Actuaries of the Future with Jon Shen

Interview Transcript

Julia Lessing: Hi, everyone. Today, we're talking about the actuary of the future. As technology continues to evolve at such a rapid pace, what might this mean for us in our roles as actuaries? What new skills might future actuaries need? Where might we work? What might be different about our day-to-day jobs compared with now? And on that note, will Al take our jobs?

And for those of us who are making, or have made a significant investment in our actuarial careers and skill sets, how can we protect this investment? How can we futureproof our careers in the face of disruption? Joining us today to help answer some of these questions is a Data Science Actuary who was recognized as one of the Top 10 Analytics Leaders in Australia in 2022, Jon Shen.

Jon, thanks for joining us!

Jon Shen: Thanks, Julia. It's fantastic to be here.

JL: So, Jon, you're an actuary, but you've designed and delivered successful Al initiatives across all areas of insurance and banking, like pricing and customer personalisation, and mobile app development. So I can't think of anyone better to answer some of these questions than you today. But first, let me ask you this.

Jon, how do you use your actuarial superpowers to make a difference?

JS: Before I answer that Julia, I want to try a little experiment. When I say the word "actuary", what are the first industries you think of?

JL: Insurance.

JS: All right, let's hone in on insurance. If I ask you to name the main functions that actuaries serve within insurance, what are the first three words that come to mind?

JL: I'd have to say, based on my own experience, valuation, closely related to that capital, and I guess pricing.

JS: Right. Valuation, capital, pricing. I'm sure most of our listeners playing along at home probably arrived at those same words.

JL: Probably.

JS: So, you know, stating the obvious: all three of those functions are tied to claims. We use claim costs to determine the premiums to charge, the reserves to establish and so on. But then the question you might ask is, "How can we influence the claim costs?" And more generally, "How can we create better outcomes for claimants?" Because remember, claimants are people just like you and me. Whether they've been in a car crash, they've received an injury and now they can no longer work, or their house has burned down - we as actuaries should have empathy for those horrible situations they are going through. They're not just a number.

Let me paint a picture for you. Cast your mind back to early 2022, when rain was bucketing down over the east coast of Australia, leading to the costliest flood event in Australian history, with over 200,000 claims and \$6 billion in losses. If you're one of those impacted people, the clean up from a flood is enormous. So just imagine you're trying to walk back into your house in the weeks after the event. You've probably lost all your possessions, your heirlooms, your photos. It's going to be disgusting. There'll be sewage all over the floor. Electrical wiring needs to be redone.

Maybe there are cracks, the floor is misshapen because there's structural damage, because of all the soil movement. Amidst all of this carnage, insurers are trying to come in and help fix the damage. If you've ever tried to renovate your house and organise a plumber or electrician, you know just how hard it can be to coordinate things for your one single house.

JL: Definitely.

JS: So just imagine: insurers have this unenviable challenge managing a portfolio of tens of thousands of houses. And so, while it's a challenge, at the same time, there is a huge opportunity for Al to help streamline the decision making and the prioritisation process. And really, faster decisions mean people can get back into their homes and get on with their lives as quickly as possible.

Now, the other nice part of this is that often faster decisions can also lead to lower cost outcomes. So to give an example, think about your own house. Maybe in your bathroom or your kitchen at home, every now and then you might occasionally see just a tiny speck of mould you've got to go in and clean up. And think about just how much worse that's going to be in a waterlogged house that's been sitting there for a few weeks. Quick intervention and drying the property will be much more effective than trying to take control of the mould after it's spread. And, of course, taking these actions will be better for the claimant to help avoid any health complications that might arise.

All of this is to say there's an opportunity here for actuaries to support in the claim management space, using our holistic knowledge of the insurance value chain, our commercial acumen to understand financial impacts and build fit-for-purpose solutions, and overlaying our professionalism to ensure people are being treated fairly throughout this process.

So personally, I'm proud to say I've designed and delivered Al solutions for claim management that have led to better outcomes, both for insurers and their customers.

JL: What a great application of actuarial skills, Jon. I mean, listening to that story, I'm not thinking about the number crunching. I'm not thinking about sitting behind a spreadsheet or writing some code. I'm thinking about the people, the people who are being looked after by the insurance companies at their worst time and bringing that human element in. And, you know, so often, I think as actuaries, we feel so far removed from that frontline reality of what we're doing or what our organisations are doing. But you've painted such a vivid picture of how our actuarial skills can be used in a proactive way, and that you have used those skills to help people.

JS: Yeah, it's been an amazing opportunity for me to talk to claims staff and hear the stories of people that have had their lives just changed and transformed through the amazing things that we're able to do.

JL: So what you've described, Jon, is something that you have done as an actuary, but maybe not what the majority of actuaries are doing now. But I'm going to draw the connection that perhaps in the future we might be doing more of this kind of work.

So can you tell us, what's your vision for the actuary of the future? What does that look like?

JS: I think the beauty of the actuarial skill set is that our core skills are evergreen. We've got strong commercial acumen. We can manage risk and communicate uncertainty, and we use professionalism to guide our organisations to make ethical decisions. So we've got this core actuarial DNA as a strong foundation to build upon.

Now, imagine for a moment that you're walking down a road and it stretches far off into the distance and you're faced with two choices. Choice one, we can just simply follow the road. Why not? Right? It's easier and it's comforting. You know, you can just follow that path. It's been walked many times before.

But what if you get over the horizon, you find that the road suddenly ends? What are you going to do, when you've walked that road all your life and never made any other choices or decisions about it?

Or there's option two. You follow the road, but you're a little bit bolder. You're going to occasionally step off the path. One step, two steps. And at first, it might be a bit scary leaving the road, but you get used to it. Sometimes you'll walk parallel to the road, and then even if you trip and stumble, it's okay. You can guickly return to safety.

But in this case, if the road suddenly ends, then you realise, well, finding my own path, it's actually not so hard. Because all along you've been training yourself to have courage to take chances and try something a bit different.

So the way I see it is that the actuary of the future and the actuary of the present aren't so different. But there are three behaviours I want to call out that I think the actuary of the future must demonstrate. The first one is curiosity and adaptability. We want to be open-minded, willing to ask questions, listen, just have conversations and try something new. Secondly, we want to be data-driven, and perhaps this is a no-brainer, but with the proliferation of Al all around us, data science must become a core competency for all actuaries. It doesn't matter what kind of role you're in, whether you're there day-in, day-out, hands-on keyboards, typing up code and building models, or whether you're leading teams that build Al solutions. Data science is going to be a core skill for every actuary. Finally, the third piece is "data for good". We must use data for the betterment of the communities around us, whether it's through the initiatives you're developing at work or through public policy and thought leadership that serves society as a whole. We must use our data superpowers to help those around us.

So I think now is the time for reflection. Do you want to be an actuary of the future?

JL: I love your road analogy, Jon, because I think we're almost conditioned to think of our careers as following a road. When we're becoming actuaries, we don't have any time to detour off the road and learn some new things along the way.

We're just focused on getting through our exams, well most of us are just focused on getting through our exams, and those exams are neatly laid out for us, step by step in front of us along that road. So it's not surprising that we often think about our careers as linear, like we're on a road and we maybe forget that we would benefit from stepping off and trying some new things and like you said, building some courage to find our own paths and to be able to prepare ourselves for the future and we find ourselves over the hill and the road ends. And then what? How can we be prepared for that?

JS: Yeah, and certainly the comment you've made there about careers being linear, it echoes a comment I heard on one of my first work placements almost 20 years ago. There's a line that stuck out to me from the Managing Director of the organisation I was at, and he said, "Career is not linear." He very much said that lines, and I remember it to this day. At the time, I didn't appreciate what that meant. I didn't understand because being a new intern, I don't have much experience. I'm still in university. I didn't fully appreciate what that meant. But now, so many years on, I recognize that there are lots of ups and downs that will surround us, lots of challenges that come our way and it's those opportunities, you know, you do need to take a step out and not just follow that straight pathway, but look for the ways to help grow and develop that take you off that beaten track.

JL: Yeah, yeah. And certainly you've done that in your career, Jon, And that's positioned you in a place now where you are making a difference in quite a unique way, but maybe a way that more actuaries can also follow.

JS: I certainly hope so.

JL: Okay, so curiosity, courage and curiosity, taking a data-driven approach and using data for good as well. And, you know, I mean, those things aren't that far from what we're taught as actuaries. But I guess the application of those concepts and keeping those concepts front of mind as we progress through our careers will help us to become prepared to be actuaries of the future.

JS: Definitely. And that is really the point that I want to emphasize. When people think about innovation and change, they often say, this is going to be a massive shift from where I currently am. I've

also heard this great quote that "innovation is an evolution, not a revolution". So you don't need to have massive changes. You're don't need to completely shift and uproot yourself from where you are today to have big benefits for yourself and big growth in the future.

So I think, again, I really challenge people to think, how do we keep taking these little steps, even just little incremental steps? And if you want to take big steps then fantastic, go for it. But even the little steps, sometimes it's that first step which can be so hard. But you've got to have that courage to try it out.

JL: The courage to try it out. I love that idea of little steps, because I guess there's that parallel with a concept we're all familiar with which is compound interest, you know, little bits just compounding. We don't need to be making these huge changes, but we do need to be chipping away and doing some new things and trying some little things too, and that will build up over time. That will accumulate.

Okay, so that's been that's been great to hear your vision of the actuary of the future. You talked about, you know, all this change and new things happening. And I guess the word on everyone's lips at the moment is AI, with gen AI becoming so mainstream and so easily accessible, I know I'm using AI a lot in my work these days and many actuaries are.

But there's some fear around that. Jon, will AI take all of our jobs?

JS: Yes. Yes. But there are a few caveats. I want to take a little diversion to talk about the telephone. Just imagine, Julia, if you and I were transported back in time 100 years ago and I wanted to call you, I would need to go and find a telephone. A telephone physically attached to a wall somewhere. And when I picked up the phone, I wouldn't be able to talk to you directly. First of all, I would have to talk to a switchboard operator on the other end.

JL: Ah, yes.

JS: I'd say a few words to them, and then they would finally connect my call through to you.

Now fast forward to 25 years ago. You might remember there was this documentary called "The Matrix", and everyone was running around with the Nokia 8110. This was the coolest phone, right? It was a phone with a built-in sliding cover. They would pick it up and it would slide down and they'd have their calls. And do you know what features that phone had?

It had a keypad. So numbers 1, 2, 3, 4, 5, 6, 7, 8, 9, 0. So that meant you could call people, you could send SMSs. Of course, you had the history of your last ten calls. That's important. And don't forget the phone book, right? You could store 125 names.

JL: Is that all? Gosh, we take that for granted now don't we?

J5: Yep, that's it, right? No camera, no games, not even Snake for those that remember that, where you were chasing the little apple around the screen. There wasn't even a clock. You couldn't set an alarm on that phone. And now look at the phones of today, right? This device in the palm of my hand is literally a super computer! Full colour screen, there's an app for everything. I've got three cameras on the back. Access to almost all human knowledge in the world. We forget how lucky we are to have this power at our fingertips, right?. There's been incredible change, thanks to improvements in hardware, algorithms and access to data, which means that they can build these amazing AI systems.

Now, there's this saying "technology is everything that was invented after we were born". So I've got two youngsters running around at home under five and even they know they can swipe left and right on my phone to control it. But I never told them anything about touch screens! But for them, this is completely normal.

JL: It's just part of their life.

JS: Yeah, exactly. It's part of their lives. And these days everyone is glued to their phone. It's become an extension of our body, pretty much. For those in Australia, thinking back to the Optus outage, you

know, some months ago when that happened and the Internet was gone, everyone went crazy. No one could do anything. Suddenly all of society shut down.

JL: Everything stopped!

JS: Yeah. So it's just amazing and a little terrifying sometimes to think how connected we are with technology and how we are together co-evolving with technology. We're adapting, we're getting used to it and bringing it into our lives. And we can't even imagine what the next wave of technology is going to look like and how it's going to even further augment us as humans.

JL: That's such a great perspective. Jon, I hadn't thought about 100 years ago, but you know, even 25 years ago, and that's quite an important milestone for me because my eldest child is 25. So I remember that time quite well. And I remember that even though we had those phones as you described, you know, you could call people on the phone and that was cool because you weren't attached to a cord.

You couldn't always SMS people because the other person you were sending an SMS to needed to have a plan that allowed them to send and receive text messages.

JS: I mean, we had "[phone] credit", like, what is all this stuff?

JL: And I remember a friend at the time who's a software programmer was talking about writing software to put the Internet on our phones. And I just remember thinking, That's a very strange concept, why would we want the Internet on our phones? And now, as you said, you know, it's part of our life. It's just we have supercomputers in the palms of our hands. And so much has changed in what feels like quite a short period of time. Makes you wonder what's going to happen in the next 25 years.

JS: Yeah, I mean, that's the thing. 25 years doesn't feel like such a long time, but phones have come such a long way. And like I said, we can't imagine what the next technological shift is going to look like. And also, we have no idea how quickly it's going to come.

So going back to the original question, will Al take all of our jobs? Again, the short answer I gave was "yes", but we don't know what that time horizon is going to be. If we look at the jobs of today, there'll be some jobs that are disrupted and gone in maybe one year, could be. There'll be some in five years, ten years, twenty years. Every job is going to be impacted differently.

Some jobs will change, new jobs will be created, and then you have some that just go the way of the dodo, like our poor telephone operators.

JL: Yeah. And I guess it comes back to your earlier point, Jon, about the actuary of the future and the skills that we'll need. We don't know what that time horizon looks like for when the road ends or when the road changes unexpectedly. But if we can do some things now to build that courage and step off the path and build some new skills, then we might be better placed for when that happens.

JS: That's exactly right. By taking those chances now, doing a few things here and there, even if it's only small, then we'll be better prepared if a disruption comes of some kind in future. Then we'll know, we've had a past experience in trying out how do we respond to that.

And I think even going to your point around how do we try these things out. Let me ask you, Julia, if you think about your average day at work. I know that every day for you must be very different, given the exciting stuff you're doing. But I mean, is there some kind of piece of admin that you just hate doing as an example?

JL: Oh there's lots of admin that I hate doing, Jon!

JS: Of course!

JL: And I try and automate as much as I can, and I try and use AI tools wherever I can too. The challenge that I'm finding at the moment is that the AI doesn't always get it to a standard that I need it

to, and so there's always a human component to that. So I guess I'm using the AI to automate what I can or to help speed up a process or to give me a first cut of something. And then there's a human overlay. But I look forward to that AI response being better over time, and no doubt it will be, so that there's less human overlay and less, you know, additional editing that's happening.

JS: Exactly. And I think it's fantastic. You know, that's the opportunity that we have and it's great that you're already embracing it. Looking for those chances to try out the software. Try AI, try technology and like you've said, there will be a learning curve both for AI to get better over time and also for us to figure out: how do we best use it and best interact with it together?

So really, we should be aiming to use Al to augment ourselves, to help make ourselves more productive and to remove some of those activities that we don't want to do anyway. So yes, I'd say let's embrace it and it'll take our jobs, but let's make it take the jobs that we don't want to do anyway. That's a good thing.

JL: Yeah, exactly. I guess like, you know, spreadsheets and computers have helped us to not have to manually calculate everything on it with a pen and paper or a slide rule, or however we used to do it back in the olden days!

Excellent. Okay, so we're using AI to speed things up, to augment ourselves, as you said, and to take away some of the boring jobs as well.

Jon, you mentioned before the word disruption. What do you mean by that?

JS: So when I think about disruption, I consider that to be anything that's going to impact your regular routine. And so that can span big changes like a new baby at home or moving to another country, maybe a restructure at work and a new boss or a new software system being introduced.

But that can also include the little mundane everyday changes. Something as simple as taking a different route to get home to avoid traffic when you're driving the car or even switching from warm showers to cold showers. It doesn't need to be a big shift to be a disruption of some kind, but we can embrace disruption.

JL: That's really interesting. And I like your definition that it's not just other things that are happening. It can be, or things at work. It could be things in our life or it could be our habits or our home situation. There's lots of different components to that disruption. It's not just about technology or it's not just about what's happening at work.

So as actuaries then, how can we prepare for disruption?

JS: And of course, the first question people will ask is, well, why should we bother preparing for disruption? Why does it matter? And the reality, whether you like it or not, is that we are all being "opted-in" to Al. Development's proceeding very, very quickly, whether we like it or not. It's again, in the palm of my hands with technology, our phones, ChatGPT and large language models like you mentioned before, there is so much happening so quickly that we need to get ready for it because it will take over. It is taking over.

JL: We can't ignore it.

JS: Yeah, and touching even on a few emerging pieces of technology, even the last month there's been so many announcements coming out week after week, things like Apple Vision Pro, these augmented reality goggles. So, creating these opportunities for productivity and entertainment through augmented reality. So you can be sitting on a beach but typing away on your virtual keyboard, having your email on one side, your messaging app, your spreadsheets. It's crazy seeing where that might go in future.

Or of course, like you mentioned ChatGPT, which is mostly text based, let's say. But we're also seeing impressive strides in image and video generation, things like OpenAl's Sora, for text-to-video, one minute videos. Google Lumiere, Stable Diffusion 3. The list is not quite endless, but you see more and more of these models coming out every week.

And even things that are maybe a bit under-the-radar. So there's a concept of brain-computer interfaces created by companies like Neuralink or Kernel. And one of the questions and one of the challenges is, well, language is nuanced and imprecise. Even though we spend so much of our time talking to people and typing things. What if we could directly transmit our imagination and thoughts to other people? And even when I've heard some of these discussions and some of these talks, I don't even quite know what that even means because I've got an inner monologue, doesn't everything just "come through" by text anyway?

But actually there's lots of different conditions that people might have, you know, things like synesthesia so that people can taste words or see numbers in different colours. And there are people that don't have inner monologues, people that can't visualize ideas in their heads. But the point is that with all this amazing technology and admittedly some of it's still in development and being tested, it creates opportunities like these multimodal modes of communication for us to perhaps better share ideas, to better communicate and close some of the gaps.

So admittedly, some of this tech is in very early stages. Maybe it won't even come to fruition because it's all just hype, but nonetheless it's still useful for us to be aware that these ideas and these concepts, these technologies are out there and they're being explored, because they can evolve very quickly. And again, even just knowledge, knowing that it might come in the future allows us to get ready for what might come.

JL: I think that's so exciting. Jon. And when I think about the application, as you've described to communication? Wow! I mean, that is so powerful. You know, I spend a lot of my time helping actuaries build communication and leadership skills to not only have better careers, but to be able to better interact with different stakeholders and non-actuaries and other professionals. And, you know, even within the actuarial profession, we kind of talk the same actuarial language, but sometimes communicating ideas to each other, that can be quite challenging.

So imagine, as you've described, what if there was a way that we could have an idea and be able to translate that into different formats or different perspectives so that people can actually absorb those ideas in a way that best suits them?

Not the only way that we've communicated them. I think that's really exciting.

JS: Yeah, it's something that I'm really looking forward to seeing how all these different things come to life. Yeah, there's amazing opportunity there.

JL: Yeah. Excellent. Okay, so Jon, it's been excellent hearing a bit about how you use your actuarial superpowers to make a difference, and your example of how you've helped claims teams use better analysis to actually help people on the ground. I think that's super, super exciting for us as actuaries to make a difference within our communities and for people.

You've described your vision of the actuary of the future and the key skill sets being curiosity and courage and taking a data driven approach and also using data for good, such important things that we need to keep front of mind as we continue down our careers, that we might think is a straight road in front of us, but in fact may end at any time, we don't know what that time horizon looks like!

And your discussion around disruption and some of those things that we need to do to prepare for the changes that are ahead. As Al, as you said, Al will take all of our jobs!

JS: And I guess, yeah, thinking about disruption, I mean, there's a story that comes to mind actually. Last week I was making a new bookshelf, right? So as you do, right, and it's like a two metre tall bookshelf and the instructions recommend that you bolt it into the wall so that it doesn't fall on people. You want to reduce the risk that it's going to fall and hurt someone.

JL: Yeah. And you've got two little kids running around, so you don't want a bookshelf to fall on them.

JS: Exactly. Pulling on all kinds of things, chaotic at all times. So I was able to find this video on YouTube to help me with instructions, and you know away I went, in attaching the bookshelf to the wall. And so I'm there standing on this ladder, balancing precariously, holding this drill, slowly making its way into the wall and I can see these tiny specks of dust falling to the ground. And my hand's starting to go numb. The sweat's dripping down and minutes or maybe even hours are going by, I don't know, just drilling, drilling. And finally it breaks through the wall and I can breathe a sigh of relief. So why am I telling the story?

There's two things I want to call out there. First of all, I'm an actuary, I have no idea how to use a drill. I have no idea what I'm doing. But that's the beauty of the internet. All the world's knowledge is at our fingertips and there's just so much amazing content out there we can learn from. Whether it's books, videos, interviews, online courses, even podcasts like this one. It's amazing.

And the second thing is that sometimes our daily habits can feel like a grind. You're drilling away wondering, "Why am I spending time doing this? Why am I banging my head against the wall?" And it's only when you finally break through that wall, you realize, okay, I can see the light. It was actually all worthwhile to do these things. And really that's the mindset we've got to have as we're preparing for disruption. You have to start disrupting yourself now. The way to achieve this is to challenge yourself, to learn and grow. Pick something you want to develop, something that you're really passionate about, some knowledge you want to acquire, a skill you want to learn, or just listen to new ideas with an open mindset. Whatever it is - you've got complete flexibility to choose whatever your heart desires. Maybe it's a technical skill. Maybe you want to learn some data science with an online course, and that's fantastic. Or you could join a book club, develop empathy by understanding the characters and broadening your mind and having discussions with the people in that book club. No matter what it is that you choose to absorb, whatever content you want to learn from, you've got to think about it critically.

So if we continue that book club theme for a moment, do you agree with the ideas that are in that book? Can you understand the perspectives of the characters and where they're coming from? Even if you don't agree with what they've done or what they've said or the behaviours they've made, can you at least understand the rationale that they had in coming to those decisions? And of course being able to actually apply these concepts in practice. So if you get into an argument at work, can you take a step back from the heat of the moment, just chill out for a bit and reflect to understand: why did it happen? Can you put yourself in the shoes of the other person that you were talking to and imagine what were the actions that actually led to the actions that played out? What were they thinking and feeling? What was their intention?

So the more we learn, it helps us to recognize, the more that we don't know. And I think that's the key to wisdom, knowing what you don't know, so you can then find ways to better yourself.

JL: That's so powerful. And so some of those safe ways for us to step off the path, to think differently and to broaden out of our comfort zones and to do some of those things that you've described: learn something new, talk to new people, do something that's not part of your day-to-day job. Put up a bookshelf. I mean, how is your bookshelf now, Jon? Is it bolted to the wall?

JS: It looks pretty stable, I'm happy to say. We've filled it with all of the stuff that we need. Our bags, our bike helmets. So it's been fantastic.

JL: Very good. And no doubt all those books from book club as well. Excellent.

So, Jon, I'd like to finish the interview with one question and it's this:

What is your top tip for the aspiring actuary of the future?

JS: The question you've got to ask yourself is: "Will you commit to spending 30 minutes each day doing something new, exposing yourself to new ideas, trying something different?" And some of you are thinking, Whoa, whoa, whoa, hold on, Jon. 30 minutes. That's a lot of time. I'm very busy! I've got a 9-

to-5 job or maybe longer. I've got all this commute. I've got kids to look after, I've got activities and so on. And that's okay. That's fine. If 30 minutes is too much, then what about 20 minutes or 10 minutes or 5 minutes? What can you commit to? What is the smallest little chunk that you can commit to, to help better yourself every day?

Will you commit to 5 minutes every day learning something new? If you can do more, then that's even better, but start small. And don't feel bad, everyone has a day off, everyone gets sick or something goes wrong that is out of your control. And that's okay. It's completely fine. If you need to skip a day for whatever reason, don't beat yourself up over it.

But then the next day after that, get back on track. Keep pushing, keep growing. It's just like you said before, Julia, with the whole concept of compound interest, there's a bit of a meme online. If you improve yourself by 1% every day, you get 37.78 times at the end of it. And of course we as actuaries say, "Well, that's really obvious, you just use Taylor series approximation, you take 1 and add 0.01 365 times..." No, forget all of that! The point is these little incremental changes that grow day-by-day can help to transform you into a completely different person at the end of the week, the month, the year, the decade, your full lifetime ahead. And that's the opportunity that we have to grow into that actuary of the future.

JL: That's so exciting. Small, small changes, committing to small changes to prepare us to be actuaries of the future. Jon, thank you so much for your time and advice today. I'm sure your tips will be very useful for our listeners. Thank you, Jon.

JS: Thank you, Julia. Fantastic to chat.