AI Ignition

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Stela Solar

Beena Ammanath: Hi everyone. My name is Beena Ammanath, and I lead our Deloitte AI Institute globally. And today on *Ignition* we are joined by Stela Solar. She is the director of Australia's National AI Centre hosted by the Commonwealth Scientific and Industrial Research Organisation [CSIRO]. Stela, welcome to the show. Let's start with your background. You have a very interesting background. Can you tell us a little bit about how you got into tech and AI and your journey so far?

Stela Solar: It's great to be here. Thank you for having me, Beena. So my own journey into tech was actually a happy accident. And I love telling this story because I was going to be a film composer. That was where my passion lied, and I was, at the time, writing for film and theater. I played cello and piano, and so that was my path, even though I was studying commerce and arts at university, music was really my passion at the time. But I really needed to make some money once I graduated, and I just couldn't make enough writing music at the time, and so I accepted the first job that came my way. And it was with a tech startup. It was inside sales, and the rest is history. I just love technology.

At that time, I think about 17 years ago, it was in cybersecurity area. And so it was fascinating for me to learn about technology and emerging technology at that time. I learned on the job, and I did short courses and obviously engagements with customers. That's how I learned. So from that cybersecurity starting point, I moved into cloud. At that time, large organizations were moving their legacy on-premise environments into the cloud, and it was emerging tech.

And then I moved into IoT, and then I found in IoT that there was so much business model transformation that really excited me, and so I really leaned into that—and how the power of data and just the volume of data and the signals the data was providing were actually starting to be designed business models and how organizations actually provided services and built and created revenue.

But what I found was in that IoT world, a lot of the magic actually was happening because of the AI technology. And so to me, then AI started drawing me in. I actually did a master's of interaction design in electronic arts to boost my technical acumen, and I was designing interactive sleep cocoons and emotion-sensing dresses. But then I continued in that commercial sense with the AI value that businesses could experience.

So for me, I've always been in that emerging tech. I've always loved to learn. It was an accident how I got into tech, but I've loved the journey ever since. Even though I've gone on this technology journey across many different emerging technologies, I could always see the value that businesses experienced when they were implementing emerging technologies and creating that value. But, for me, it didn't really resonate from an emotional standpoint until I saw three of my colleagues who are technologists. One of them is a data scientist, two of them are program managers in the technology field, and they were able to solve some of their children's medical challenges using AI. They're not even health professionals—they're technologists. And so that's when I just realized the power of the AI technology and what it could do to us as a humanity and a society. It's a real level-up opportunity, leveling up the outcomes that we can create for our people.

Beena Ammanath: So true, so true. And now you are at the National AI Centre heading it up. But for our global audience, can you share a little bit about what is the National AI Centre, and what's your role and mission there?

Stela Solar: So the National AI Centre is a federally funded center that is tasked to accelerate positive AI adoption across industry. And positive AI adoption is all about ensuring that it benefits communities, people, and our commercial sector as well. And so the National AI Centre is hosted by CSIRO, and CSIRO is Australia's National Science Agency and actually the most trusted organization and brand in Australia. It is a research-centric organization, and so it's incredibly powerful to connect the research strength, together with this industry-centricity that we have at National AI Centre, and jointly help communities and businesses benefit from AI.

Beena Ammanath: That's a huge mission. And have there been any projects that you've launched so far or anything that you can speak to our audience about on some of the work that's going on currently?

Stela Solar: Absolutely. We just started establishing in January—so my first day was January 24, and we've been very busy hiring. As of July, we now finally have a full team. But for us, the very first step was ensuring that we were grounded in the real experiences and expertise across Australia. And so we conducted a listening tour, which visited various organizations across Australia. I think we met with about 200 different organizations across Australia to really understand what were the needs, what were the challenges, and what were the opportunities—and what can we do about it?

So we really wanted to honor that experience and expertise, and during this listening tour, we obtained some fantastic insights that are now informing what we do. And so far, what we've done is we've actually kicked off three think tanks. Three think tanks: one for responsible AI, another think tank for diversity and inclusion AI, and a third think tank for AI at scale. And this is directly connected to some of the key themes and key needs that we heard from organizations around Australia. We've just kicked that off, and those think tanks are our ongoing way of getting that advisory perspective from industry, from community, government, and academia, so that it ensures that what we do is anchored in what the community needs.

One of the things that is coming up very shortly is the launch of the Discoverability platform, and we're actually looking for organizations who have a presence in Australia. We're looking for organizations with that presence who also provide services and products so that we can showcase them.

Beena Ammanath: Fascinating. Good callout. So let's go through each one of those. Those are all big, ambitious areas. Each one of those—responsible AI or ethical AI—has been a big topic in this industry for the past couple of years. And what is your take, and what's your approach on making progress in responsible AI?

Stela Solar: The way that maybe I want to address that is looking at the commercial sector in two parts. One is large enterprises who are generally on their way with AI. The larger enterprises, they tend to have their own data science teams and developer teams. And here the key question about responsible AI is how do we move it from principles into practice? How do we actually do it? So how do we move from these ethical high-level concepts into actual actions that are taken in practice?

On the other side, if we look at the small and medium enterprises, the question is actually quite different. When it comes to AI, small and medium enterprises mostly just want to know where to start. In fact, 65% of small and medium enterprises in Australia are asking exactly for that. Just tell me where to start. And this is because most of the AI guidance, recommendations, and work so far, globally, has been larger enterprise leaning. There is much more support that we can extend to small and medium enterprises. And so that's how we're thinking about it. When it comes to responsible AI, we're noticing that it's the mature organizations who are trying to figure out how to move it from principles to practice, and then for the small and medium businesses they just want to know where to start with AI.

Beena Ammanath: Yeah, so true. You know, the second one is actually very close to my heart—the diversity and inclusion in AI. Especially for AI to reach its full potential, you need that diversity of thought that the more diversity you can bring in—whether it's gender, race, ethnicity, cultural background, education background—the more diversity you bring into AI, the more robust your AI is going to be and the more equity and equality it's going to drive into the world. So I'm curious to hear how you are taking on that second pillar in your mission.

Stela Solar: Yes. So [the] diversity and inclusion think tank is focused on how we embed diversity and inclusion principles in AI systems. So it's more than just ensuring that there are diverse teams, who are creating the technology and shaping its use; but rather, how do we insert our human values into the AI systems? And so we have at Data 61, which is our business unit within CSIRO, we have a number of researchers—50 dedicated researchers in the area of responsible AI, diversity, inclusion—and they are working on this very thing about how we really embed diversity, inclusion, and responsible AI principles into AI systems. What does that actually mean? In fact, something incredibly important that we've come to realize is diversity is a key way that we can unshackle ourselves from biases of the past.

All of the data that we have so far around the world is, by default, historical. As soon as data is created, it's historical. And that captures all of the biases from history at that time. And that could be gaps in data, underrepresentation, misrepresentation, large gaps in data, or different perspectives and in how the data was captured. For us, diversity is a key way to intercept that pattern from the past that has the biases to ensure that we're not developing future models with those biases still in the data. And so the diverse teams, as they come together, they're bringing new experiences, new perspectives, multidisciplinary perspectives. And these all are interception points to ensure that we're shaping the future that is a better vision of what we can do rather than replicating the biases of the past.

Beena Ammanath: So true, right? We want to build AI to create the scenario of what should be and not necessarily what has been. And therein lies the challenge of how do you create a future which is more grounded in humanity.

Going to the third one, why do you think now is the right time for Australia to focus on scaling its AI capabilities? How did that come

Stela Solar: So, innovation is really at the core of Australian DNA. You just want to be louder about it. In fact, something that listeners to this may not be aware of is Australian developed Wi-Fi. So that is the fantastic benefit that the whole world is experiencing that came from Australia. Likewise, spray-on skin [technology was] developed by an Australian, "black box" flight recorder, also the [inflatable] life raft [slide for] airplanes, [and] the bionic eye. So, we have tremendous innovation in Australia that we want to share with the world. These innovations are not just for the benefit of Australians; they can actually contribute a lot on the global scale and ensure that we're delivering those great outcomes for people and for industry.

Now currently Australia is leading in several areas within AI. For example, field robotics. In fact our state of Queensland was declared by the World Economic Forum as one of the global leading hubs in advanced manufacturing and robotics. And quite recently, our Data 61 robotics team here at CSIRO won second [place] in the world in the DARPA [Robotics] Challenge, which is a subterranean robotics navigation challenge. Similarly in machine learning computer vision, depending on the year, we're up there in second to fourth in the world in computer vision. That's coming from the Australian Institute of Machine Learning over here in Adelaide.

And then our long history in mining and resources has actually built a strength in remote operations and in edge computing and edge intelligence, and now we're seeing that strength on land pivot incredibly well into space. So our space sector is really booming because it seems like remote operations in land has a lot of similarities to remote operations in space! It's carrying quite well. Then we have over 20 years of quantum AI research, which many countries don't, but that has been an investment for some time for us. And something that we uncovered during the listening tour is all around Australia there was investment in responsible AI researchers and trustworthy AI researchers and engineers. Fairness and equity are core values in Australia and in our community.

And so, for us, responsible AI is essentially the digital version of a fair go that's ultimately our key value here. And so we—together with our innovation, with our core values—we have so much to contribute on the global stage. And that's why this is our moment to really step up and showcase some of that innovation and spread the benefit around the world.

Beena Ammanath: So true, so true. Love it. And you know, one of the challenges with innovation, without those guardrails in place, it always comes to how do you think about regulations. And what level of self-governance versus what level of regulations need to be put in place so that you don't stifle that innovation, yet allow it to grow within certain boundaries. What are some of the things you're considering as you think about self-governance versus growing regulations?

Stela Solar: Yeah, I know that landscape of regulation and governance is in flux, there are several standards being developed by the International Standards Organization. There's also in the EU, the AI Act. And so a lot of things are in flux right now in this area. I think there are three core things that business leaders today can do to really prepare for this context—evolving context.

The first one is an ongoing co-design and consultative approach in how they create AI systems, how they implement, then how they govern these systems. So this co-design, and ensuring it's ongoing, is incredibly critical. And we actually saw a fantastic example in Western Australia where a health organization established a community advisory group to provide feedback on how they were providing care in remote environments or how they were using sensor darting in the elderly and ensuring that that is responsible.

And so this community advisory group was formed, and obviously that is great and best practice to have an advisory group. But then they connected that with the machine learning life cycle. So when there were changes in the machine learning life cycle, such as data drift—you know, if the data change and suggest something else—this change would be a trigger in the convening of the advisory group.

And so this was fascinating to us how they implemented this agile governance model, where the advice from the community was directly connected to how the AI system was running and the governance and evolution of that system. So, co-design is critical. A second one is diversity. And I mentioned earlier that diversity is our opportunity to unshackle from past biases, and with more perspective, with more eyes, that's actually reducing risk and also ensuring that we're creating outcomes that are positive and beneficial to the communities and customers we serve. And then the third and final thing I'd add is, no matter what governance choices an organization makes, it's incredibly critical to ensure this resonates throughout the supply chain and ecosystem the organization operates in. And so supply chain resonance and partnering across that supply chain are incredibly critical as well.

Beena Ammanath: We have a number of business leaders who listen to this podcast. And a question that I would like to ask you is what are some of the myths that you have heard about AI that you would like to dispel?

Stela Solar: It's a big question, and I've heard a lot of myths. I've heard countless times "Skynet"[antagonist from the Terminator movies] and robots taking over the world. I think business leaders are needing to really be clear on what AI is and what AI isn't. And so currently, I think there's a great framework, the three stages of AI, that are very valuable for business leaders to consider.

The first stage of AI is narrow AI, which is all about AI that can be trained to do one specific thing and it only can do that thing. So, for example, you can use AI to translate a language and maybe that helps you access more customers, or you could leverage AI to build more accurate forecasting and predictive models for supply/demand of new products, for instance.

And so that is an example where an AI model learns to do one specific thing and it can only do that thing. So you're not going to see a full forecasting model suddenly be able to translate languages. That's just not going to happen. So that's stage one, narrow AI.

The second stage is general AI, and the theory here is that AI is the same level of intelligence as a human.

And then the third stage of AI is super AI, which is about the AI technology being more advanced and intelligent than a human. This is what we see in movies. It captures our imagination, and it is not possible today. In fact, the only thing possible today is narrow AI. AI that can be trained to do a specific thing and it only does that thing.

And so I think that that's very valuable for business leaders to be aware of because we're surrounded by messages which can seem very cinematic and sci-fi. You know, this AI space is just as much creative and philosophical as it is technological. And so it's important to be grounded in reality of what it is today.

Beena Ammanath: So true. The reality is narrow AI, but the headlines and the movies are about super AI.

Stela Solar: Yeah, there's a real disconnect.

Beena Ammanath: There's a big gap there, so true. Stela, what are some of the advances in AI that you are excited about? Obviously, we are hearing a lot about generative AI, the work that's going on in large language models. What are some of the advances that you are looking forward to?

Stela Solar: You know, we could talk about some of those cutting-edge advancements, but I still think that so much of the commercial sector can benefit from even the basic AI technologies that are out here today. And so maybe I want to pivot that question a little bit and present a frame to think about AI through.

So, right now, we are in a highly complex world. It seems like everything is generating data more than our minds can handle. There are so many complex processes across our organizations, across our lives. Even if we think about provenance tracking or supply chain, there's such complexity in that. And then we think about some of the mega grand challenges we have, such as climate change. You know, we're right in the middle of this climate change challenge and growing aging population.

We physically don't have enough people to provide those quality services to our elderly, and we're all heading in that direction. And so we're in this context of incredibly high complexity that is beyond anything that our minds or our hands alone can handle. And so, what excites me most about AI is that AI is our co-pilot through this complexity and through this rich jungle that we're needing to navigate. We know the outcomes we want to achieve, we know the goals that we want to achieve, but we're needing a grand tool that can handle this complexity of context.

So that is what excites me most is when we consider AI as our co-pilot through this complexity, and I think something important to embrace there is we lead AI. AI is as good as we lead it. And so, AI is a tool that becomes our co-pilot to navigate. It becomes incredibly powerful to what that means for individuals, for businesses, for communities and just how much more effective we can be in this highly complex environment.

Beena Ammanath: So true. So true. Stela, that's fascinating. The whole discussion of co-pilot and how it can help all humans. A question that bothers me is what does leadership look like in this new age of AI, where they'll be, you know, it's about humans working with machines effectively. What does leadership look like in that phase?

Stela Solar: There's a real evolution in what leaders need in terms of skills and the leadership toolkit. So augmented leadership is incredibly important in this rich data environment that is also using AI tools. Currently there is some risk of us potentially saying, you know, computer says no and as such, let's not do this. So computer says this is the way to go down that path. But we know that data has captured biases from the past.

We also know that there are gaps in data. So it's not always leading us in the right direction. And so, from my perspective, leaders are going to increasingly need the ability of discerning when to challenge data, when to ignore it, when to pause, when to go with it. And it's almost a critical theory for leaders—understanding what were the social dynamics that created this insight. Is there potentially a bias or a gap in data that might have led to this signal or this insight? So augmented leadership is an increasingly important area as we are navigating the data, the signal complexity, and as AI can only do really the best as the data provides. We are needing to then take it the rest of the way and use our own critical thinking and leadership to navigate more effectively.

Beena Ammanath: That's fascinating and augmented leadership is definitely a new term. And I am, you know, it's like augmented intelligence, which you've been talking about in the context of AI: augmented leadership. How do humans and machines work together most effectively? Love it. Stela, you are doing some really amazing work, and I know you're just getting started. How can people stay connected with you and follow all the work that you're doing?

Stela Solar: So National AI Centre; you can reach out to us at any time through our website, CSIRO.au/NAIC (National AI Centre). And we are also looking for organizations who have a presence in Australia so we can come together and really create a thriving, vibrant AI ecosystem here in Australia, where people can live their dream careers, create dream opportunities, and where we can create that innovation that positively impacts the global community.

Beena Ammanath: Stela, thank you so much for being with us on the show today.

Stela Solar: It's great to be here. Thanks for having me.

Beena Ammanath: And thanks to our audience for tuning in to *AI Ignition*. Be sure to stay connected with the Deloitte AI Institute for more AI research and insights. Take care.