SDS PODCAST EPISODE 933: FUTURE-PROOFING YOUR CAREER IN THE AI ERA, FEAT. SHEAMUS MCGOVERN

Jon:	00:00:00	Do you feel like AI is transforming your role so rapidly that you can't keep up, that you might even be replaced by a machine? Well, fear no more. In today's episode, we've got the solutions for you. Welcome to the Super Data Science Podcast. I'm your host, Jon Krohn. Today I'm joined by Sheamus McGovern, CEO of Open Data Science, the company behind the Open Data Science Conferences, ODSC, which are my absolute favorite conferences in our field. In today's episode, Sheamus provides his frameworks for rewiring your skillsets so that you thrive professionally in the AI era. Enjoy this episode of Super Data Science is made possible by AWS, Anthropic, Dell, Intel and Gurobi. Sheamus, welcome to the SuperDataScience Podcast. I'm delighted to have you on the show. Where are you calling in from?
Sheamus:	00:00:49	I'm calling in from Cambridge, Massachusetts, right across the street from MIT at the Cambridge Innovation Center. Actually.
Jon:	00:00:56	There you go. Nice plug. Is that a nice place to work?
Sheamus:	00:01:00	That's great. A lot of startups here. Good spot right in the heart of Kendall Square, so they call it the tech square, so it's a good spot.
Jon:	00:01:08	Nice. Well, so Sheamus, you are perhaps most famous. You've done a lot of entrepreneurial things in the data science space, but you're perhaps most famous as the creator of the Open Data Science Conference, ODSC. It's been around for 10 years, and I've known you from ODSC conferences since about 2018, 2019, whenever there was one ODSC, New York and I had the most amazing experience. It was really a life-changing experience to be able to have that because my book, I had just written my first book, deep Learning Illustrated, but it hadn't been

published yet. You invited me. You set aside the biggest room for me. I was sure it was a mistake, but somehow it wasn't to have a room at such a premier conference packed like that, it was seriously a life-changing experience for me that, yeah, near and dear to my heart.

Sheamus: 00:02:03 Yeah, so happy to hear you say that, John, because you've been such a great instructor and speaker at ODSC. So delighted to be in this show and to be a guest.

Jon: 00:02:13 And it's crazy actually with how long we've known each other and how many times we have crossed paths in person at ODSC East in Boston. I'm there pretty much every spring when you do those at ODSC West in San Francisco, when you do those pretty much every, I mean you do them every autumn, and I'm pretty much always there

Sheamus: 00:02:31 On Halloween. Yeah,

Jon: 00:02:33 On Halloween, yeah. You have a big party Halloween night. That's

Sheamus: 00:02:36 Right.

Jon: 00:02:37 People get dressed up and you always hand out a ton of drink tickets.

Sheamus: 00:02:41 That's right. Our favorite part, it's usually the last day usually falls on Halloween Eve, so it works quite nicely.

Jon: 00:02:47 Nice. And yeah, Sheamus, with the conference, having been around for 10 years, how did you first have the idea to create this conference? What's the origin story for it and how did it grow into the biggest, best data science conference in the world?

Sheamus: 00:03:05 Well, thank you first of all for the kind words, John. Couldn't have put it better myself. Yeah, a lot of things.

There's a bit of a convoluted path. I started my career in finance here in Boston, was working with a pretty cool company at the time, still around Fidelity investments. And I was actually kind of like you got a bit of a background in quantitative finance. So initially I was working on their trading floor, on their algo trading floor, and that was pretty fascinating to me. Not just using code, but also using algorithms to trade stocks and bonds and build risk management systems. And from there, I went on to work in the hedge fund industry. That was a lot of fun. We worked in Boston a little bit, New York, London. And from that, I decided to break out into startups because in hedge funds, we just started to use NLP there in right, 2009, 2010, and did a couple of startups that didn't do great, but I established a great team there.

00:04:07 And in that startup where we were modeling various financial assets, we were using NLP to scrape the news and interpret the news. And I put together a really small core team of engineers. I decided to start a consulting firm. And then the consulting firm was a lot of fun, worked for a lot more financial companies, healthcare, FinTech, advertising, you name it. And we started to do kind of data engineering where we build mobile apps, web apps. And as I was trying to figure out how do I incorporate data, more data, not just big data, but data and data science into an NLP, I started going into going through these things called meetups. So remember back in 2011 and 12, meetups were huge.

Jon: 00:04:54 They were the best.

Sheamus: 00:04:56 Yeah, they were the best. And it was such a phenomenal thing. You would go to conferences and you paid a lot of money and you'd hear basically a product pitch won't name those conferences. Now you go to a meetup and I'm like, this is the best talk I've ever heard. And not only did

I hear to talk for free, but I got a slice of pizza and a beer in my hand also. So I started a Boston data science meetup, and at the time it was a very collaborative scene. There was predictive analytics, Boston, Boston Data Science was us three or four at least three or four. And maybe if you total 'em all up with programming and big data, seven or eight meetups in Boston. And we're all having meetups and they're all packed every night. And from that grew out the Boston Data Festival, and our first ticket was 20 $20, I think this is back in 2013, $20.

00:05:49 It was only in the evening and weekends. And we did workshops, talks and everything. We had a Microsoft Nerd Center across the street here. We had a Cambridge Innovation center as well. And after a couple of years, because I was having my consulting firm and I was going gangbusters, and because this was volunteer only, it was kind of interfering with my day job, my revenue stream, so to speak. So I was like, okay, I'm not going to do this anymore. So I told everyone, sorry, Boston did a festival. It was up for grabs. Who wants to do it? And for the first time in my life, I got a flood of people telling me, please don't stop doing the Boston Data Festival. You got to do this. You got to turn this into a conference. So what we decided to do was, okay, lets hire some staff, hire some staff, book a big venue.

00:06:37 And John, people know me. I'm not an events person. We have no clue what we're doing because running a festival that runs at nights and weekends is nothing like a conference. So we booked the Boston Convention Center, which is not as big as the Jarvis Convention Center you have in New York. Pretty big venue. We charged $50 and I was still doing, running my consulting firm, and I had a few people helping me run it. I had one person for looking for speakers, one event manager and one marketing person. And I get that the venue and conference centers, a lot of things going on. And I see this line of people

around the street, and if you've ever been to that venue around the block, it's a very, very big block. And I didn't even think it was for ODSC, I thought there was another event going on there.

00:07:26 I get in and MAMUD was my partner and helping build ODSC at that time. I said, what's going on? He said, next time we're not charging $50 a ticket. I think we charged 50 bucks a ticket. No idea how much this place was going to cost us. That was back in April, 2015. And since then we've kind of stayed true to the mission. We've made it very practitioner focused, and we've always kind of stuck to our roots. We never wanted to be necessarily the biggest conference or even the best in air quotes because we know that means different things, different people.

00:08:09 The name kind of gives it away, right? ODSC or as we call it now, ODSC, ai. We can talk about that later. But the Open Data Science conference, because I was a firm believer in the time, it was the same aha moment as it was with my first meetup when we started running meetups. It was what I loved about data science was all you need to become a data scientist was take advantage of these open source tools, psychic learn pandas. We can list them all and have a little bit of will and knowledge to learn. And you can call yourself a data scientist and think about back in 2015, yeah, DJ Patel and Tom Davenport already said that did a science was the sexiest job of the 21st century, but it wasn't. I think it was in your neighborhood that Columbia University had the first master's in data science in 2015.

00:09:02 There was no data scientists. And even to this day, it's amazing when you talk to people who are data scientists and look at their background, I certainly wasn't a data scientist. I came from engineering and coding and as I told you, but people, there were history majors, they were economists, they were economists, they were

programmers, they were journalists, and they want to become data scientists. And it's been fascinating to see people come to our conference, attend, volunteer, then speak, and all of a sudden now they're writing books. They're head of director of AI at Uber and these large companies, Facebook, you name it. And it's been great to see the attendees journey. And I got to say, also, I got lucky with a great team. Everything else, you hired the right people. They're passionate about us. A lot of people, as you know at ODSC, they've been around a long time. People leave ODSC, they come back not talking about UL Varo. So yeah, it's been a heck of your journey, say the least.

Jon: 00:10:06 Yeah. And yeah, really thankful to you and the team for running this amazing conference. If people haven't been to ODSC, highly recommend checking it out. Sheamus, where else in the world do you run them? You run them in London, you run them in India?

Sheamus: 00:10:21 Yeah, we used to pre pandemic. We ran them in. My favorite was ODSC, Japan, Tokyo, I've never been to Tokyo. It's amazing. As San Juan in Brazil, wasn't it a great one? We did in the uk, Europe, but for the most part right now we're doing them in is San Francisco in the fall and Boston and the West Coast. And we're actually doing more virtual events now. We just had our AI builder summit in January. We did our Agent AI summit, which is also virtual in July. We'll be doing another little event back in New York. We might have to have you on that, John for a couple of days. That'll be hybrid. And we're also getting back into the meetups. So Meetup kind of took a long time to come back since COVID, but I got to say they're strongly back. So I was telling you before we started this conversation, I was doing a little speaking tour.

	00:11:20	I was in Chicago, I was in New York heading out to Seattle. I was in London. And so many people excited about ai. Some people not so excited, but I got a lot of feedback from that. So yeah, so we're retrenching to the US a little bit, doing more virtual, doing more meetup because there's so much in flux. And the reason we're doing a little more virtual, even though that's not in vogue for conference people anymore, it's like it's changing so fast. Think about that. Why would you do a conference in May and then do a energetic summit in July? And trust me, so much had changed in those two months. And because we're practitioner focused, we're not a hand wavy conference. We really thought that was important. And yeah, like I said, great team behind ODSC, but I got to say, throughout the years, we owe a debt of gratitude to instructors like you, speakers like you who give their time, write books, give training, and then of course the open source community. So that's what it's all about.
Jon:	00:12:23	Yeah. So let's talk about how ODSC has transformed over the 10 years that it's been around. One of those things is now literally in the name of the conference changing, and I think that's the first time in the 10 year history. So you had in this past Northern Hemisphere spring in Boston, we celebrated the 10th anniversary of ODSC, the Open Data Science conference, and now coming up, well from when this episode airs in just a couple of weeks, ODSC West in San Francisco, it's called ODSC AI. And that's the first time that the name has changed, right? In 10 years.
Sheamus:	00:13:01	First time, yeah. So ODSC, we got tired of calling it the Open Data Science conference. And not a lie, but about six or seven years ago, I wanted to shift it to AI because we've been doing a lot of AI over the years. So I wanted to call it the Open AI conference, but my trademark attorney said there's this little lab out on the west coast called Open ai. There might be a problem with that. So we finally settled on the Open Data Science and AI

conference in open AI for short. But yeah, I think back to those early days with a lot of fondness because they were he days because when you think back at 2015, what was going on there? It was almost a high pint of, it was like everything was so new, Uber, Airbnb, all these cool things were coming out.

00:13:56 And data science was right along that shift. People were talking about self-driving cars. That was going to become a reality. It's finally arrived. Now no one cares. But it was all about, I think deep learning. Machine learning was at its peak. NLP was hot data science. The tools then were 10 to flow from Google, fantastic job. But my all time favorite still is psychic Learn the team, their open source platform. And then Python came out and then later it was ML Flow and it was all about parameter tuning, building models and fine tuning your CNN's, your R Ns. And Brian Granger, one of my favorite all time ODSC keynotes when he, and I'm remiss, I can't remember the name of the other gentleman, came with Nicola Jupiter Labs. Jupiter Notebook, right? That was so exciting. But that was back in 20 15, 20 16. But you can kind of see the advancements in data science, machine learning and ai.

00:15:03 And we kind of moved along with it because big moments, I remember in deep learning where of course when Alpha Go came out in 2016, that's really when people woke up to the real potential of machine learning and deep learning. And I was actually in, so what I used to do was secret sauce here. So I guess it's 10 years. I can tell people how I did. I used to go to academic conferences a lot. So ICML, Europe's, was it a NIME conference or Kid Nuggets conference? Right. And I was in Europe's or NIPS was called in. I remember while Long Beach, California, 2017. And there was a presentation by a bunch of what I thought were at the time were kids from Google, attention is all you need. And NLP was my segue from finance into data science. And that was my focus area.

00:16:04 And I kind of got the why context was so important. And then they started calling that attention an attention mechanism. And when I went to that talk, it was way over my head. I didn't understand it, kind of ignored it and didn't understand the diagram of the architecture. But that's true for a lot of talks at these conferences I go to. But I think more important for ODSC and coolest to the Cool Team was about when Bert came out and everyone started talking about the transformer architecture, how we can transform the learning from one model into another. And that's when ODSC started to pick up more about transformer. And then do you remember back when GBD two came out and SAM of was like, it's too dangerous to release and didn't even have access to it. And I think the first access we had was, I believe it was 2020 right before COVID when GB three came out was paid only and Mid Journey and Dali and Dolly and gone were all the rage. And then of course G BD three had its breakout or iPhone moment. That was a huge deal. I remember that. Well, you do too. November, 2022, that was a massive deal.

Jon: 00:17:21 Chat GPT.

Sheamus: 00:17:22 Everybody started talking about AI and they never stopped. And if you think through that, the starting journey in 2015 was psychic learn, PyTorch Auto, Mel came to the scene, then JU Notebooks, there was a massive shift from your desktop, your works station onto the cloud. And then when chat BT came out, all of a sudden there was baby a GI age and a GI Lang Chain LAMA index crew ai. And it shifted less to being about building and fine tuning models. This whole notion of a pre-trained model was completely new. Getting a job as a data scientist used to be all about how well you could hyper parameter tune a model. Then it became all about fine tuning a pre-trained model and transformer model. So yeah, it's been quite a journey.

Jon: 00:18:21 And now today, I would welcome your rebuttal to the statement I'm about to make, but I would say that AI engineer, I mean this, it would be hard to rebut, but AI, because AI engineer I know is the fastest growing career in a lot of countries in the world, including in the United States. And that AI engineer job, it is really, it's like it's a subset of a data scientist. It's data scientists becomes so, so big that you would typically now specialize in a particular niche. And I think you could potentially categorize AI engineer as a subset under the umbrella of data scientists. And it's interesting that an AI engineer today might not even fine tune models at all. It's about plugging into APIs from proprietary providers like OpenAI that you mentioned there and kind of stitching workflows together using frameworks like Crew or the OpenAI agents, SDK, in order to be able to have more and more agentic, more autonomous capabilities with those proprietary LLM calls. I mean, it could end up being on local infrastructure. You could have an LLM running on your own. It could be custom tuned for some reason. But a lot of the job today is you're not necessarily going to need to do any model training at all.

Sheamus: 00:19:43 Absolutely. You might not have to do even any coding, which we can talk about that later. Yeah. But a hundred percent no, I do agree that I agree with that. It is interesting. We are kind of a data-centric organization, the two organizations I must mostly work with and we've been trying to gather job descriptions for over almost nine years now. And believe it or not, for you data sciences out there, don't worry, it's still, I dunno, it's just inertia, but it's still the most popular roll out there when you look at data sciences versus ML engineer or AI engineer. But I a hundred percent believe in that. But I believe now, not only in job roles and job titles, but also sets, I think I've met a lot of data scientists and ML engineers where whatever your organization, but machine learning

engineers especially part of their skillset now has become AI engineering for sure.

00:20:42 And same with a data scientists, but AI engineer as a discipline. Absolutely. And I think there's a lot more roles going to roll out of that because as I said that chip from find, sorry, hyper parameter building models from scratch and working high parameters, look at the machine learning workflow. So data sourcing, data orchestration, data profiling, then data transformation, feature selection, feature engineering, model selection, hyper parameter tuning model evaluation model deployments, monitoring, how much would AI that role has changed and how much that has shifted to large language models, fine tuning, maybe not tuning, maybe prompt tuning now program tuning and then using rag, using pipelines, orchestrating agents, worrying about evaluation, security, safety and safety and using AI assisted coding techniques and just evaluating the output from there. So yeah, so I do believe AI engineer is going to be a very hot role, but I am fairly of the camp that there's going to be a lot of roles going to roll out of that. There's so much there.

Jon: 00:22:00 Yeah, just like AI engineer rolled out of data scientists, no doubt as the tooling, it gets easier and easier to be doing these things. Like you said, you might not even need to code to be choosing what models you're using, deploying them into production environments increasingly can be done without code. And that opens up, it lowers the barrier to entry, it opens up who can be doing it. It makes it easier to get into and there's more tools, there's more APIs, there's more MCP opening up, more tools for agents to be able to call. It allows us, the ecosystem evolves and then you have these more and more and more specialized niches along the way. I think that's going to continue and continue.

Sheamus: 00:22:46 Yeah, I think my favorite niche skill, new job title is if you can be an AI evaluation engineer right now, people will throw money at you. Because think of again, that evolution of skills there large language models came out, only very, very few people had experienced training those models. And then thanks to Laura and other techniques, now we could fine tune those. And now newer techniques like reinforce fine tuning, but think about rag how RAG was supposed to be very simple, just get a bunch of embeddings put in your database. But now we've got graph rag and how complex that stack became. And then we had agents with a brain, with memory, with tool usage. Now you have MCP as you mentioned, and now you've got multi-agent orchestration. How do you evaluate all that stuff? It's such a hot topic amongst the companies I talk to that they're really very hot on evaluation. So just like software engineering Bert to sub roles like DevOps and QA engineers and QA scripting engineers, there is absolutely no doubt in my mind that it'll be new roles like AI evaluation engineer.

Jon: 00:24:07 Nice. Yeah, that's a great tip out there. And you mentioned earlier in this episode about how you've been doing this meetup tour across the United States. You mentioned Chicago, New York, and before we started recording, you mentioned to me that when you speak to people, a lot of these people you speak to are concerned about the pace of change due to AI advancements. And so you talked to me about this idea of rewiring professional skills. So what does this mean? How can people be coping with the pace of change that is coming about because of these rapid AI advancements and proliferations?

Sheamus: 00:24:45 Yeah, I got so many of those questions and it's almost like, and I've had to do this myself. You have to think have about it in two parts. One is you have to get comfortable with the speed of change. And I think most of my career I've been comfortable with that. That's one of

the reason I left very large companies and started my own startup. I want to do things quicker, faster. So it's not for everybody, but you do need to get comfortable with that speed of change. And there is actually an advantage there as well because it's been proven throughout time, you've seen this over decades and centuries that the pace of change always outruns most people's ability to exorbitant. And that of course leads to a lot of angst but also leads to opportunity. So if you are one of the people who learn how to deal with that, and what that means is you have to be comfortable with this continuous need to rewire.

00:25:55 And I think that's what people have to understand that the speed itself is the new challenge. And this is something I've been kind of studying a lot. There was a study, I might send it to you for the show notes, but I did read this study in AI exposed industries, and I'm not just talking about data science now, but AI exposed industries are jobs, rather the skills turn over something like 30 something percent. So more or less, I dunno if it's compounded or not, but more or less every three years, I don't quite believe it, but even low case, the skills requirements turn over and you can kind of see that people now have to learn prompt engineering, vibe, coding and that pace of change, it leaves a lot of gaps. Your company may be moving fast, you are moving slower, you are moving fast, the company's moving slower, the industry and stuff like that. And then I've listened to a lot of your podcast, John, of course, and you can see as well that compute is doubling every six months. That's having a big problem. And so getting comfortable with the pace of change is important because I started listening to this show last year about the history of the universe. It's my AI detox program, great show history of the universe, and it was,

Jon: 00:27:19 What's it called, the history of the universe is the name of the

Sheamus: 00:27:20 History of universe. It's on YouTube history of the universe. It's my AI detox, it's about astrophysics and astronomy and all that kind of stuff. But believe it or not, until about four or five years ago, I didn't know the universe was expanding. So I always think of AI skills like the universe, they never stop expanding. And just like the universe, we don't know what it's expanding into, what the universe is a bubble or there's multi bubbles and all that kind of stuff. But I'm going off on a tangent here. But anyway.

Jon: 00:27:45 No, that was a good analogy. I like that. I hope we turn what you just said into one of our animated shorts for this episode because that's a great visual. This idea of just like the universe expands skills are expanding the quantity of them like we talked about earlier, data science branching off into AI engineer and lots of other more specific paths. And now AI engineer will branch itself into lots of other sub careers. So yeah, I think you've nailed it with that analogy. Anyway, I've taken you off track now.

Sheamus: 00:28:23 Yeah, yeah. And look, I've been in the industry three decades in tech, right? FinTech, whatever, skills never go away. There's just more of them. And that's why it's just amazed me when people get so concerned, well, this is no longer be needed. They still need COBAL programmers. But anyway, back to the rewiring. So when I talk to people about rewiring, they're like, okay, well what does that mean in practice? And yeah, it's such an important thing. I kind of take an obvious, very optimistic, almost I would say hardcore view on that. I really think, and I'm doing this myself for myself, I think AI is moving from, we're moving away because back in 2015 we were using data science, machine learning, and even AI as a tool, right? It's moving away from AI being a tool to AI as being a collaborative partner. And I do think those collaboration skills you build now will help you over the next decade

because that kind of helps deal with can I build something now that can future proof?

00:29:35 So I say you want to wait or you want to build. That's not very, that's kind of important because when we look at ai, it's quite clear now it's either going to be AI is either going to automate or automate and both of those present opportunity. So I really think that when I talk to people about rewind their skills, first and foremost, stop worrying about your skills being replaced and start thinking big picture. Now, what's possible with ai? I remember you said this in one of your podcasts. You said something like With AI you can do work. Now that was previously impossible. That's absolutely true. I'm doing stuff that I would never have done without AI before and forget about the role of a data science or machine learning engineer for a second. I talked to a lot of startups in my other role, and also I saw it at ODC.

00:30:32 All of a sudden we had these people from sales and marketing showing up and they're all talking about agents, you want to learn about agents. If you think back maybe a startup yourself when sales was a decade ago, right? In sales was you basically had an account manager, an account executive. Now in sales you have a lead gen specialist, you have an SDR, you have an account executive, an account manager, different roles by the way. And you have a sales engineer, customer success person, a revenue officer. If you take ai, a lot of those roles can be rolled up. And AI can either augment or automate those and then think about that sales person, and let's say you were just doing SDR or you were just doing account management or you just doing sales engineering, you can now do a whole lot more, but you're going to have to rewire your skills because of ai.

00:31:23 And that's, and again, I've been studying this a lot and the more questions I get about it, the more it's kind of a

continuous loop, the more I kind of study it. And as you know, we have our own podcast, which we need to have you on or back on. And we had, was it Robert Brennan, sorry if I'm mispronouncing his name, but he's the CEO of Open Hands, which was an open source version of Open Devon, which allows you to automate your work. And I asked him the question, shouldn't people be worried about this replacing their jobs? He's like, look, Sheamus, most work today is drudge work. And I really started to research that he's right. If you think about the average person in office, they're looking at emails, they're doing admin, it's mostly drudge work. And this whole productivity paradox and automation product paradox, even though we've got productivity with automation, problem with the automation paradox is automation still needs oversight, it still needs judgment. So yeah, I think the new roles are going to be, as I said before, you rewire your skills. Going back to data science and ai, less about building models from scratch, more about designing workflows, managing supervision, evaluation and less to be builders and more orchestrators are less to be building from scratch and more orchestration.

Jon: 00:33:01 I like that. And that does indeed, you're going to love Sadie St. Lawrence's first book when it comes out. It's got AI orchestration right there in the title.

Sheamus: 00:33:11 Oh wow.

Jon: 00:33:11 Yeah, yeah, exactly.

Sheamus: 00:33:12 Sadie has, she always has great content.

Jon: 00:33:15 She does. I don't know how she does it all. She's unbelievable. So that's great. I love all the perspective that you've provided on what we can be doing as practitioners in terms of rewiring our skillsets and making use of this AI moment, this automation

augmentation moment that AI is providing and using that to make ourselves more valuable, get rid of some of the drudgery of the work that we might be doing. What about the other side of the coin hiring? So I think there's probably been a shift a bit recently from degree based hiring more to capability based hiring and AI related roles. Do you want to make some input on that? And then just tell us what you're seeing from a hiring manager's perspective. What should they be doing in this moment to make the most of it?

Sheamus: 00:34:12 Yeah, I think I want to choose my words carefully here because look, going back to the founding of what you see, as I said at the very start, I always believe that anyone could be a data scientist with the tools, the code, the will. As I said before, even to this day, we look at the profiles of people showing up at the conferences. I go to other conferences and I ask, what's your background in? I have people on my show. I ask them, how do you get started in data science? How many people tell me they started as a data sciences or an engineer, very very few, or ai, PhD in data science or something like that. So I've always believed in the skills-based hiring right out of the bat. And you've also seen a shift, and this predates large language models and the AI moment, if we can call it that. I remember a couple of years ago, I couldn't find my degree from Northeastern. When I went for my job at Fidelity, I was freaking out and I finally had to go and get it. I was very nervous there, but I was happy to see that Fidelity finally stopped requiring, I think it was a good few years ago, four or five years ago, stopped requiring a degree and IBM and Google and even met, I think have gone to do that. So

Jon: 00:35:28 Are you saying in that story there that, so you lost your diploma and so you had to reorder a diploma and then you had to bring the diploma to your interview?

Sheamus:	00:35:40	No, no, no. So even funnier. So just a little background, I am from Ireland originally wanted to electric engineering and wanted to work on better computers. Ireland at the time didn't have very good one. So I went to Northeastern here in Boston, very good engineering school. And I went there and my last class was in April. And back then in the early nineties, you didn't get a year visa to work around. So I actually, because I was pretty much broke after school, I went back to London to work in London and I never went to my graduation in Northeastern. So I never actually got my diploma and they weren't going to mail it to you. So I'm in London, I'm working away, I'm applying for grad school, and lo behold, I got a green card in the mail. I won't bore you with the details.
	00:36:27	I came back here and then someone reached out to me from Fidelity and you want to come work here? I passed the interview process and everything. It's like, and then right before I was supposed to start my job, they were like, oh yeah, one small thing you said you a degree, we need to see that degree. And that was back in the days before you got to look it up. And I was like, what degree? Yeah, I got a degree. You just call Nor I'm like, no, they won't let us into their records. So I had to go down to Northeastern. I will be honest, I had a little bill outstanding, a couple of grand I had to pay as well. Maybe you should add down.
Jon:	00:37:02	No, that's not, that's so funny. Am I
Sheamus:	00:37:06	Going red John? Am I blushing?
Jon:	00:37:09	I was wondering if you were sunburnt before now. Definitely.
Sheamus:	00:37:12	Yeah. So anyway, so back on track to the credentials. I learned so much from my podcast as well, and from speakers at ODSC instructors like yourself. We had

Daniel Rock and Sam Manning on and dated some great papers about when people talk about AI exposed jobs, I take that with a little bit of a grain of salt because I look at the jobs and they broke down the tasks and see what tasks are very repeatable. And a lot of experts talk about this credential collapse saying that AI exposed or AI augmented jobs, if you're good at ai, you no longer need credentials. And look, the way I look at it is because actually in my work for a VC firm, I'm not.

Jon: 00:38:00 Yeah, let's talk about that really quickly just so that people have the context because in addition to ODSC, all the work you do with the Open Data Science conference, you're the founder of Cortical Ventures, is that right?

Sheamus: 00:38:11 No, absolutely not.

00:38:14 They found me, I was on the founding team I guess I would say, but I would say Jeremy Rson from DataRobot Fame and Eager Tober, he was at Intel and their startup team there two pretty big deals when they were thinking of starting a VC firm to reach out to me. So I wouldn't say I am a founder per se. I'm a venture partner, which is a fancy way of saying, so I do help find deals. So if you've got a startup ID there, shameless help plug, send me your deck, would love to see it. Connect me on LinkedIn. But what really got me involved is they promised me this role of of ai. So I have a small AI team there. So this allows me to build out ai. So I've been drinking the Kool-Aid, Kool-Aid, eating the dog food. So we started about almost four years ago, and we said when we started Cortical Ventures, we will use AI to find the next generation of and support next generation of founders.

00:39:13 So we've been using tools everywhere from like using some of the signals I used to use in the hedge fund world signals. Then we were using agents, now we're using agent workflows. But even in cortical, when we look at

startups, look at founders, the degrees still matter. But what's shifted now, it's like, it's like it's one signal only. You know what I mean? And you asked about what employers, what are they looking for? But even on the people looking for job side, what they should be looking at, it's like they want to see your skills, but they also want to see proof, right? And John, you and I have been preaching this for years. What's on your GitHub? What's on your LinkedIn? Are you posting about stuff? If you learn something, write a blog about it. Are you speaking at a meetup? Are you volunteering at events?

00:39:59 So you want build a project portfolio and show proof of skills and to hiring managers who are new to this. Yeah, degrees still matter, I think. But look for people, what they're doing in the community, how they're contributing, where they're contributing, look for portfolios and look for excitement. Look for people who are, excuse me, eager to learn, who are coachable, flexible, because that's what it is. Because when the whole industry is in flux, when you got to rewire your skills, you have to maintain flexibility and you got to be very coachable. And look at this crazy talent board that's going on between open AI and meta, a hundred million dollar bonuses and offers. And one thing as well, I say to people, going back to the speed of change, just get used to the fact that AI roles and the required skills will always emerge much faster than traditional degree programs. And I think this recognition of skills is long overdue. And to be quite blunt, I think universities are doing graduates a disservice in how they train computer science and data science degrees at the moment. Yeah,

Jon: 00:41:22 Yeah. I was recently reading that. So Noam Brown, who's now a pretty well-known researcher at OpenAI, and he was on this podcast some years ago, Noam wrote recently on LinkedIn about how a lot of university AI programs introduction to ai, it has nothing to do with the kinds of

skills. It has nothing to do with large language models, transformers, it's about decades old ideas around hill climbing strategies, things that are completely out of date, but that the curriculum moves so much slower than universities can adapt. And yeah, I mean I don't have my own kids yet, and so it'll be a while before I get the kids that I do have are thinking about going to college. But I could easily imagine, even if I had kids of college going age today, I'd be saying think about whether all that investment, especially in the us, it's so expensive in a lot of cases, a lot of the rest of the world isn't all kinds of social things that I think are great about university, but in terms of employable skillset, it isn't necessarily the best use of capital.

Sheamus: 00:42:41 Yeah, a hundred percent agree. Yeah, I really agree there because I don't want to be hypocritical. My son is actually going to college and I think it's a great experience and I understand, I know why universities are in a bind. You got to teach the fundamentals. You can't be teaching the latest, hottest thing and there's another late hottest thing. So you have to teach the foundations. When I was doing computer science, I learned about databases and operating systems and some of that stuff is still true. But look, the way the universities are teaching it right now, when chat came out, they banned it instead of trying to control it and have people help them learn with it, they banned it as I also teach a bootcamp. We have a bootcamp with ODSC to try and get people ready for the fire hose of learning they're going to experience at ODSC West.

00:43:29 So we run a bootcamp every year or before every conference. And I've moved towards incorporating AI into my learning and just telling them, we did a podcast with Natalia from MIT Media lab here in Natalia, I won't say her last name because of the budget, but she wrote the viral paper. She was one of the core orders of your brain

and chatt bt. So if you're using chatt BT all the time using LLMs to do your work, you're going to lose your skillset, right? Part of rewinding your skillset is not to be overusing chat bt, but universities need to get on board with letting students use AI tools, be comfortable with them because look, it's a complete disservice. I'm sure you've read the report where computer science graduates employment rate is way up, right? More so than the norm. I think it's something like seven or 8% versus the other one is three or 4%

Jon: 00:44:22 Computer science grads unemployment rates are way up.

Sheamus: 00:44:25 Unemployment rates are way up. Yeah. Now I read report a month ago, but everything people are sticking an AI label on and blaming the AI first. I think that may have a lot to do with, because look, most of the computer science hiring in the US is big tech hiring. So it all depends on what Apple meta Google on the fielders I'm forgetting are hiring. So I think it's a bit to do with that because there's other trends that support that. So everyone's saying that they're blaming the fact that they're not trained in ai, further unemployment rate. And also the fact that these folks don't have AI skills. They have skills that are easily replaceable with ai. The junior skills are easily replaced with ai. And I think universities need to pay attention to that because I'm mid-level career now, mid-level management I suppose. So I'm not trying to this anyone and scare anybody, but if I was at a company, I would much rather hire a young junior computer science graduate who was excited about ai, ready to learn, constantly rewire their skills.

00:45:41 Then someone's like, eh, yeah, vibe coding is just a trend. It'll go away. I don't need to learn this stuff or I'll use it a little bit. So I think there's a lot of work universities need to do there and I think they'll catch up. I think they'll cop on. I know Northeastern here is doing a good job on that,

bu I talked to some folks there bc. So universities know this, they're just trying to figure it out. But yeah, so I think the shift to skills-based hiring is real and yeah, I think is real.

Jon: 00:46:23 Alright, so we've talked now a lot about individual skills. What about teams? So what do you see in your role? What's the title there again? Venture partner. Venture partner at Cortical Ventures, at the VC firm. What do you see in successful as startups? How do they get their teams skillset right?

Sheamus: 00:46:42 Yeah, I didn't mention before, but I'm really grateful for Jeremy and Igor and Mike and give me a window into this world. And it's a fascinating world, quite a fascinating world, and it's a very privileged position because I'm definitely not on all of the calls because my other work and my other roles. But I do have a lot of conversations with some extremely bright, fascinating people building some amazing, amazing things. And I wish cortical could have funded them all, but the power law in VC is very strong. So don't hold me to that. Not all my decision. So that caveat. Yeah, so there's whole, come on. Everything starts in the valley and kind of spreads out. There's this whole, let me roll back here. Startups are an interesting beast for people who have never been involved in 'em, but they're like time machines. So an AI startup is like a time machines, an AI startup is like a time machine.

00:47:53 The skills that they're betting on today that often becomes the industry standard tomorrow. And we've seen this time and time and time again, we just talked about skills base. I've never met a startup. They don't look at static resumes. They always want to hire people who are flexible, who can rewire their skills almost in real time. Flexible can have multiple roles, and they're coachable. And that's been around for a while. And now because of ai, the new thing they're doing is this concept of tiny

teams. And tiny teams is a fascinating concept. And the idea here is you build a small, flexible, highly capable team and you want to emphasize this hybrid skillset and this deep collaboration. And the reason you can do that is AI is either going to augment or automate a lot of the routine, not only the routine tasks, but a lot of the expert tasks.

00:49:04 So you do a startup, used to have to hire legal counsel, you do all your whatever now you just use chat or legal platform. You can use AI assisted coding, you can build your MVP, the front end demo used to go and bring to VCs. You can really literally build that in the day thanks to rep lit and lovable and all that stuff. So what you end up seeing is founders prioritize quality hires over quality hires with domain expertise, hybrid roles. And another thing they're doing, which I don't think is healthy, is they're really focusing on revenue per employee. I'm not sure if it's relevant to this discussion, but you see startups, I think I told you earlier, I think the number's, right? Lovable, the AI is a coding platform, 10 million in revenue in two months with about 15 employees. And I think a better one is not as impressive, but cursor, no wait cursor went to a hundred million with 45 people, I dunno what the timeline was, but a hundred million in revenue and all it was, I shouldn't be dismissive, but it's basically a wrapper around an LLM.

00:50:23 But to their credit, they've done some amazing work training that. So the thing what you see in startups here that's relevant to our conversation is they really work a lot to build out the AI tooling. It's kind of like when I said we started cortical, that's why I was brought onto cortical for was can we use AI to build an AI VC firm? And this is why I pay so much attention this, this is what we're trying to do in the team at cortical, like using AI tooling that augments or automate a way. And many of those drudge tasks we talked about and before really required a lot of

efforts. And I do think startups, as I mentioned before, are kind of a window into the future of work. Yeah. So very interesting. Yeah. Did that kind of answer your question? Tiny

Jon: 00:51:17 Team? It did shame us. Yeah, tiny team. Sorry,

Sheamus: 00:51:19 Sometimes I speak for so long, I kind of lose the start.

Jon: 00:51:25 You have a unique way of speaking. You did bring it back, you have brought it back on every question, but you have such extensive knowledge and we have this journey hopping with you away from my question and then back. My apologies. My apologies. No, it's

Sheamus: 00:51:44 All great. She be a politician.

Jon: 00:51:47 Yeah. So going beyond, so we've talked a lot in this episode about the skills and how they're changing, how they've changed over the past 10 years. So going back to the beginning of the episode, we talked about the Open Data Science conference, how you founded it, and we kind of followed this journey of how the data science and then AI skillset changed over those 10 years. We've now spent a lot of the episode, the past half hour or so talking about rewiring professional skills, the kinds of things that people should be looking for when hiring the kinds of teams that people should be putting together by combining all these skills together. And then most recently, how to make a successful AI startup, the kinds of people that are employed in those organizations, the kinds of skill sets that are involved. And so now I want to take a look to the future.

00:52:36 And so there's a lot of concern amongst developers themselves, anybody who's writing code, anybody in data science, anybody working on ai, that AI itself could put us all out of a job that artificial general intelligence or

artificial super intelligence could make a lot of human work obsolete. And I think there's maybe when people think about that as a concern, things that involve physical manipulation of the world, I think people might feel like that's a little bit safer for a little bit longer because robotics is hard and it takes time to be able to physically manipulate the real world. So all kinds of things like physical therapist, massage therapist, construction work, there's all these kinds of jobs that seem relatively safe because they involve physical manipulation of the world. But if you are in a purely cognitive kind of role, which I think up until the past few years, it kind of felt like that's where you were safer. Really go to university, get that graduate degree, really develop your specialization because the machines, they're good at the physical stuff, they're getting better at the physical stuff, got robots and factories, but cognitive work that's safe. And now all of a sudden since the chat GPT moment that we talked about earlier in this episode, you're like, wow, machines are carving out more and more and more of a broader cut out of the possible cognitive tasks that we can do doing it at a superhuman capability. And how much does that concern you?

00:54:26 How fearful are you of the cognitive ability of machines and how people, is there any way that we can prepare as individuals or organizations for that kind of future?

Sheamus: 00:54:47 Again, through my role at cortical and most definitely my role at ODSC and then for going to these meetups and talking to people, I do think about this to the best of my ability. So there's a lot of being spilled on this, a lot of smart people talking about this. But also, I got to say a lot of nonsense as well. And maybe I'm speaking nonsense as well, so I don't mean to speak ill of anybody, but when I do go to meetups and conferences and people are generally concerned, it makes me a little bit pissed off to say the least, because there's so much angst out there

and a lot of click bait bait headlines. So part of my role, your role is to educate people in data science, and this is why people should listen to this podcast. So yeah, preparing for the future, I try and figure that out myself because how do you deal with anxiety?

00:55:48 How do you deal with worry? Most things? It's a big problem. You break it down into smaller problems. And I do believe, without having to repeat myself in the stuff we already talked about, I do believe there is a new kind of skills hierarchy out there, whether you're in an AI data science role or a non-technical role. I do think that's important. And I don't know, I'm trying to flesh this out in my head because people ask me this all the time and I want to have a better answer, but I, number one from the teaching I've done myself is think about the first step in the hierarchy or whatever that is. Look at this stage, Chachi bt basic prompting using gen ai, it's all table stakes. That's the price of entry. Everyone should be doing that. And with each of these tiers, you can kind of look at a base tier and then how do you do more of an expert tier? So for those in the role, we should think of the expert tier as well. So beyond doing that, and this is why I loved listening to your podcast with Kirill, the former host of the SuperDataScience podcast, when he explained LMS to me, I finally got it. And then I was finally able to teach other people. I forget what podcast episode that was, but that was one of my,

Jon: 00:57:20 Yeah, so you're talking about the Transformers episode that he did? Yes. Fantastic. Yeah, you keep talking, I'll find the episode number. That is one of our most popular episodes of all

Sheamus: 00:57:29 Time. But yeah, so in that tier one table stakes or basic prompting, stuff like that, becoming more expert will be understanding M'S limitations, understanding the architecture, hallucination bias, understanding garbage

in, garbage out, data centric ai, data hygiene, cloud basics, and of course AI awareness. And then the next step up from that, if you want to be an engineer and stuff like that in future proof, it's all about keeping current with the tools that are out there, keeping currenting with what's going on with open AI and Tropic Gemini, Google building those systems, prompt engineering and take for example, prompt engineering. That's the second level. I actually teach a class on that as well. But now we've got prompt programming, which is and prompt templates, which is a part of that as well. And that next tier is about learning to customize model workflows and definitely starting to work with domains and of course efficient engineering.

00:58:31 So that's very important. But like Sadie, I think the next tier after that, because kind of going on levels here, the next tier after that is definitely orchestration. So I can't wait to read her book because it's always been over decades, like new skills, new tools. It's always about, as you said, at the very start, connecting those tools, wrapping them, integrating 'em into product workflow, putting them into production, and then managing latency and cost that the paradox we talked about earlier, not the productivity one, but anyway, I'll come back to it. But so when new things come out, I think it's called the automation paradox. Whenever something is automated, it's never in the ether. There still has to be oversight and judgment applied to that. So orchestration integration is very important. And then the expert level of that is these multi-agent systems, tool chains, pipelining, and then continuous learning. And then after that, it comes into management. And I'm a big believer in this.

00:59:44 You really need to focus on those human-centered skills when you're not stuck coding all day are AI is augmenting or automation, all your work, that communication, that collaboration being adaptable, domain knowledge,

whereas FinTech, healthcare, finance, startups, health law becomes so important. And then building leadership around that. What's your AI strategy? What's your AI strategy? Understanding ethical judgment, what to do there, safety, auditing, compliance. I know a lot of people now going for AI risk compliance certificates, which I think is quite smart. And then I think the last thing to really future proof is you got to learn to learn. You got to stay very curious about this stuff. Stay in the slipstream. You got to get comfortable navigating ambiguity. And I think a big part of that, if want to become expert at is developing foresight is really important in this field Now, anticipating what AI will enable, what are the next requirements going to be system thinking, creativity and understanding those responsibilities.

01:01:02 Because to be honest, it's not that hard. That's what I've been doing most of my career. That's why I kept on shifting. That's why I got into data science earlier and that's why I got into AI early. That's what I got into VC because I want to kind of have a window into what's next. And I got to say as well, even when I started ODSC and they meet us back in 2013 and ODC in 2015, it's all about building a brand long. Gone are the days when you depend on one employer. John, I got to say, you were the master building a brand, right? People can take a lesson out of your book, build your own brand, do your work, write, blog, post, learn, be curious skills. Right now they, they've got a shelf life or a half-life of much less than what they were.

01:01:54 I spent decades honing my coding skills since it's like loss aversion, right? You don't let go of those skills, but you got to sunset some skills and now I focus on being the breast prompt engineer. I can be, unless about coding and when I teach my machine learning class and my coding class, I teach 'em the fundamentals of it, but I'm now like, okay, now it's going to be about how to prompt

this. So yeah, you got to sunset it because there's only so much time in the day. So you got to sunset some skills and you have to be comfortable with learning new skills

Jon: 01:02:33 Continuously. Nice. Well that's a great message to finish off on here. Sheamus, before I let you go though, I need a book recommendation from you as you know.

Sheamus: 01:02:41 Yes, I do. I listened to your podcast, so I'm going to do a couple of book recommendations. Is that allowed? I'll allow it. I'll allow it. Or you can always edit out the second one, but

Jon: 01:02:53 No, no, you can have too.

Sheamus: 01:02:55 The one I've been preaching to the choir when I talk to people is most of my answers is going to be long. I'm going to try and keep it short, but most of my answers, so think about the models. When they first came out, there was one type of model and then the reasoning models when I came out last year were a very big deal and an instant model like system one thinking, system two thinking. Well, a book I read about many years ago, it was very influential to me how I started to think about data science and then machine learning and then AI has never let me down. And that's Daniel Conman thinking Fast and Slow. Have you ever read it?

Jon: 01:03:36 I knew it. Yeah. I love thinking fast and slow. I've talked about it on the show a lot and usually in the exact same context that you just brought it up, which is this idea of system one thinking being your fully automatic, fast thinking, and that is like what GPT-3 0.5 was like, or GT four where you get the, it's like stream of consciousness just being spit out in real time. Like the words coming out of my mouth right now, the tokens that I'm spewing. Whereas thinking slow is careful, logical thought breaking things down step by step, maybe getting out a pencil, a

		whiteboard marker, and that's what we now see with reasoning models.
Sheamus:	01:04:18	Yeah. Another one, because I interviewed him from my, he was a guest in our show and that was, you'd think I'd be able to pronounce the name correctly, Arvin Nan, and he wrote the book AI Snake Oil, so a good book to read and not necessarily a skeptic around a GI and stuff like that. And then you asked me about a GI, and I think I never answered it, but I dunno, I think we will get the AI eventually, but not in the timelines people are talking about and calling what we have today. A GI is like calling a skateboard, a self-driving car because it has wheels. I think I heard that somewhere kind of funny. So AI snake Oh is a good book. And then for my a i detox, as I said, history of the universe, great series. And then one of my favorite all time books is now Netflix series, but the three Body Problem and then I think, what was it, the Dark Forest and I forget the name of the third, but there's my recommendations.
Jon:	01:05:29	Yeah, third body problem. That's got to be one. I've got to read that. I've been looking for a good novel to pick up and lots of people have recommended that
Sheamus:	01:05:38	Its
Jon:	01:05:38	Time. Yeah. Then AI Stink, you mentioned that at ODSC East to me in person. He's someone I've got to get on the show. I just haven
Sheamus:	01:05:46	Haven't
Jon:	01:05:46	Had space, but I'd love to get a
Sheamus:	01:05:48	Mark vin's. Great.

Jon:	01:05:49	Then I did look up while you were speaking that episode, that introduction to LLMs and Transformers episode that we did with Lara Manko. How could I forget? It's episode 7 4 7.
Sheamus:	01:06:00	That's right. 7, 4, 7.
Jon:	01:06:02	Exactly, exactly. It's flying. Alright, Sheamus, for people who want to get more of your brilliant thoughts, obviously they can make their way to ODSC West at the end of October, basically every year. Halloween time this year. It is the exact dates. You must have
Sheamus:	01:06:23	The 28th to 30th.
Jon:	01:06:25	28th to 30th.
Sheamus:	01:06:26	There you go. That my brain. Yeah, yeah, yeah.
Jon:	01:06:27	And yeah, so catch you at ODSC West or if you're on the East coast, ODSC east in the spring, I'll probably see you there at either of these
Sheamus:	01:06:37	Conferences. I definitely want to see you there, John, and
Jon:	01:06:40	Yeah, yeah,
Sheamus:	01:06:42	Yeah, for sure.
Jon:	01:06:43	Beyond the conferences, where else should people catch you? How can people follow you after the episode? Shamus?
Sheamus:	01:06:48	Yeah, I love this podcast, but if they want to listen to another Tega room, our podcast is where I speak my mind and they're definitely not brilliant thoughts as you well know listener from listening to me for the last however many minutes it was. But I do my best. I do post on LinkedIn and yeah, but please come meet me at a

meetup near you or come to ODSC West and come to ODSC East. I don't have all the answers, but I love hearing the questions.

Jon: 01:07:22 Nice. Love it. Sheamus, such a treat to have you on the show. My apologies that it took so long to get you on and hopefully it won't be too long before you're back, but the twist is going to be that in two years when you're back a GI is going to be hosting my show. You're so welcome to be a guest.

Sheamus: 01:07:40 I don't believe it. I'll make a bet on that. I

Jon: 01:07:45 Just, that's satire.

Sheamus: 01:07:46 I don't put money in that. Yeah, I did make a few bets on that already with people. But John, look, this has been an amazing experience. First of all, super data sciences. I always tell people this is the podcast people have to listen to. I've learned true so much from it over the years and I've learned so much from your talks, the talk you gave at Ed Donner at ODSC West, it's on YouTube. Love that. And so many people have said to me that have listened to it on YouTube and loved, loved, loved it. And yeah, again, to people like yourself who come to ODSC, our instructors, we owe you a debt of gratitude and can't thank you enough. And I should not be on this podcast because I love all the guests you have, so I'd much rather hear from all the other brilliant people you keep on having on there.

Jon: 01:08:37 Thanks for mentioning that AG agentic AI engineering YouTube video that Ed Donner and I did, that's recorded at the Open Data Science conference. And for people out there who have listened to that or have watched that YouTube video, it's this very Sheamus on this podcast today that introduces, that introduces me and kicks off that video. So thanks for the enthusiasm there, Sheamus, always. Yeah. Catch you at ODSC soon.

Sheamus:	01:09:00	Catch you at ODSC, John. We'll see you there.
Jon:	01:09:05	So happy to finally have had Sheamus McGovern on the show. In today's episode, he covered the genesis story of my favorite data science conference, ODSC, which he founded and is now in its 10th year. How skillsets in our industry have shifted over that decade, how AI engineer roles have emerged as the fastest growing career, focusing more on workflow design and a I integration than building models from scratch, how Sheamus recommends rewiring skills as the pace of technological change outstrips people's ability to absorb it. The tiny teams phenomenon in AI startups and practical strategies for future-proofing careers through continuous learning, building personal brands, and developing orchestration skills over pure technical coding. As always, you can get all those show notes, including the transcript for this episode, the video recording, any materials mentioned on the show, the URLs for Sheamus social media profiles, as well as my own@superdatascience.com slash 9 3 3.
	01:10:03	Thanks of course, to everyone on the SuperDataScience podcast team are podcast manager, Sonja Brajovic, media editor, Mario Pombo, partnerships manager, Natalie Ziajski, researcher Serg Masís, writer Dr. Zara Karschay, and our founder Kirill Eremenko.Thanks to that whole team for producing another awesome episode for us today for enabling that super team to create this free podcast for you. We are so grateful to our sponsors. They literally keep the show going, and then you can help us out by checking out our sponsors links, which are in the show notes. And if you're ever interested in sponsoring an episode yourself, you can find out how at jonkrohn.com/podcast. Otherwise, share, review, subscribe, edit videos into shorts to your heart's content. But most importantly, just keep on tuning in. I'm so grateful to have you listening and I hope I can continue to make episodes you love for years and years to come. Until

next time, keep on rocking it out there and I'm looking forward to enjoying another round of the Super DataSciencePodcast with you very soon.