

SDS PODCAST

EPISODE 823:

VIRTUAL HUMANS

AND AI CLONES,

WITH NATALIE

MONBIOT



- Jon Krohn: 00:00:00 This is episode number 823 with Natalie Monbiot, Head of Strategy at Hour One. Today's episode is brought to you by epic LinkedIn Learning instructor Keith McCormick, by Gurobi, the decision intelligence leader and by ODSC, the Open Data Science Conference.
- 00:00:22 Welcome to the Super Data Science Podcast, the most listened to podcast in the data science industry. Each week we bring you inspiring people and ideas to help you build a successful career in data science. I'm your host, Jon Krohn. Thanks for joining me today. And now let's make the complex simple.
- 00:00:53 Welcome back to the Super Data Science Podcast. Today, we've got the clever and astoundingly well-spoken Natalie Monbiot on the show. Natalie is head of strategy and a founding team member of Hour One, a leader in virtual human video generation that has raised \$20 million in venture capital. Through her own consultancy, EKLEKTIK, she also advises virtual human and AI clone companies. She regularly speaks at the world's largest conferences, including Web Summit and SXSW. She holds a master's in modern languages and literature from the University of Oxford. Today's episode should be fascinating to literally anyone. In it, Natalie details what virtual humans are, how virtual humans will buy us time and unleash a virtual human economy, the ethical quandaries and challenges associated with creating such virtual twins and what distinguishes virtual humans from deep fakes. All right, you ready for this fascinating episode? Let's go.
- 00:01:56 Natalie, welcome to the Super Data Science Podcast. It's awesome to have you here. We're together in New York and we're doing something that we haven't done before, but listeners, I hope you're going to be able to get used to. We are recording at NeueHouse, which has a beautiful podcast studio. So we've got outstanding mics, we've got



tons of cameras, we've got professional support. And so yeah, this could be for my in-person episodes, kind of the new quality that we have. So welcome to the show, Natalie.

Natalie Monbiot: 00:02:28 Thanks so much, Jon. Fantastic to be here.

Jon Krohn: 00:02:30 And you live in New York?

Natalie Monbiot: 00:02:31 I do, yes. I'm realizing this more and more and the benefits of living in New York, like hosting events and meeting people like you at NeueHouse.

Jon Krohn: 00:02:39 And so we actually, we met at NeueHouse itself last week at an event called Virtual Beings, and it was run by a group called Artist and the Machine that is lead by Dani Van de Sande, whom you had not met in person until this event, but you two co-hosted the event and it was great. It was a short conference. It was in the evening, but it was a few hours. There were several talks. Three, if I recall correctly, there was a talk that you hosted, there was a panel, and then there was a short kind of applied talk about a startup in this space and all of it related to the topic of this episode as well, to your forte, to virtual beings.

Natalie Monbiot: 00:03:18 Exactly that. So even though I'd only met Dani virtually and then only met her prior to the event and then met her in person, she actually conformed to my expectations of how tall she should be, which it's a fun game when you've only met people on Zoom and then you meet them in person and their proportions are just not what you thought. But she did conform to my expectations of her proportions, which was nice. And anyway, it was interesting because I feel like these days, well, up until now, felt like I'm hitting a turning point here. Up until now it's been, since COVID, about 90% virtual in terms of conversations and just lots of things outside of my

personal life and 10% in person. But I feel like as of last week, that switch will be flipped and it will be the reverse. And this is part of that manifestation, this in-person podcast interview.

- Jon Krohn: 00:04:10 Yeah, it's great. I love doing them in person too. I think that there's so much more rapport and you're really sort of there present with the guest, which is interesting given that the whole topic of this episode is virtual beings. And so even when you say you'd only met Dani virtually, the immediate funny thought that came to my head is I'm like, "Well, were you there?" And what does that even mean there? Because you could theoretically, and this is kind of where we're getting into this episode, a virtual version of Natalie, of yourself, could meet a virtual Dani and they could kind of figure out for themselves that, "Oh, this is a real world connection that needs to happen." Our human counterparts, what do you call that in a virtual being setting?
- Natalie Monbiot: 00:04:56 Biological counterparts.
- Jon Krohn: 00:04:57 Our biological counterparts are fleshy.
- Natalie Monbiot: 00:05:01 They can meet too. They have a role. Yeah. No, but actually it's a really interesting point and it is something that we got into in my conversation with the futurist who I interviewed, Jamie Metzl, where we were talking about his virtual self, which we cloned through Hour One, we created through Hour One and had him speaking Korean, which he showed on stage, and he speaks Arabic and Japanese and every language under the sun that Jamie doesn't speak in real life. But we were observing how when we look at our digital doppelgangers convincingly doing things that we can't necessarily do in real life biologically, it's very easy to just kind of assume, "Well, now I do speak those languages."

- Jon Krohn: 00:05:44 Yeah, I've read in your newsletter that now you assume you speak Mandarin because you've seen yourself speak Mandarin.
- Natalie Monbiot: 00:05:48 Right, exactly. And to be honest, we've sort of been adapting according to science, according to technology for millennia. So in that sense it's not really so surprising. And actually Jamie offered a really interesting umbrella term, which is that why don't we just think of it all as reality. And with under the umbrella of reality, you have virtual, you have in-person, you have all of these different types of experience. But I would argue as well, if you've experienced it, it's real.
- Jon Krohn: 00:06:19 That is an interesting call it all reality, even if it's a virtual reality. I mean, I guess it's right there in the VR name.
- Natalie Monbiot: 00:06:25 Well, the thing is, Dani and I were competently got through about 99% of the preparation virtually, i.e. on Zoom, on text message, all of these other mediated platforms. And we managed through our virtual selves, through versions of ourselves, through these avatars, which we've just come to understand are part of us.
- Jon Krohn: 00:06:49 Right. Though, to be clear to the listeners, I assume that in this instance at least today when you are saying that your virtual presence is the 99% of the organization, you still had your fleshy biological avatar in real time puppeteering those virtual pixels.
- Natalie Monbiot: 00:07:06 That's right. I mean, you could say asynchronously depending on when. So I puppeteered them in real time on my end, but they might've been received, there might've been a little bit of a lag on the other end.
- Jon Krohn: 00:07:15 Right, exactly. I see. Yes, that makes perfect sense. And so in that sense, that isn't something that I thought of from here, but we have had virtual humans in that sense

for millennia, where you can be a virtual human in a sense, on a tablet. And I don't mean an iPad, I mean a clay tablet. So today we have some idea of the virtual presence of the stoics, of Marcus Aurelius where when you read Marcus Aurelius writing, even though it's 2000 years old, you feel some sense of Marcus being there. And it is actually, I don't know, you probably have read their stuff given you education, but the stoics, it is wild to me, particularly reading Marcus Aurelius, how you're like, "These people are exactly the same as me. They have exactly the same problems." It's pretty wild because when you think about, I don't know, I'm heading off really far on a tangent now.

Natalie Monbiot: 00:08:17 But I mean, human beings have been scaling themselves for millennia, I guess, and like you say, with Marcus Aurelius with the written word. So we scale ourselves through media, and I think we're hitting a point where through digital platforms and through artificial intelligence in particular, we're able to scale ourselves and augment ourselves in entirely new ways. So we're hitting kind of a new era of that, but it's not, in some ways it's a complete paradigm shift but also we've sort of been here before, we're familiar with the notion.

Jon Krohn: 00:08:51 So we've, up until the last couple of years, I suppose we've had scaling even through pixels, through video. Somebody can be present anywhere and you really do feel, you get such a good sense of somebody from their video presence. But the new twist with companies like yours is that we are now, you're able to have that video presence generate pixels, generate maybe soon even ideas. I don't know if that's something that you do yet or you're working on, but today, it's probably mostly about taking the video version and providing it with things to say that there's still probably, I mean, I guess the human could be using a ChatGPT or Claude or whatever to generate what it's saying. But maybe you already today or

maybe in the near future, it's very easy to imagine that like we were describing virtual Dani and virtual Natalie speaking, coordinating. You can just have these completely automated AI agents speaking to each other.

- Natalie Monbiot: 00:10:02 Absolutely. So yes, in the not too distant futures, I think, yeah. So Dani and I are kind of entrepreneurs and in certain parts of our lives are one woman show, and things get a little much at times when you can't quite scale yourself. But I think that there are ways in which we are already using tools that can help scale our abilities, help supercharge our productivity and soon actually represent us in certain places and represent ... It depends on the type of conversation and when this type of agentic kind of communication can happen. But I for sure see that as a trajectory that will empower us as individuals.
- Jon Krohn: 00:10:47 So I have some broad questions on this and things about the implications, virtual human economies, all that kind of thing. But first, something that really interests me is how does it work? So people can go today to hourone.com I guess would be the website.
- Natalie Monbiot: 00:11:02 .ai.
- Jon Krohn: 00:11:04 .ai. And then how does one create a virtual being? What's the process like?
- Natalie Monbiot: 00:11:14 So in our process where we're focused on the visual aspect of the virtual human. What we do is we-
- Jon Krohn: 00:11:21 And auditory, right?
- Natalie Monbiot: 00:11:22 Yes. Okay, so our special source, our own foundational models are focused on the visual aspect, and then we actually integrate a lot of different technologies. So we've integrated voice AI providers, including ElevenLabs as one. We integrate ChatGPT, we integrate a lot of other

technologies to create an overall product that enables you to create your total visual and auditory virtual self. And we make all of those technologies work really nicely together to create that kind of highly realistic conversational AI twin.

- Jon Krohn: 00:11:59 So the Hour One IP, the moat is in video, and then you are open to using these other generative providers around voice and text and you integrate that into the visual presence.
- Natalie Monbiot: 00:12:12 Yeah. And then the other thing that we're really focused on is the actual experience of it. And I know that I need to go back and tell you how we actually create an AI clone of you, but just while we're talking about the things that we do and are focused on, it's also delivering templated experiences for people to go in who don't have video skills, who are not professional video editors, who are not professional creators, who can go in and select templates. So very soon, for example, you will actually have a podcast interview type template. So you could create the video version of something that is only captured in audio, so that we-
- Jon Krohn: 00:12:53 Maybe we're doing that today.
- Natalie Monbiot: 00:12:55 Well, exactly.
- Jon Krohn: 00:12:56 That's why the audio and video are so good today. Like, "Oh, we're in a new studio, recording in person with amazing audio and video quality."
- Natalie Monbiot: 00:13:03 We're just going to clone this. Basically this is all training data for our new product. So we're also really focused on that. But just going back to how do we actually create your AI avatar? So what we do is we take some footage of you talking, moving, expressing yourself in the ways that you do. And we usually do that in a green screen studio,



or that's for the maximum flexibility of background and environment. You can just drop your AI avatar into any environment if you're using a green screen. So that's probably the most common popular choice for our customers today. But the other thing you can do, if you have seen Reid Hoffman's AI avatar, AKA, Reid AI, he has been all over the internet, people have really responded well to Reid AI and-

- Jon Krohn: 00:13:53 I know that. Quickly for the audience, Reid Hoffman, in case you don't know, he's the founder and former CEO, I think, of LinkedIn.
- Natalie Monbiot: 00:14:01 Yes. Exactly. And he created his AI avatar with Hour One, and he has actually created videos of himself in conversation with Reid AI about topics like AI and the future of this space, what it means, what it means to be you, what it means to have an AI avatar, what are the opportunities, what are the challenges, etc. So to create Reid AI, we actually sort of deployed a new method and a new product that we called Cinematic Avatars. And with Cinematic Avatars, you can just be captured naturally in your home or office environment, somewhere that you feel comfortable in, that you would like to create a lot of videos from. So it's kind of a more relaxed, very realistic, laid back kind of mode as opposed to the green screen mode, which is kind of a bit more professional.
- Jon Krohn: 00:14:58 Keith McCormick, data scientist, LinkedIn learning author, and friend of this podcast, has a new LinkedIn Learning course. In the new course, Keith discusses the critical initial stage of Problem Identification and Solution Design. This is a missing element from virtually all data science training but if you are in a consulting role, either internal or external, you need the skills discussed in this course. You may know Keith from episodes 628 or 655. Be looking for his return on an upcoming Friday episode. You can access the new course by following the hashtag



#SDSKeith on LinkedIn. That's #SDSKeith. Keith will share a link today, on this episode's release, to allow you to watch the full new course for free. Keep an eye out for more course links from Keith in the coming weeks.

00:15:47 It is. And that's like the green screen mode. I'm familiar with that because I saw two years ago at the first Insight Partners scale up AI conference, Nikki Parker, who was the host of the two-day event, she had an Hour One. I didn't know at the time, or I didn't recall immediately when I met you last week that it was an Hour One. I think you brought that up. Anyway, it doesn't matter. And so I'm used to, that is the Hour One thing that I've seen. Also, last week when you were interviewing Jamie, you also showed examples of that. So it's very formal, forward-facing, camera-facing, like when you see an advertisement on TV, the standard pose.

Natalie Monbiot: 00:16:28 Yeah. Sort of like talking head, but up to about hip level, arms being with a reasonable range of expressiveness for the use case of talking to the camera. And with Reid AI, he's also talking to the camera, but he's also talking to the side and he's in of more laid back mode and you feel like he's talking to you in just a more relaxed fashion. And it's just got a different feel for it. Maybe we'll put it in the show notes so people can see the different modes. And we've been playing with different types of avatars for different use cases and seeing what people are really drawn to. So we see that people are really drawn to the cinematic type avatar of Reid AI for the use case of thought leadership. So I can very well see you, for example, having your own cinematic avatar to create just as an example, ancillary content to your podcast content that you want to put in video and maybe follow up ideas and thoughts to a particular episode that you can create quickly and post out there.



- 00:17:38 You can also, and I think what's really interesting is also this dynamic of being able to create new formats of content. Reid really inspired this idea of being able to talk to your avatar. And so what you're going to see from us is more of contextual formats that enable people to do things like that. So I think we're really just scratching the surface in terms of what's possible with AI avatars. And I think the beginning of the web, we had a newspaper homepage and what did we do? We just sort of copied and pasted it onto a website and that we're like, "Okay, done. That's digital." And then we started playing with the buttons and the interactivity and the ability to copy and scale and iterate and mainly to interact. And so I think that we've barely begun to do that with AI avatars.
- 00:18:38 So far, we've just taken a talking head that you see on CNN or wherever and then, okay, well, let's just put that just in an AI tool and that's that. But I think we're just getting past that point and we're starting to see what AI can do in terms of AI avatars and virtual humans. And so as I mentioned, we've been working on this dual avatar in conversation and this podcast kind of environment or an interview setup. And what we just saw a few days ago is Google's NotebookLM development, which to us is very validating, but also it continues to expand our notion of where this technology is going in terms of how we're going to use it and how we're going to play with it.
- 00:19:29 So NotebookLM, you can just go Google it, go onto the website and you can upload a PDF, you can upload an entire manuscript of a book, you could just drop in the URL for your website and you basically hit a button and you hear a conversation between two people or so it seems, a male and female voice and extremely lifelike, interesting, engaging voices, having a conversation about your data. And actually reminded me, a few years ago, we wrote a blog post on our medium channel for Hour One about how we're all about how your data can talk to you.

And so we were kind of imagining, this is about three years ago, I think, we wrote this, imagining how soon on ... instead of just getting a link result when you search on Google, you would actually have a presentation of what it was that you had searched for.

00:20:42 And it would be this kind of friendly, engaging response. And in a way, actually, I'm just thinking about this in real time, that's kind of what you get with these LLMs. You're getting a response that's tailored to you. And in our imaginations as an AI avatar company, we envisage that being delivered by someone, by a virtual human, but gathering all of this data and synthesizing it in a way that feels very personal and have your data talk. And so to see these developments with NotebookLM and in parallel our own work to develop these new sort of AI avatar native formats which are conversational, it really, I think we're seeing this idea of making your data talk come to fruition in ways that we couldn't have imagined, but sort of in the territory of how important it was going to be.

Jon Krohn: 00:21:35 And all of these pieces exist today technologically. So with things like your video rendering capabilities that are the core IP of Hour One with the outstanding voice generation capabilities that you get through providers like ElevenLabs and there's lots of providers out there, there's going to be more and more, most of the big tech companies will offer that if they don't already. And of course, as I expect every listener to the show has experienced, it's trivial now for us to imagine going into Claude from Anthropic or ChatGPT or Gemini from Google and copying and pasting data or a Jupyter Notebook or any kind of information and say, "Create the transcript for a 10-minute conversation, a podcast-like conversation between two people."

00:22:33 And that's trivially easy now to imagine and to imagine that it's going to work really well, especially because we're

seeing today, for the most part, that hallucinations are relatively rare with that kind of local information. When you're providing the document and it's not an absolutely gigantic document, then you can expect that the hallucination rates will be low and that conversation quality will be really good. So you have it, and then you can take that conversation generated by your favorite text-to-text LLM, pass that into ElevenLabs to create the voice and pass that into Hour One to create the video. And boom, you've got-

Natalie Monbiot: 00:23:10 Or you just do it through Hour One because we've integrated all the different components for you.

Jon Krohn: 00:23:13 Of course. Yeah. Sorry, I'm thinking behind-

Natalie Monbiot: 00:23:15 Behind the scenes, all the plumbing. Yeah, no, it is really interesting. And I think then it's like, oh, when you listen to this conversation between two AI agents essentially talking about your data, okay, so where is the value here? Where does it reside? If anything can be a podcast conversation? And it sounds pretty engaging, where is the value? And I think-

Jon Krohn: 00:23:39 I think we can all agree that podcast conversation is the lowest value form of information being conveyed.

Natalie Monbiot: 00:23:44 Well, I have to say, it did make me think that us showing up today being present and synchronous and clearly biological, avatars aren't this good yet, that there's a premium on that. So there's a premium on investing the time, the true authenticity behind it. So I think it's the quality of the thought, it's the originality of the thought, believing that it actually came from a human being because that is still scarce high quality thought from human brains and from human ingenuity, it will remain scarce. And I think the data therefore at the bottom of, let's say, Notebook LLM, so it's the book that you

uploaded is this and that we need carving out a moat around the value of that data and who owns that data? Data, we just keep coming back to it, but I think that the data itself and the source of the data is going to become more and more important because the media just keeps exploding. So anyway, these are just such very preliminary thoughts, but my mind is blown again about where we are in terms of these developments.

- Jon Krohn: 00:24:55 Something that is an analog today, where that kind of explosion, I experience it on a now almost daily basis, is somebody will, and I assume that this is probably a real person with a real photo that is behind this LinkedIn account, I suspect though I have no proof. And they use automated tools to just go around, say LinkedIn and comment on posts. And so you can imagine that that's going to happen more and more and more. And right now, at least today, I feel like most of the time I can tell there's something ... the comment will go into too much detail. When I see something that it's unlikely that a real human would take the time, I'm like, "Yeah, okay. I think that my podcast episodes are interesting, but it's rare that they're so interesting that somebody's going to have this very long detailed question."
- 00:25:58 And most comments from a real human would just be like, "Awesome, this is really cool. Can't wait to check it out." So when I get these very long kind of drawn out, going into lots of technical detail on things and there's also a positivity and it's too perfect, no spelling mistakes, no grammatical errors, no shorthand. And so you see these kind of watermarks of this was probably GenAI, and then you can go to that person's profile or whatever, I guess it's a person, go to that profile and you see, "Oh, this person's been posting every minute for the last several hours."



- Natalie Monbiot: 00:26:42 But isn't it funny? It's not the quality of the response or even what it's saying, right? It's the source. It's so important that it was a human and that it came from the human in that context.
- Jon Krohn: 00:26:56 I don't know why it matters to me so much, but when I see those things, I get terse right away and I re-comment on their comment and I say, "This is clearly GenAI generated drivel."
- Natalie Monbiot: 00:27:09 Yeah.
- Jon Krohn: 00:27:10 If you do it again, I'm blocking you.
- Natalie Monbiot: 00:27:12 Right. Yeah. That's generous. You're like, "I can take one more compliment." Yeah, no, I have to say, and it is interesting because we're developing a nose, a very skeptical nose, if you can have a skeptical nose, about what the source of a piece of content, and it can be very repugnant, right? This visceral reaction when you feel like a machine wrote it. And that's, of course, not to say that I don't think that there is room for that. I work in this business and we can talk more about what the use cases for that are, but when it's someone purporting to be a human and you kind of sniff it out, we're going to have to develop a real sense for it.
- 00:28:01 I'm seeing it already. I think for a lot of people, it's going to have to be active data literacy to be able to sniff these things out. We both work in AI, so we're obviously more attuned to it. But I was commenting on something the other day on LinkedIn, it was really me, not my avatar. And this idea, when you find yourself Googling something and then you're trying to get a stat on something, and what you find yourself is going down the rabbit hole of a whole bunch of SEO blog posts. And don't you feel I just feel like insulted, I'm like ... or I feel like an idiot because I'm doing exactly what all these blog posts and the

companies behind these blog posts wanted me to do, which is to basically read their content that was not generated to create value, but generated to basically gain visibility for their website.

Jon Krohn: 00:28:55 Backlinks.

Natalie Monbiot: 00:28:57 And now that content is probably the first genre of content that is actually being written by AI. And that makes sense. It's like it's not content that I want to find myself reading anyway, but I think AI generated content needs to be confined to places like that and to use cases like that. If it starts veering into content that you start reading and you're like, "Wait a minute, this is supposed to be attached to somebody," and it just makes you feel like your time, your most valuable resource has been squandered and it's an insult.

Jon Krohn: 00:29:33 In a recent episode of this podcast, the mathematical optimization guru Jerry Yurchisin joined us to detail how you can leverage mathematical optimization to drive commercial decision-making, giving you the confidence to deliver provably optimal decisions. This is where Gurobi Optimization comes into play. Trusted by most of the world's leading enterprises, Gurobi's cutting-edge optimization solver, lightweight APIs, and flexible deployment simplify the data-to-decision journey. And, thankfully, if you're new to mathematical optimization approaches, Gurobi offers a wealth of resources for data scientists, including hands-on training, comprehensive Jupyter-notebook examples, and extensive, free online courses. Check out Episode #813 of this podcast to learn more about mathematical optimization and all of these great resources from Gurobi. That's Episode #813.

00:30:21 Yeah, I agree. Yeah, there is something insulting about it, and I feel like it's also, it's insulting to listeners of the show who might be following, my social media account.

And I don't know, I don't want them to be getting thrown off course by this getting the sense that, "Oh ..." Because there was, so the episode at the time of you and I recording this week, Natalie, the most recent episode of my show was on PyTorch, and there was this long comment question about an alternative library. And if a human was investing the time in feeling so strongly about this alternative library, people would read that and think, "Wow, this must be something really important that I should check out." But then when you realize this is just maybe some, it's arbitrarily some library that an AI latched onto created all this ... Yeah, I mean there's a cheapness to that.

00:31:17 All right, so we've talked now in the last few minutes about ways that we don't like these kinds of generated artificial things, trying to pretend to be a human. We've said the things that we don't like about it. Now I'm actually going to get to the first question that we had lined up for you finally half an hour into this conversation. So you're the head of strategy at Hour One, which pioneered generating lifelike video avatars or AI clones of humans, you've called them virtual humans or virtual twins, and promoted a virtual human economy, which we'll get to momentarily or maybe that will even tie into your answer right now. So tell us what value this technology does provide. What are the great use cases for virtual humans, for these virtual presences, and how does that create a virtual human economy?

Natalie Monbiot: 00:32:08 So first of all, virtual humans should not replace real humans. And I think the whole preamble to this question that we just got passionate about suggests that. Virtual humans and the use of, let's just call them AI avatars in content, have had success and should continue to be deployed in areas where humans don't have any business being. And that is to say, "Okay, let's start with where we found product market fit as a category."

- Jon Krohn: 00:32:36 Nuclear cleanup sites.
- Natalie Monbiot: 00:32:39 Yes, or learning and development within enterprise organizations where people are just so bored with the content that is just the kind of content that you have to consume. You have to hit these kind of quotas. People need to learn everything from safety hazards to compliance and all this kind of stuff. It needs to be done. There isn't a lot of budget that's assigned to this type of content. It isn't profit generating, but it's boring and it usually exists as a PDF, right? So this has been a ripe place for AI avatars and generative video content to play. So what you just do is you can literally take PDFs and transform them into engaging presenter led videos through an assortment of AI avatars that you can select from the platform through different templates that actually make you look like that you've invested a lot in video editing and you can instantly upgrade your content.
- 00:33:43 So that's one very basic area where, not necessarily the sexiest, but where there has been massive product market fit over the last few years. And then I think the next place is, so as avatars have become more commonplace, or at least AI has become more integrated and accepted in society and culturally, and since the ChatGPT moment, I think we've seen more outward use cases of this technology. So for example, one of our customers, Reckitt, pharmaceutical brand uses AI avatars within their Amazon listings to explain baby formula products. So just again, so this is a place where you wouldn't have a human being presenting the small print of these products, but the small print of these products is not easy to consume and it's important and young parents need to know this information. So this small print has been transformed into these friendly, engaging AI avatar led videos that explain products in a way that is a lot more digestible.

- Jon Krohn: 00:34:57 Now, can this, today, I know it could be done, and it sounds like based on the podcast kind of interview format that you were describing being possible or being in development, I know that this is possible. Is it done today yet that in that kind of example where there is an Amazon shopping listing being explained, can the Amazon shopper ask questions and get a response at this time?
- Natalie Monbiot: 00:35:21 At this time, within the Amazon use case, the way that you could do that is through having ... The listing will support video, so static images and video. So within that setting you could have a series of videos that address different questions. That said, outside of that particular use case, yes, I think you can have conversations with AI avatars. Today, a real time live conversation is not going to have the same visual quality of a video avatar that is pre-rendered. That takes a couple of minutes to render. There are some trade-offs, but we are getting to a point where it will all come together where you can have a realistic real time conversation that feels immersive, that feels lifelike. So that's coming. But today, I wouldn't say that all of those components come together to have great experience.
- Jon Krohn: 00:36:18 Of course. Of course there is that gap right now that to generate high resolution video, we don't yet have the compute capacity or it would be very expensive if you wanted to parallelize it and have it work well enough that you could render that high quality video in effectively real time. Where kind of today, it seems like the stage that we're at there was at the time of recording a couple of weeks ago, there was this demo, I can't remember who created it, but it was the video game Doom being rendered in real time, which that video quality is from the '90s.
- 00:36:54 So we're talking 25 kind of years ago video quality. There's no question marks around will this happen? Will

we get to a point where we're rendering high resolution video in real time? It is going to happen. While the way that Moore's law has progressed can't go on forever because you get to points where physically on the chips like electrons or jumping or whatever on the cards. But you can still nevertheless have cheaper and manufacturing processes, cheaper and cheaper parallelization to achieve these real-time feats.

Natalie Monbiot: 00:37:33 And I think for businesses like Hour One, it's a question of priorities. So it's like, "Well, what do customers want?" For instance, in the case of L&D, real-time isn't a priority. Actually, you want to make sure that the content has been thoroughly vetted, that's been reviewed by the people that need to review it before putting it out there. It's actually a pretty safe way to get AI-generated content into the world by minimizing risk. It's not like you're allowing it to be real-time. There's actually a lot of reasons why real-time wouldn't be adopted by enterprises. So not from a tech capability standpoint, but from a safety and responsibility standpoint. But we have seen, and we know that it exists with VASA-1. I don't know if you saw earlier this year, Microsoft released a demo of VASA-1, which was at the time and probably still is the gold standard in what real-time conversational avatars could look like.

00:38:39 So photoreal avatars that look very human-like that can actually be real-time responsive. So Microsoft has not released this, they're just still working on it. And also there are many concerns about how to release this responsibly. So while technically certain things are possible, they might not be priorities from a business perspective because it just doesn't make sense, it doesn't help your customer. And then also it might not be safe yet to do so. Got to think first, "Well, how could this be abused? How could this be useful? How could this get abused?" And all credit to Microsoft for putting it out

there as a possibility, as a capability, but not something that has been rolled out yet until they've really thought through all the consequences.

- Jon Krohn: 00:39:31 There's all kinds of obvious opportunities for criminal misuse of these kinds of tools where you already today, you can have situations where people of any age, but I think older people are particularly targeted with scams where it's, "Oh grandma, I've been put in prison and I need you to give me \$20,000 in cash today. My friend will come pick it up."
- Natalie Monbiot: 00:39:59 Which is easy enough as it is, by the way.
- Jon Krohn: 00:40:01 Exactly. Exactly.
- Natalie Monbiot: 00:40:01 I'm sure we've got parents and grandparents that this has happened to, or we've even succumbed to it ourselves. You can just have just a very basic WhatsApp, no technology even required, just change the avatar on a number, pretend it's a new number from a friend and they get you to click on a link or whatever. It really doesn't take much, but you can see how something like VASA and basically, more people ...
- Jon Krohn: 00:40:30 More people. It'd be easier to be susceptible. And so already today there are open source tools for generating something that sounds like a person's voice because I host this podcast or because you, Natalie, have been on ... you've done so many public appearances, it's trivially easy for somebody to clone our voice using open source tools. And so I've had to give warnings to my family to say, "It would be very easy for somebody to fake me and to phone you." And so if it sounds like me and I phone you, but it's not my number, and especially if I'm requiring anything urgently or anything to do with money, it is surely not true. You can phone me back on my number.

- Natalie Monbiot: 00:41:14 I know. That actually happened with my mother, and it turned out she did give money to someone. I was like, "Wait, you would've given me money? That's really nice, but now I've blown my chance because of this hack."
- Jon Krohn: 00:41:26 Yeah, exactly.
- Natalie Monbiot: 00:41:27 No but going back to use cases and coming back to the virtual human economy as well.
- Jon Krohn: 00:41:31 Really quickly before we get back to that is that, so I wanted to say, so that with audio, there's that example, but with video there are fewer examples because there aren't that many places where people can use technology like yours. And we can talk about safeguards later on, but I'm sure there's things that Hour One is doing to try to prevent misuse of your video avatars. And so the quality of these kinds of video renders aren't very good. But I remember hearing several months ago now about a story where somebody in China had a ...
- 00:42:05 They probably don't use Zoom because it's China, but the equivalent kind of thing, a video call and somebody was rendering in real time this poor quality video that did dupe somebody into it was on the scale of hundreds of thousands of dollars given that was fraudulently scammed away from this person. So anyway, so it is something obviously to be worrying about, but yeah, sorry, I've dragged on this too long. We should get to more of the use cases. We've talked about the L&D training, you talked about explaining shopping listings. So yeah, now I think you were about to go into a broader virtual human economy.
- Natalie Monbiot: 00:42:41 Yeah. So currently and through the Reid AI moment where we've seen a thought leader really use this technology in a way to fulfill his vision and what he's trying to do, which is to get his points of view out there in

ways that resonate with people. And so he's been playing with the medium of having an AI twin to help him with his thought leadership. He also translated a commencement speech into a dozen different languages so that he could reach people in different countries who he could normally not communicate with. And so since that moment taught us a lot of things, and it continues to in this partnership, but what we've seen is that people who have IP in their image, their likeness, their ideas, who they are, have a lot to be gained through this technology. And also people are getting used to cloning themselves.

00:43:42 This is kind of a bit of a pivot. It's always been the vision that let's say everybody with a LinkedIn profile would have an AI avatar that could communicate for them on their behalf, help them to be more productive, help them to augment their skills and all of that. And I think that we're hitting that pivotal moment thanks to capabilities. So more realistic AI clones that people respond really well to the fact that people are more receptive to just AI as a communications medium in general. And then also now the fact that thought leaders are actually seeing the benefit of using this technology in order to fulfill their mission in terms of the brand that they're trying to build and that kind of thing. So this touches on the virtual human economy in that you can start to use your virtual human, your virtual twin to help advance whatever it is that you are trying to do.

00:44:38 And so in some cases, when we're talking about people of note who are using their virtual twin to just scale and augment content, that's one thing, but you can start to create products with that. We've had thought leaders make money out of their AI avatar having a job with a different platform. So for example, we had a futurist called Ian Beecroft whose AI twin became the AI correspondent for a news platform called Defiance Media,

which is a hundred percent digital AI first, uses AI avatars for presenting. And so that was just a new type of deal, and the ability to scale yourself and then literally actually make money out of your AI twin is something that is just really fascinating. And so that's an example of what I call the virtual human economy in which we can create our AI clones, our AI selves and put them to work on our behalf in myriad ways.

00:45:42 And sure, when I think about it through the lens of Hour One, these are our physical AI avatars, our digital representations, but equally, it can be your body of work, your books, the way that you think, your expertise, because you can see how this works for entertainment and A-listers that have a lot of these assets that already trade on this asset of who they are. But then for white collar workers, how does that work? Well, I think what we're going to see is our enable people to clone their expertise and make their expertise available at a lower cost than would ordinarily be available if you needed their time.

00:46:33 And also opens up that type of expertise to people that couldn't necessarily afford it or just imagine, this is what I'm hoping for. You need a contract to just be reviewed. You don't necessarily want to pay thousands of dollars and spend weeks trying to make that happen. The idea that you can license just access to that as you need it, it's interesting. And it can also become a lead generator for those experts. So you like what you saw, you like that little taste of my expertise, so maybe there's a more involved project and then we'll engage in person.

Jon Krohn: 00:47:10 I've had the pleasure of speaking at ODSC West many times over the years, and without question, ODSC West is one of my favorite conferences. Always held in San Francisco, this year it'll be taking place from October 29th to 31st. As the leading technical AI conference,



ODSC West brings together hundreds of world-class AI experts, speakers, and instructors. This year's offering will feature hands-on sessions with cutting edge techniques from machine learning, AI agents, AI engineering, LLM training and fine tuning, RAG and more. Whatever your skill level beginner or experienced practitioner, you'll leave ODSC West with new in-demand AI skills. Register now at odsc.com/california and use our special code podcast for an additional 10% off on your pass.

00:47:58 Brilliant. Yeah, I could see that absolutely working. On episode number 710, we had a guest, Kris Ograbek, who had taken podcast episodes of the Super Data Science podcast, and he had used that in a platform so that you could have conversations with the episodes, so that you could dig into topics better. And so you could imagine as these context windows have exploded in the past 12 months, so that with Google Gemini you can have a two million token context window and they're working on a 10 million token context window. That's a huge amount of information before even ... You can expand even beyond that with RAG, with Retrieval Augmented Generation. So you can have effectively an unlimited amount of information. So as you're saying, you could have the transcript from every podcast appearance that you've ever made, Natalie, and anything that you've written, you could provide all this information to a Natbot.

Natalie Monbiot: 00:48:59 Yeah, Natbot or Monbot, get into that in a second. But what we've actually found is, so that's critical what you just said, having these long context windows and just the ability to have all of this data to have sufficient answers that are actually accurate and relevant. But on top of that, and this is something that we found and that we are very focused on, is how to make it interesting. And just going back again to Reid AI GPT, he is interesting, and part of why he's interesting is not just because it's Reid

Show Notes: <http://www.superdatascience.com/823>

Hoffman and he's got incredible ideas and has written incredible books, and this is a new way to tap into that wealth of knowledge.

00:49:40 It's also just the idiosyncrasies of Reid. And so we actually work with his team and on his team are video experts, a team that came from YouTube and they've studied what do people find interesting and engaging, the entertainment factor, the thing that makes him feel like Reid AI, that makes him feel, or Reid Hoffman that makes him feel endearing. So it's actually a lot of art is involved in a lot of this. It's not full automation. I think a lot of people say, "Oh, I want to do that," and they create their AI avatar and it's parroting their knowledge, but it's just not that interesting. And I think what's notable about NotebookLM is the artfulness around the conversation. It's not two bots having a conversation. They've thought about-

Jon Krohn: 00:50:30 It doesn't feel like two bots having a conversation.

Natalie Monbiot: 00:50:34 Yes. It doesn't feel like two bots having a conversation, which is brilliant and also eerie to know that that is the case. And my thoughts around that and the implications of that have not settled yet. But what I have really noted from what feels successful about that is the artfulness around it. So I think there's a lot of room and need for people to be thinking about how to make this kind of content interesting. And until that happens, we won't have found the killer app.

Jon Krohn: 00:51:12 Fascinating insights on lots of different ways that virtual humans could be leveraged to increase productivity and be part of a virtual human economy. Really quickly a question that comes to mind for me is to what extent, when I hear the term virtual human economy, the thing that pops into my mind isn't just this interface between virtual world and say biological humans, but also virtual

humans. I guess this ties back to the joke that we had right at the beginning of the episode of virtual Dani, virtual Natalie setting things up. Are you aware of places already that there are kind of virtual human economies or societies that are existing on their own without humans involved, or maybe humans barely involved?

Natalie Monbiot: 00:52:00 Well, not firsthand, but I did anecdotally in one of the many WhatsApp groups that I belong to on topics like this, someone pointed out that on Product Hunt, that a product was being touted, I think, where there are no humans and everybody's just virtual and everything about its virtual and it exists on its own. And I was like, "Hmm, okay, but what is this for?" It's like, "Is that a good thing?" And why? I think so I guess my question would be why would that exist? And no, I don't know of any environments yet where that would actually be a good thing or a useful thing.

Jon Krohn: 00:52:44 I guess I've seen experiments. I've seen universities do experiments where most recently there was one ... Actually, it wasn't a university. I'll try to dig it up for the show notes, though, I'm guessing right now I'm not going to be able to pull that out. But it was actually, it was a commercial demonstration of an AI agent company where they used Minecraft to have, actually, that would allow me to find it even for the show notes, because they had something like a hundred or a thousand AI agents interacting together in Minecraft, and they set up different scenarios.

00:53:19 So there was one scenario where somebody in the village had been lost. And so that created this premise where then everyone kind of banded together to ... So in Minecraft, all these AI agents started using candles to light the darkness and try to find, and that was all just something that happened organically. They've also done things like they created a Donald Trump character and a

Kamala Harris character and had those in there, and they infuse these agents with some of the properties of these real life people, and they're like, "Let's kind of see what happens." So I've seen those kinds of experimental things, but I haven't seen or heard of these full on-

Natalie Monbiot: 00:53:56 Yeah, when you start talking about it from the lens of the use case and why. Right? Okay. So simulations which are helpful or entertaining or help you to preview an experience. So just to finish on gaming non-player characters, the idea that they can start interacting with each other to enrich gameplay is really fascinating because that can enrich the world that you're inhabiting.

Jon Krohn: 00:54:24 And that's inevitable. I mean, there's literally no reason today ... I don't know video games very well. Maybe there are video games that already exist like that, but there's no reason why you couldn't today have an experience like Grand Theft Auto where you have a world, but gangs emerge completely independently and nobody plays the same game because the AI agents just, they end up having their own niches where this gang is like, "We're going to steal cars," but then another gang is like, "We're going to traffic drugs." And so you have all these completely independent or just based on you provide the seed of the context of what these agents are supposed to be doing, but then they totally develop their own identities and associations.

Natalie Monbiot: 00:55:07 Exactly. They take on a life of their own. There are all these infinite subplots that exist because each of these entities have their own personalities and they're playing out their own dramas. So you can see that. And actually just coming back to NotebookLM, because it's just so on my mind since it's released just a few days ago, that is an agentic experience that is independence based on your data. Take my data and run with it and basically just

have a conversation about it. And that's a conversation between two agents essentially.

00:55:38 I don't know if you need more agents to be able to necessarily delve into that, but you can imagine each one having its own designated role. Actually, Ali Miller and Reid Hoffman on LinkedIn did an experiment about a month or so ago where they designated a different role and personality, I think, to different AIs. And they had a debate based on that. I think leading with, does this exist? I guess it's just for me a tough question to approach. But if you're going through the lens of what is happening in particular pockets that is really expanding the possibilities around that area in a way that's fulfilling what people want from that. So NPCs, you can see that, dramatizing your data, making your data talk in new ways. That's fascinating. Yeah.

Jon Krohn: 00:56:30 I think it also unlocks the next question that I was going to ask you was about how virtual twins, so you have spoken before about how virtual twins could be potentially more expressive than human counterparts, than biological counterparts and unlock new forms of creative expression and impact industries like media and entertainment. And so that was going to be my next question, but I feel like we already now kind of have an answer from what you've just said, which is that if you have Allie Miller and Reid Hoffman bots having a conversation, and you could have that run for thousands of hours, generate thousands of hours of content, and then use another LLM to say, pick out the most interesting points and provide me with a two-page summary of the best ideas that came out of these thousands of hours of generated conversation.

Natalie Monbiot: 00:57:13 Yeah. And by the way, you do do your research to pull that one out, that anecdote out, because that was a little while ago, but thanks for the reminder because I haven't

thought about it for a while, but it's true. When you're creating your own AI clone and you are a person, again, we sort of built our one's platform for people who are not creative professionals to be able to create presenter-led video that looks really professional for professional use cases.

00:57:39 And that also goes for people who aren't comfortable or experienced in front of a camera, that they're a little self-conscious about their accent or how they look, or they're just shy in front of a camera. You can enable people to be more expressive in some cases through their AI avatar because it can kind of compensate for some of their own as they perceive it shortcomings. So in the same way that an AI avatar can help you speak any language under the sun, it can also just help you refine how you appear, how you communicate, fine tune, how you sound, and just how you present yourself. So it can be a real leg up for people in that sense.

Jon Krohn: 00:58:21 It's interesting to think how you could, an application of this that somebody could develop, maybe you're listening out there or maybe it will be Hour One, is you could have in the same way that when you see your virtual human speaking Mandarin, that's so compelling for teaching somebody anything if it was looking in a mirror and this person looks like you and speaks like you. So you kind of had the idea there of elocution being improved or speaking capacity being improved, but it could be really any kind of instruction where it's helping you. You didn't quite get your accent there right. Here's how you should sound. And then it is literally your voice and your face, because that probably, even in a subtle way, the lip movements probably actually help you speak that language more accurately.



- Natalie Monbiot: 00:59:15 Yeah, I think it can definitely, your AI twin can be your personal coach. And yeah, I think that's really fascinating.
- Jon Krohn: 00:59:25 Really cool concept there. Really interesting. And you said you do great research. It's not me, I guess it's the kind of the plural you in a sense. The podcast does great researchers, Serg Masis is our researcher, and he's unbelievable. He's so passionate about getting these. The level of detail that he digs into on, he does research for most episodes and it's unreal. So I'm glad that you noticed that and I appreciate it. I hope our audience does too.
- 00:59:56 So on that note of something that Serg really dug out here, you had a recent TEDx talk, a TEDx Cornell, where you envisioned a future where AI clones handle tasks for us. And he has specific names here. I guess you'll know exactly what this means. You talk about, so Emma's clone teaches German despite Emma not knowing German herself. So how do you see this technology impacting global communication, cultural exchange, and what challenges might arise in maintaining then authenticity? So there's kind of yes, potential here in kind of scaling up, but then simultaneously maybe there's also those kinds of icky feelings that you and I get when we see fake LinkedIn comments.
- Natalie Monbiot: 01:00:40 Absolutely. So this TEDx talk centers around the story of Emma, who is actually one of our first AI avatars on the platform. And so all of our AI avatars are based on real humans. So in the same way that Reid AI is based on Reid Hoffman, every one of our stock avatars on the platform is also based on a real human.
- Jon Krohn: 01:01:02 How many stock avatars are there?

- Natalie Monbiot: 01:01:04 So we've cloned thousands of people at this point, and at any one time, there are probably a couple of hundred available on there. Yeah. So all of these people have signed a contract. They basically granting permission for Hour One to clone them and put them on the platform. And they also have some kind of contractual arrangement whereby usually if you are a stock avatar on the platform, you get compensated. That's what was Emma's experience, and she was one of the earlier people to get involved here.
- 01:01:36 And the talk is about her experience becoming an AI avatar and what it means for her and what it could mean in the future when her AI avatar becomes sort of agentic. It does start with a similar insight that I had when I saw myself speaking Mandarin or Jamie when he saw himself speaking Korean that you were like, "Oh my goodness, that's unbelievable." But yes, but of course. Anyway, so Emma sees herself speaking German and she's astounded, and then she actually finds herself teaching German as part of a language learning project by one of our sort of earlier enterprise customers.
- Jon Krohn: 01:02:15 Just her virtual self.
- Natalie Monbiot: 01:02:16 Her virtual self. Yes, exactly. And she makes some money out of doing that in the same way that she also makes money as her real self being a secretary at a law firm. And she imagines how in the near future she'll be able to cover off more hours at the law firm by employing an AI self or AI tools to help her be more productive in that role. And if her AI avatar can be more independent and do more things, it could gain more value. So if it could actually be interactive, and instead of just communicating German exercises in video, what if it could also have interactive one-on-one conversations with a student learning German or any other language that she's able to teach, which is any language, then her AI avatar could get more

involved in these projects and she could make more of a business out of that.

01:03:18 But ultimately, what this would do, would free up time for her true passions, which are architecture, she's an architecture student about to graduate, and dance. And so the idea is not only we want to be these AI agents and have these AI agents, not because we want to do more AI, but because we want to free ourselves to do the things that we want to do and we want to really invest in and buy back time. So that's kind of what the story is about. But so crucially, I think anyone, especially not in the AI world that hasn't drunk the AI Kool-Aid, it's like, "Well, this is pretty scary stuff. What about control? What about deepfakes? What do we do about that?"

Jon Krohn: 01:03:57 What if having Emma say racist things or star in a pornographic film?

Natalie Monbiot: 01:04:03 Right. So to that point, that's the first fear that we sort of address, that I address in the talk. And so at Hour One, since the very beginning, as I mentioned, we have these contracts. So you will be shown in this type of content, the kind of content that our customers make. And you won't be shown in any sexual content, illegal content, gambling related content, any political content because you made a call against that. And you will be compensated for your appearances as your AI self.

01:04:34 And then another one is around transparency. How can you tell? And then this is that icky feeling that we've been getting when we're on LinkedIn and we're seeing comments that might be written by an AI, we want to be able to know the source of that content. And so if AI Emma is teaching German, that's great. If I was able to access, so the upside for consumer is that you're able to access this content and learn German in a way that you couldn't before because AI Emma can deliver it to you in

a way that is a lot more scalable and more cost-effective. So you now have access, but you want to know that AI Emma was AI generated. And so we've championed transparency of our content right from the beginning.

01:05:17 We used to watermark it with just our own watermark because there wasn't anything better. So sort of putting a little mark to indicate that the content had been AI generated. But now we've actually at Hour One integrated with content credentials, which is the C2PA protocol, whereby now when our videos show up, let's say, on LinkedIn in a growing number of platforms, you'll see a little icon, a CR icon, which will indicate the provenance of this content and the fact that it came from Hour One. So that's how we start to rebuild trust in what we see. And then thirdly is that we want accountability. So we want to make sure that people, if you're creating an AI clone, you're licensed to do so and it's being attributed to the person behind that clone. And so all of this adds up to what I call ethically sourced avatars. And if we can build towards that, I think there is a virtual-

Jon Krohn: 01:06:17 Organic sustainably farmed virtual humans.

Natalie Monbiot: 01:06:20 Exactly. So without that though, I don't think there is a virtual human economy because big brands and businesses won't want to engage if you can't trust these things. And we talk about inclusion, right? So large enterprises have their inclusion, diversity and inclusion, equity and inclusion policies. And I think that thinking forward, and by the way, about 50% of Fortune 100 companies are actually using this type of technology somewhere in their company, probably unbeknownst to the management because it's sort of happening in pockets and L&D teams and that kind of thing. But I do think that as AI avatars and just AI clones in general become more widespread and the use cases continue to grow, there need to be policies around them. And I think that

when we think about that big eye of inclusion, inclusion should be ... there needs to be a human behind the avatar that you employed.

- Jon Krohn: 01:07:20 And that human needs to be compensated and have control, permissions and so on.
- Natalie Monbiot: 01:07:25 Exactly. Otherwise, would sort of replacing people's jobs. And that's what we really want to avoid. A virtual human economy has got to benefit human beings. We're the ones building it. Why shoot ourselves in the foot when we can be thoughtful about these things ahead of time?
- Jon Krohn: 01:07:40 So I am being mindful that I don't have too much more of your time today, but a big kind of ethical question that I want to ask about is what do you think about deceased people having avatars made of them for personal or commercial use?
- Natalie Monbiot: 01:08:00 I think that people need to expressly say in their will or some kind of documentation that they were happy for their AI avatar to be created and to exist after they are deceased.
- Jon Krohn: 01:08:11 Great. Yeah, crystal clear. So if I were to try to summarize for you based on everything you've said, my interpretation of the difference between a virtual human and a deepfake, it sounds like although both could use similar technologies under the hood. With a virtual human, there is consent. There is typically going to be compensation, there's going to be a level of control. Maybe that virtual human is totally controlled by the person whose likeness was used for it, or they've licensed it out like the hundreds of people that can be used as kind of stock virtual humans in the Hour One platform. Deepfakes, on the other hand, these are very much without consent and there's presumably no compensation. And so are those kinds of the main differences or you probably have more

nuance or additional detail on differences between virtual humans and deepfakes?

- Natalie Monbiot: 01:09:11 Yeah. I'd say that five years ago, this was the main conversation because we'd be presenting to companies, this is actually a really useful way to ... useful technology for content generation, all this kind of stuff. And at the time, deepfake was just a huge headline. And so distinguishing what a deepfake was in relation to what we were doing was definitely a topic of conversation. So a deepfake is non-consensual. Someone did not provide their consent, and it is not transparent. So it's pretending that it isn't a deepfake. It is pretending that it is not AI-generated and it's not legal. So it kind of goes back to the three ingredients of an ethically sourced avatar. It basically isn't ethically sourced, so it doesn't have consent and control, it doesn't have transparency and it's not legal.
- Jon Krohn: 01:10:08 Nice. Crystal clear as well. Now I have a very clear idea of that and noted.
- Natalie Monbiot: 01:10:14 Drill it into you.
- Jon Krohn: 01:10:16 So your career spans a variety of roles across media, technology and innovation. Something that I am particularly interested in about your background is how you had your interest in blending human experiences with advanced technology. How did this come about? And I know that there's kind of wordplay related to your family name that comes in here.
- Natalie Monbiot: 01:10:42 So I spent a lot of my early and mid-career in the agency world working with big brands on the digital side of things. And I was this agitator and disruptor. That was kind of the identity that I carved out for myself there just because I really genuinely thought that things should be more innovative and use emerging technologies in new

ways to address existing challenges, but with new answers and just in a more creative way. So that was always kind of my MO. But back in 2015, I believe it was, I think it was round about the time where Facebook had come out with its bots within Messenger, and I really was obsessed with new modes of interactivity and ways that brands could engage with consumers.

01:11:34 And I saw bots as this very interesting new modality for brands to become personified and actually build relationships with consumers. And I was very passionate about this topic and I pitched it to Collision conference, which I know that you've spoken at. I think this is in 2015. And I ended up on stage, on center stage then talking about commercializing AI bots. And so this was a long time ago, but I was very obsessed with it and it was a bit of an anomaly of a topic at the time, maybe, to some. And I adopted, I gotten the name Monbot. So my last name is Felt Monbiot actually pronounced Monbiot, but I acquired the nickname Monbot.

Jon Krohn: 01:12:24 Very cool. Nice to hear that history behind your interest in this and that has been running for so long. I asked the audience for questions in the run-up to this episode. We got a lot of reactions, but not any questions actually. We did interestingly, just to highlight for you, someone named Jeff Brown who is a partner at something called Galaxy Interactive in San Francisco. He said that Hour One is his favorite company and that this is his favorite podcast and so he can't wait to listen to this one.

Natalie Monbiot: 01:12:54 That's awesome. And actually Galaxy is one of our investors, so I'll need to look into that. That's exciting.

Jon Krohn: 01:12:59 There you go. All right, so before I let my guest leave, I always ask them Natalie if they have a book recommendation.

- Natalie Monbiot: 01:13:08 Yes, I do. So this book is absolutely fascinating, God, Human, Animal, Machine, and I'm going to mess up her surname, so I'm just going to call her Meghan and she's got an Irish last name, but I know I'm going to mess it up, so I'm going to leave it at Meghan.
- Jon Krohn: 01:13:26 Cool. Yeah, and you were almost about to say to me before we started recording this episode that, "This is a mind-blowingly," and then I cut you off and I was going to say, tell me in there.
- Natalie Monbiot: 01:13:35 Yes. It is full of mind-blowing ideas about technology philosophy. Just every paragraph is packed with meaning I'm an audible listener and I find myself listening to a chunk, then re-listening to a chunk. So actually if anyone feels like reading it and wants to do a little book club in the comments, we can do that.
- Jon Krohn: 01:14:01 Nice. It's non-fiction, right?
- Natalie Monbiot: 01:14:02 It's non-fiction. Yeah.
- Jon Krohn: 01:14:03 Cool.
- Natalie Monbiot: 01:14:03 She's a theologian originally, so her approach is super interesting. She's a theologian and a philosopher, I guess a philosopher, philosopher.
- Jon Krohn: 01:14:15 Philosopher.
- Natalie Monbiot: 01:14:16 And a student of technology, and she's just mind-blowing. And in her book, Ray Kurzweil, there's an anecdote where Ray Kurzweil's read some of her essays, I think, and sends her something. So I mean, he thinks that she's very notable in her thinking.
- Jon Krohn: 01:14:33 Interesting.
- Natalie Monbiot: 01:14:34 Big ideas.

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Jon Krohn: 01:14:34 Yeah.

Natalie Monbiot: 01:14:35 I have another one.

Jon Krohn: 01:14:36 Go ahead.

Natalie Monbiot: 01:14:37 Doppelganger by Naomi Klein.

Jon Krohn: 01:14:40 Sounds relevant.

Natalie Monbiot: 01:14:40 Very relevant. Yes. And so Naomi Klein writes about very interesting history being confused by another Naomi who is sort of far out right-wing, massive tweeter, and just kind of how their world's intersected and what it's like to have this digital doppelganger and what it says about truth, identity, digital, all of that, so another gripping read.

Jon Krohn: 01:15:14 Great recommendations. So Natalie, you have been an amazing guest on the show. You are an outstanding speaker and it's been such a fascinating conversation. I wish I could go on endlessly. For our listeners who would like to continue to get your thoughts, maybe even through a virtual human, I don't know if that's possible, if there's like a URL monbot.ai that they can go to-

Natalie Monbiot: 01:15:38 Great idea.

Jon Krohn: 01:15:39 ... and interact with you virtually and get more of your thoughts. But yeah, so maybe the virtual human route or what kind of social media handles or how should people follow your work after the show?

Natalie Monbiot: 01:15:49 Pretty old school, you can connect with me on LinkedIn, and from there you'll see some other little pathways that I can direct you down, but I've just started a newsletter. Thank you for holding me accountable to that, Jon. Called the Virtual Human Economy. You can follow me there as well.

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- Jon Krohn: 01:16:04 Excellent. Thank you, Natalie, and so great to have you on this amazingly well-produced episode here at Neue House. Yeah, hopefully everyone out there enjoys the audio quality and for people watching the video version, all the cameras and video quality as well.
- Natalie Monbiot: 01:16:21 I feel like I'm being shot in 3D for my 3D avatar. It's awesome.
- Jon Krohn: 01:16:25 Yeah. Perfect. Thank you, Natalie.
- Natalie Monbiot: 01:16:26 Thank you very much, Jon.
- Jon Krohn: 01:16:33 Wow. Exhilarating. Hope to be able to have Natalie back on the show again sometime soon to dig even deeper into what we discussed today. In today's episode, Natalie filled this in on how virtual humans can be used today for use cases like L&D training, explaining shopping listings online and being able to converse about a book or podcast episode. She also talked about how transparency contracts and limits on use are critical to virtual humans being distinct from non-consensual, malicious, and illegal deepfakes.
- 01:17:00 As always, you can get all the show notes including the transcript for this episode, the video recording, any materials mentioned on the show, the URLs for Natalie's social media profiles, as well as my own at superdatascience.com/823. And if you'd like to connect in real life as opposed to online, I'll be giving a keynote and hosting a half day of talks at Web Summit, a conference that Natalie herself has been at in the past. That's coming up this year on November 11th to 14th in Lisbon Portugal. There'll be over 70,000 people there. I'm pretty sure it's the biggest tech conference in the world. It'd be cool to see you there.



- 01:17:35 Thanks, of course, to everyone on the Super Data Science podcast team, our podcast manager Ivana Zibert, media editor Mario Pombo, operations manager Natalie Ziajski, researcher Serg Masis, writers Dr. Zara Karschay and Silvia Ogweng, and founder Kirill Eremenko. Today, we also had a technician, Andrew Thomas, who is with us to record this really well produced, really well shot in-person episode today in New York. So thanks to Andrew for that. Thanks to everyone on the Super Data Science Podcast team for producing another fascinating episode for us today.
- 01:18:05 For enabling that super team to create this free podcast for you, we are deeply grateful to our sponsors. You can support this show by checking out our sponsors links, which are in the show notes. And if you yourself are interested in sponsoring an episode, you can get the details on how to do that by heading to jonkrohn.com/podcast. Otherwise, please share, review, subscribe and all those good things. But most importantly, just keep on tuning in. I'm so grateful to have you listening and hope I can continue to make episodes you love for years and years to come. Until next time, keep on rocking out there and I'm looking forward to enjoying another round of the Super Data Science Podcast with you very soon.