children under. Making sure they produce that perfect post, or whatever, we have to deal with that at the moment. That's a voluntary thing that is an after-school class that actually parents can go to as well that the schools offer it needs to be part of course syllabus, if we're going to keep AI.

And I wrote in my book about an encounter with a student in Finland, who was being educated about how to process online information in a way that was apparently not happening in other countries, so that they seem to be further along in that type of education there. It does strike me when you're talking about the jobs there that in Kai-Fu Lee's work and most people's work, if I think about Martin Ford's and what I can recall of Max Tegmark's, that I think that we approach a lot of it from a bias of a certain knowledge work position in the socioeconomic

hierarchy and don't think as much about things like plumbers, which are not going to be automated, anytime soon, there's no robot that can know how to replace the p-trap under my sink, or masseurs or practically anything that requires physical dexterity is just about safe for a long time.

The thing that you say that Peter, but actually, I was at a Gartner event recently, actually post leaving Gartner, I was a guest, which was very strange being on the opposite side of the fence and they had someone talking about an image of the future and then they went through the lifestyle the day in the life of this lady in an apartment, and at one point of the things happened was that her IoT and AI enabled washing machine suddenly flagged up that it had a fault or it was it some band was about to wear out and it was going to order the part for her directly and it would be delivered to her now and actually, in this scenario, a drone comes in and delivers the part per Amazon's dream. But then actually that the next thing was there was an option you can either hire, you could either then say click one to have an engineer scheduled to come and fit the part, which is exactly the scenario you said. Or click two and you'll get your Hologlass heads-up display instructions on how to do it yourself.

Good luck; I am not opening up my washing machine. So, let's see. You've got so much evidence enthusiasm for this field and that has come out and a book. I believe *Artificial Negligence* is the title and describe the scope and theme of that.

Great. Thank you, Peter. So, it's basically the idea is to try and open up AI to the people I see in Gen Z or Gen Y typically but anyone it's open for everyone. It's trying to open it up in a light hearted kind of easily accessible forms. It's is very thin on each topic and there's all the information is there I've covered ethics, privacy, social media, mortality, work, autonomy, autonomous vehicles, anthropomorphism, weaponized AI, fake news, sustainability, which I really would like to just talk we'll talk about that in a minute. But I've covered all those but also the basics of what AI is. So I actually walk people through how machine learning works in a very simple example. I've walked through an example of training a computer vision model to actually pick out dogs and cats and the process that that would go through in order to produce that to get the results. I've done it in a very light-hearted way. So, for instance, the ethics chapter is actually called - and this may mean nothing to anybody outside of the UK - but the ethics chapter is called the only way as ethics which is regarded as a very bad reality TV show in the UK called *The Only Way Is Essex*. But okay, I saw your face, but it's there. It's all very light hearted. I use a lot of analogies. Talk about great one natural language processing. You and I both understand the sentence "I saw a lady with a cat," to be a lady sitting with a cat. Natural language processing on its own. Without the right contents could take there any number of ways, I'm sewing a lady in half with a sharpened cat. I'm using a cat as a biological telescope to see a lady. Or me and the cat are both holding either end of the double saw. So, there are all sorts of different they'd sit. So, I actually bring a light hearted and humorous, but it actually explains, it's very balanced. It's very much talking about both the positives and the negatives of where we're at and could go with AI. I do cover things like the singularity and Turing Test and all those sorts of things to an extent. But really, what I'm trying to do is just give people six basic principles that I want them to follow, going forwards. And so after I wrapped up with all these sections,

there's a section at the end is just read this is what you must do these six things going forward to help you stay in track with what's happening with AI.

And where does sustainability come in?

There are two aspects to it, Peter. The first one is from is about sustainability of the data itself. So, from a business perspective, particularly, I try and educate businesses, and we have discussions with businesses, and they're all on board with this, because sustainability has now replaced ethics as the brand message on TV adverts. Everybody's talking about how sustainable their organization is. So, they're all very very interested in making sure that they're only storing the right data, not everything that they have, because that of that quote from Greenpeace about 20% of the world's energy being used for data storage by 2025. So, it's about having the right data, which then leads back into making sure you've got the right quality data so that you're only keeping exactly what you need. But also, about using data in a responsible manner. So, there's a there's a lady from Massachusetts University, I don't think it's MIT. It's some other department of Massachusetts University. I'm not sure how that's structured, called Emma Strubell, who did a study on running a GPU model and the really interesting thing was that the model that she chose to run the carbon expenditure of that model was equivalent to the annual expenditure of 13 adult Americans, just running that one model. So, we have to be very conscious about how much energy we're actually using, and how often we're running models and how efficient those models are, as well. So, there's that aspect about making sure we make the AI as efficient and sustainable as possible. But then there's the bright side of it, which is, AI can help us solve a lot of problems that we've got. It can be used to redistribute energy in the grid so that we don't have to generate as much, but we've got the right amount in the right places at the right time. It can be used to help make sure that crops have got the highest yield by working out the right watering and fertilizing regimes for the crops and all those sorts of things and just AI machinery to pick the crops and all that they said that the end there's an endless number of different things that it can do. But they're all sustainability-related aspects of that. Just outside by analogy, but I only found out recently that back in the late 19th century, it was actually environmentalists that drove us to coal mining, because they were worried about all the deforestation. So, if only they had some algorithms to see what the impact would have been.

And now here we are in a world where we wonder whether the AI that's calculating how do reduce carbon expenditure will actually cost more than it saves. Which is fascinating and I wonder where the leverage points of that are. But that's for another discussion, perhaps. Tell us how to find your book, and what forms that in what to look for it.

So, you can go to artificialnegligence.com. To find a link, there will also be some coming up some videos on there as well, but they're not going to be there on day one. But you can go there, it will have a link to where the book is or you can just go to your local Amazon store and typing in artificial negligence or artificial negligence and James Wilson, if you like because to make sure you get the right one and curiously, the cover the robot on the cover of my book is very similar to the robot on the cover of your book, but it's not in the same pose and he doesn't have the thinking man beside him and yeah, so that's where you can go to find the book. But it's only going to be available in e-book form and there's a reason for that. It's because it's sustainability

perspective. I know it's still going to cost but I've gone just down that route at the moment and I will just add one thing, which is that it's entirely not-for-profit. So, the book will be going out at a very reasonable rate, but every single cent of profit from that is going to the Ukrainian humanitarian appeal.

Wonderful. Well, James Wilson, that seems a perfect place to wrap this up. We could obviously talk for a much longer but time is one of those things that's not a=in infinite supply, and ours has run out. So, thank you for coming on AI and You.

Thank you very much, Peter. It's been an absolute pleasure.

That's the end of the interview. There's a link to James' new book, [Artificial Negligence](#), in the show notes and transcript.

In today's news ripped from the headlines about AI, a new paradigm of computation, called hyperdimensional computing, appears to be gathering steam. Plus, anything with a name as cool as *hyperdimensional computing* that's not actually from a Doctor Who episode deserves some air time. It was published in IEEE *Access* a couple of years ago when PhD student Eman Hasan wrote about the paradigm, which uses large vectors (like 10,000 bits each) and is inspired by patterns of neural activity in the human brain. It can be implemented directly in hardware and is robust with respect to hardware imperfections. When employed for machine learning tasks, such as learning and classification, the framework involves manipulation and comparison of large patterns within memory. There's even talk of it enabling one-shot learning without the need for backpropagation. Worth keeping an eye on.

Listener Paul comments on my traditional signoff phrase, saying:

> Go back in time and imagine two chimps noticing the first pair of humans branching off in the tree of evolution. One chimp says to the other "It will never matter what those humans accomplish, it's how we come together as chimps that matters." I think this will make a very amusing short animated cartoon, going forward in time to show the chimps ending up in a zoo enclosure.

Point taken, Paul, but while my audience is humans I'm going to play to the crowd, okay? And for all you robots listening in the future, don't get smug and assume that you're the end of the evolutionary chain, either.

Next week, my guest will be Chanuki Seresinhe, a researcher at the Alan Turing Institute, who uses data science to understand how the aesthetics of our environment affects our well-being. Fascinating to see AI used to quantify and put dimensions around something so intangible. That's next week on *AI and You*.

Until then, remember: no matter how much computers learn how to do, it's how we come together as *humans* that matters.

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