Women at Warp Episode 171: This Unit Must Survive (Trek and AI)

Voiceover: You're listening to a Roddenberry podcast.

Sue: Hi and welcome to Women at Warp: a Roddenberry Star Trek podcast. Join us in our continuing mission to explore intersectional diversity in infinite combinations. My name is Sue and thanks for tuning in. With me today is my co-host Aliza.

Aliza: Hello.

Sue: And our special guests Rumman.

Rumman: Hi!

Sue: It's been so long. I'm so glad we have you back on the show.

Rumman: I am so thrilled to be here.

Sue: Would you like to, for people who may not know you, introduce yourself to our listeners? Tell us a bit about you and your relationship with Star Trek.

Rumman: Sure. So a bit about myself, my name is Dr. Rumman Chowdhury. I'm currently the director of machine learning, ethics, transparency, and accountability at Twitter. So, our team's name is META. What is my relationship to Star Trek? Wow. Um, deep. And it goes back really, really far. I first started watching Trek at probably the age of six or seven, TNG first run, but I will say it's DS9 that made me who I am today and is, you know, will always have my heart. And I've watched every Trek movie, I will probably say. And I am completely thrilled lately at the- basically like embarrassment of riches we have of Trek with all the amazing new series coming out. And ,You know, whether you like them or don't like them, I think a lot of us can remember a time where you had to wait every week for one hour of Star Trek. And now you can just binge watch Trek literally whenever you want. It was- you know, actually in prep for this episode, I just kind of binge watched all of the episodes that we were talking about in the

outline document. And I'm like, "This is so much fun!"*laughs* I will say before I get started, I do want to give a shout out to my team at Twitter, *laughs* I mentioned in team slack that I would be on this podcast and everyone was super excited, and it led to quite a bit of internal team discussion. And a lot of people exposing themselves for the massive Star Trek fans that they are. There are quite a few people who work in machine learning, ethics especially, who are big Trek fans. And I think it was the first show that really exposed the idea of robots or artificial intelligence in a way that was philosophical. We had never really talked about AI and robots in a philosophical way in that manner before, at least for some of us, it was the first time we thought about it in the thoughtfulness that was put even into the earliest episodes of Trek, I think, shaped a lot of us. And I'm unsurprised to see so many people on my team and in this field in general, who are big big fans.

Sue: That is fantastic. And so quite clearly, we are going to be talking about artificial intelligence and machine learning today. *Rumman laughs* So we have the perfect guest with us. Before we get there, we do have some housekeeping to do as usual. Our show is made possible by our patrons on Patreon. Find out more on patreon.com/womenatwarp and join us for some watch-alongs, some non-Trek podcasts, and some other fun rewards. This episode is brought to you by Text Expander, more from them a little later. And are you heading back to the in-person conventions this fall? You'll be able to find members of the crew at Dragon Con, Rose City Comic-Con, the Scifi Summit in Edison New Jersey, and New York Comiccon among potential others. And that is all for today. So, let's get into it! This topic came to us from one of our patrons. This was a patron suggested episode from Inigo who said, "I would really like an in-depth discussion of AI and machine learning in Trek. What does Trek really think about artificial intelligence?" That is quite the topic.

Aliza: Yeah. Huge question. *laughs*

Rumman: I don't know if an hour is enough to even scratch the surface, but we will do our best.

Sue: We will do our best. Yeah. So we say this a lot, but this episode will not be a comprehensive list of every time Star Trek deals with artificial intelligence or machine learning. That would not be possible. We're going to try to touch on every series if we can, and hopefully pick out some of the episodes that are really

exemplary of what the series and the show itself has to say about these topics. Very first, right off the bat, I wanted to do some definitions. And Rumman, please tell me if this is accurate because you are clearly the expert. Artificial intelligence is a technology which enables a machine to simulate human behavior. Machine learning is a subset of artificial intelligence, which allows machine to automatically learn from past data without programming it explicitly.

Rumman: So, yes, and I do want to get hung up a bit on the word "simulate" human behavior. I think if we were to talk about artificial intelligence, especially as it relates to Trek, and also in sort of the futuristic way in which it is sold versus the reality of the world we live today. The word simulate would be something that I think would be hotly discussed and debated, right? So we had the founder of DeepMind talking about this really fascinating protein folding technology that they've come up with that can help cure diseases saying things like, "Oh, well it's easy. We're just going to map the human brain, and the human brain is basically like a computer," but it's not, it's not that easy. So, you know, some people do think that we will actually achieve artificial general intelligence, which is not a simulation of human behavior, but essentially a replica of the human mind and human consciousness. The world that we live in today is narrow AI, which is more of a simulation, a pretty terrible simulation of that. So I think it's interesting, you put that word in there. I think that word alone in the AI community would lead to a lot of discussion and debate.

Sue: I found that word on the internet more so *laughs* than put it in there by itself.

Rumman: *laughs* Which we know is 100 percent true. The internet is only full of truth. No, but I do think are great definitions and a good starting point for our conversation.

Sue: So I spent a lot of time trying to figure out how to organize this episode, because there are so many ways to do it. There's sort of the creation story of the AI. There is the type, if you can call it that, of AI, there's chronologically in terms of like release date, there's chronologically in universe. But I finally sort of settled on humanoid versus non humanoid. And I want to start with our non humanoid AI. And I think one of the best examples we have of that is The Ultimate Computer from the original series.

Rumman: I love that episode because it brings up a lot of the concerns we have today and is closer to this notion of narrow AI, as I was talking about earlier, than this concept of artificial general intelligence. And throw in a dash of Asimov's rules of robotics into it. And then poof, you get this really great episode. But I'm curious to actually hear what stood out to you and what are the concerns that both of you thought about when thinking through this episode.

Aliza: Well, for me, the main takeaway in rewatching this episode recently is this fear that humans have of robots or AI replacing us and taking our jobs and things like that. And this is a very very current modern day fear that is still here. If you look at like Amazon and these other huge corporations that have warehouses that are run by robots, or at least all the manual labor is by robots. And they're just like, maybe several humans instead of hundreds of humans that used to work there. There are a lot of also, I think, car companies that have replaced some human labor on the floor, which is actually maybe not a bad thing, because those were dangerous jobs that humans were doing at great risk to themselves. But the problem is that there's less human labor that's being employed there. So I think that's one big takeaway that I have from this episode.

Rumman: Yeah. And so it's really interesting cause we're talking about non humanoid and I I'd even add to non humanoid, like non-physical. Like, it does not have a physical tangible format. So you are talking about Amazon having warehouse robots, which is very valid and definitely a fear. But then there's also the intangible. At Amazon there are algorithms that determine productivity and decide if people should get fired.

Aliza: Oof!

Rumman: Right. So it's Taylorism at its worst. It's pushing into people to work at the rate a machine works, and machines don't need to sleep, machines don't need to eat, or go to the bathroom. I mean, you may have heard like, analogies- and it's very real. It's not even analogies, like these stories of Amazon workers, and drivers especially, literally peeing into bottles in order to make their delivery schedules. And all of this is because everything they're doing, the data's being collected, it's being tracked, and it's put into an algorithm. So it's interesting that you bring up Amazon, cause yes, there is absolutely a fear of a physical robot replacing human behavior. There was also this fear of this abstract conceptual algorithm judging you and determining if you deserve to have your job. And I find- I found that really

fascinating. And it kind of relates to the nature of this episode. You know, we have an AI essentially making decisions to kill people. I mean, obviously, more extreme than laying somebody off a job, but you see where the parallels are.

Sue: Yeah. As a quick reminder, this is the episode where Dr. Daystrom shows up on the Enterprise and installs M5, his program that is supposed to essentially replace Kirk and make command decisions and run algorithms and defend the ship. And really it's- there was a lot about Kirk wondering if he becomes obsolete. But then M5 sort of runs amuck and decides that everything is a threat. The Enterprise is about to destroy other Federation ships because M5 can't discern the good guys or friends from enemies rather.

Rumman: Yeah. And in our field that's actually a paradox we call the paperclip maximizer, which may have been- it may be analogy that you're familiar with, but essentially the thought experiment is very similar to this: you create an AI that maximizes the number of paper clips that can be produced, and the ultimate conclusion it arrives at is you need to kill everybody, because every human being is getting in the way of maximizing the number of paper clips that are being produced. So it's actually, you know, analogous to something, to the thought experiment that exists in the more philosophical world of AI. The other parallel that exists here is specifically about automated killing machines. And I do want to bring this up, because lethal autonomous weapons systems is something that's discussed quite a bit in the AI world. And often, especially in the world of ethics and AI, there are actually organizations called- about stopping lethal robots. It's actually called Stop Killer Robots. But I do want to point out that this year, the first autonomous weaponized drone, was used this year. It's something called the Kargu 2, and it was created by a Turkish company. And the difference between that drone and the traditional drones with guns that have already existed in warfare is that this one makes the decision to shoot to kill. Versus the other ones which are basically a camera with a human on the other end and then the human sort of pushing the button. So here's where we start to actually move into lethal autonomous weapon systems, which is something that, you know, really does raise a lot of scary ethical questions.

Aliza: Yeah. *laughs* It's terrifying. I- I'm just finding out about this. *all laugh*

Rumman: I promise not to be- I promise not to be all doom and gloom. *laughs*

Aliza: No, it's okay. But yeah, I didn't know about that. The Kargu 2. That's really- yeah, that is pretty terrifying.

Rumman: Yeah, it was a little over a month ago. At least, the UN came out and was talking about it a little over a month ago. I don't know how widespread weapons like this are being used or thought about being used. But essentially, the company claims that they use machine learning and real-time image processing to identify its targets. And there's a lot of things we could talk about there, about the shortcomings of these algorithms. But it's certainly worth noting that unfortunately, defense and warfare is always very close, and spending a lot of money on this kind of thing.

Aliza: Yeah. There's actually a question from the person who- our patron, who suggested this topic, Inigo, they asked "Why do M5, and Landru, and so many others fall for a logical paradox in this episode?"

Rumman: Again, I think here's where we start to think about artificial general intelligence and the complexity of the way human beings think. And you know, why we can be in a world of narrow AI, which is "I take some data for a specific thing. I train a model and I get some sort of output- probabilistic output" to this dream we have of AI as something more like maybe Data. Right? And we can- I know we're going to *laughs* spend quite a bit of time talking about Data. How do we not? And the complexity of the human condition, to be honest, for us it seems like a pretty rational and easy to follow a pathway. Like what stumps a computer in creating a logical paradox. But these are actually quite complex and contextual situations. I think, pretty simply put if I were to give like a today example, language detection models can't pick up things like sarcasm. And I find that really fascinating because even if you don't speak a language in a country, you can fly that country *laughs* and see two natives speaking, and you would be able to tell what their mood is and how they are communicating. And you pick up these signals like body language, tone, et cetera. Twitter is a great example. You can go on Twitter and you can tell if someone's being sarcastic or if someone's being malicious, we cannot train an AI system to be able to do that, they're really incapable of it. So if something as "easy" as identifying if someone's being mean or angry or sarcastic versus someone who's joking with their friend is impossible for an AI system. You know, some of the most sophisticated models built today, I'm kind of unsurprised that even in this magical future world where we have all of

these amazing and complicated technologies that an AI- an artificially built system is unable to do a very basic, you know, human action.

Aliza: Yeah. I don't think we realize how difficult that is. Like, picking up those clues just from humans. Would you say- it feels like to me that a lot of the fears about AI are not the things that we actually should be afraid of about AI. *all laugh*

Rumman: Yeah. That is actually a great way to put it. And so much of the fears of AI- and then I know we're going to talk about Picard later, too. I feel like Picards one of the great depictions of it, because so much of it boils down to this person or a humanoid or, you know, some living creature, creating a cult of personality around them. And that is sometimes a lot of what Silicon valley feels like. It feels like cults of personality built around mainly men. Usually white men who pushed their own personal agendas by hiding it behind this veneer of some technological acumen or like technological greatness when really what's behind it is often a lot of ego.

Aliza: Well said.

Rumman: I will either get snaps or hate mail from that. I'm not sure which.

Aliza: *laughs* Right. Probably a lot of snaps from our audience, at least. *all laugh* Maybe we should move on to the next example in Trek.

Sue: The next example that I wrote down is really two examples because they are very similar, if not almost the exact same story. And that is V'ger in the Motion Picture and Nomad in the Changling, both of which were probes sent out by NASA that collided with another entity and became something greater. Right? So these accidental AIs that then come back searching for their creator.

Rumman: Yeah. I mean, I love V'ger because it's a fascinating interpretation of what an artificial general intelligence, an AGI, could be like, but it actually exists in a non purely robotic form. And I do find a lot of really interesting parallels, you know, obviously recognizing that this was not made in the modern day, but there is some really interesting parallels with the way V'ger does data discovery, like by scanning people, gathering information, and ultimately using it kind of maliciously, but unintentionally maliciously? And parallels *laughs* to actually how all of our

data is often sold on markets. You know, I feel like promising not to do doom and gloom, but I'm like, "Oh, but here's this really scary story you should be absolutely aware of." *all laugh* So, there's a lot of articles lately about something called Pegasus, and Pegasus has been used to actually track and, actually, find a lot of personal information about journalists in particular. Including folks like Jamal Khashoggi. So it is an AI system that was built, with, you know, essentially publicly available data. Data you can buy in the marketplace essentially. Well, mainly on the dark web, but also some of it is not on the dark web. There are companies that are data brokers and they sell your information. So, the thing that really stuck out to me was this idea of data collection, and seeming kind of innocuous. If you remember, you know, when V'ger sort of does the scan and it's gathering information. Like, the individuals aren't specifically harmed, they're just like, "Oh, it's a little tingling, buzzy feeling." and then it kind of moved on. And, you know again, parallels to today. And we think about artificial intelligence and all these complex and literally invasive systems that are being built on the data that we very innocuously share on social media, on whatever, every time you click on an image, every time you watch a video. There was an analysis done of the Tiktok algorithm, and it showed that the biggest predictor that influenced your timeline was literally how long you spent on a video. So everything that you're doing is being tracked, however innocent that behavior. And it's going to feed the sort of bigger model that's making all these computations and studies about you.

Aliza: So question about V'ger, is it- okay. How *laughs*, on a scale of one to 10, how possible or realistic is it for an unmanned, well, un-crewed I should say, space probe to gain sentience? I mean, it seems like a silly question, but I think there- I'm asking a real question here. *all laugh*

Rumman: Yeah. I mean, I will say- like, obviously one cannot speak for all of the humanity in the future, but I *pauses* will make a safe assumption that we are not seeing anything like *Aliza laughs* this anytime soon. *all laugh*

Aliza: But what if...

Rumman: *laughs* But "what if.."

Aliza: What if you programmed the space probe to gather data? How much data, like, is there a threshold of how much data like a machine would have to acquire?

And you know what I mean? Like, I guess what I'm asking is about the singularity. *all laugh*

Sue: If I can maybe piggyback, I guess there- is there a tipping point, if you will, between machine learning and artificial intelligence into sentience?

Aliza: Yes.

Sue: Is that- is that a actual feasible thing?

Rumman: So maybe I'll quote one of the people who's called one of the godfathers of AI, who's won the Turing award, and say that the current way that we do- we build artificial intelligence and machine learning, it's actually very mathy. It's really a lot of math behind it. And while you program the math, and programming is basically math written out, Jeff Hinton has said that we're not going to achieve AGI. We're not going to achieve the singularity the way we're doing AI today because it's too computationally intensive. It's too limited. Our structures are too limited. So the issue actually really isn't the data. It is how we create our algorithms and the models that exist. So if we think about the word model, it is literally that. It is a model of the world, like an economic model, or a model car, or a model airplane. It is a fair representation of what it is that it's trying to simulate, but it will forever be a simulation or an approximation.

So, there's a lot I could learn if I'd never seen an airplane before by looking at a model airplane, but I will not know everything about an airplane. And that's quite literally what we build when we build machine learning and AI models. We're building approximations of the world and sometimes they're fairly good approximations of the world. But there are definitely limitations. So sure, we can collect more and more data, but what will we do with that data? How do we use it? And "are we actually drawing the right conclusions" is where the limitation comes in. And in terms of coming to an AGI, or at least some sort of singularity or sentience, I mean, it requires a mind boggling amount of, I would say like non contextual training. Because really the beauty of humankind is we're able to take learnings we apply in one situation and apply it in any other situation. Right? So we learned by imputation or we learn by experience, or we learned simply because like someone told you to do something or not do something, and we make judgment calls on whether or not we want to do that thing or not. Right? Something as simple as like, "Hey, Aliza, take an umbrella today. It's raining."

You're gonna look out the window and be like, "Oh, I don't think it's going to rain." Right? That in of itself is actually a pretty complex series of actions that required a lot of background thinking that we definitely take for granted.

And I'll give you a really tangible example. People have been talking about self-driving cars for ages. We are nowhere near achieving fully self-driving cars, and we've actually seen the narrative, you know, basically dwindled down to kind of "You'll have really good parking. And sometimes if there's nothing on the road, your car can go really, really fast." *Sue laughs*

And the funniest thing to me, I thought it was hilarious, they call it the Zoolander effect is that at a four way intersection self-driving cars have a really hard time making a left turn. And they do so because if you think when you sit at a four way intersection, there's a car at each, there is a lot of body language and some implicit communication. And if you think about that it's actually fascinating, because these are for complete strangers,these people do not know each other. They not know how the other person communicates, but there is this universal driving language where somebody goes and someone waves someone through and someone nods or- but you know what you're all saying.

We're not getting into accidents every single time we have four cars at an intersection. But that is too much for a self-driving car to be able to handle. So, I find little anecdotes like that super fascinating. So your question is a really great one. And what I love though, is that questions like that really capture the imagination. And I can't emphasize enough the value of Trek and talking about AI, and showing us the possibilities of AI, that shapes how we imagine the future. So in the world I live in, these people are making the technology. And the idea has to come from somewhere. So this is really great work by folks at the Leverhulme Center for Future Intelligence, Dr. Kanta Dihal and Stephen Cave, and it's called AI narrative. And they actually went through and- to different people in different cultures and talked to them about what are their folktales and fairytales and stories about things like AI and how does it influence the kind of AI that gets built and our perceptions of AI.

So like, one of the stories that they have that really stood out to me is, you know, in Japan there was less of a fear of robots. And it's frankly, because a lot of people grew up watching anime that was sort of the mecha human hybrid. You think Voltron, you think whatever, like robo tech, right? So it's always been seen as a

human robot symbiosis. Whereas in the US other than Trek, most of our narratives are very dystopian. You get Terminator, you get Hal. You get an AI that's a robot that's going to go crazy and going to try to kill you. So we have more of a fear of "us versus them." And it's less of a narrative in other countries. I find that really fascinating. Stories that are respond- and the stories we are told spark our imagination.

I mean, we know that the iPhone was originally kind of modeled, right, after transceivers. And you know, recording devices from Trek. So it's fascinating, because the things we watch as children and things we watch in movies shape what is built in reality. You know, it's very art influencing life and life influencing art.

Sue: Well, exactly what you said would not happen a few minutes ago, is the storyline of the next episode on our list. *all laugh*

Aliza: Perfect segue.

Sue: But that- that is a TNGs The Quality of Life. This is the episode with the Exocomps. One we simply could not ignore for this list. And the programmer says they can learn, says they can make decisions, says they can analyze. And they get so good at it that they become sentient. Right. That's the plot of the episode. What stands out to me about this episode is that it's one of the few times I can recall, the other really also being in Next Gen, the episode Evolution with the nanites that they start debating the rights of a non-humanoid AI.

Rumman: This is the stuff I love talking about. I mean, I think all of us can say Measure of a Man is one of the most poignant episodes. One of those philosophical episodes, one of the most thoughtful episodes in all of science fiction, let alone in all of Star Trek. Right? So, and you know, I'm excited to talk a bit about the Doctor in Voyager later, too. So it is such a fascinating conversation not because it's a debate we're going to have to have in our lives about humans, but I do think there's a lot of parallels to, you know, how we treat animals. Right? How do we think about beings that we don't think of as equal to ourselves? And for some people, unfortunately, that extends to other human beings, right? We can think about it- we can think about this parallel when we think about nature and the climate and what's happening all over the world. So I- what I love about these narratives is not so much that it teaches us how we should think about

artificial intelligence systems, but it teaches us how to be better people. And how to be more thoughtful in how we interact with other creatures essentially, that we don't view as being us. But you know, I actually really love the idea of Exocomps. I think they're really cool.

Aliza: They were pretty adorable, too. Like-

Rumman: I know! *both laugh*

Sue: And we know they come back in lower Decks, or at least one does. I want us to move on to our humanoid AI, but I do just want to throw out a couple of the other episodes we had on this list. There is TNGs Emergence, which is when the ship creates intelligence, because it can. There doesn't seem to be a catalyst for it. And the crew seems totally unbothered by that. And that intelligence goes off to explore the universe. Sure. There's Voyager's Dreadnought. That is the episode where they find a Cardassians probe, I believe. Probe or weapon that B'Elanna had altered when she was with the Maquis.

And it has- the two operating systems have sort of combined into an AI that doesn't want to trust her. There is Enterprises Dead Stop, where they've got an AI running an automated repair station that is kidnapping living beings to gain processing power. And there's essentially pretty much all of Discovery season two. We've got our intelligent sphere full of hundreds of thousands of years of data, that's probably the incorrect number. There is Control, that's created by Section 31. And there's Zora in the Short Trek Calypso. So there's quite a lot going on. Anything anybody want to shout out about any of those before we move on?

Rumman: I'm worried about going out on too much in rabbit hole if we start talking about, especially Control, but just the whole season two arc of Discovery. But I agree that we should probably move on and talk about humanoids. I feel like most people listening, you know, came in thinking, "Oh, we're gonna talk about Data. We're gonna talk about the Doctor."

Sue: That's what we're going to do.

Rumman: You need to give your fans what they want. *laughs*

Sue: So when we're talking about humanoid AI, we've basically got two categories. You've got Androids and holograms. So let's, let's start with the Androids. Before we get right into Data, though, we do have androids in the tos era and a couple of episodes: What Little Girls are Made Of, I Mudd, Return to Tomorrow, Requiem for Methuselah. They almost always are of unknown origin or come from another galaxy, and don't work like the Soong type Androids, and fall for the same logical traps as like Landru and M5 do. Any thoughts about these, about the sixties *Rumman laughs* idea of Androids on TV?

Rumman: As long as we didn't get femme-bots, I'm fine.

Sue: *laughs* Yeah, they're all scantily clad.

Aliza: True. True.

Rumman: I mean, that's apparently how everyone just rolled into the sixties.

Sue: I mean, I didn't have the chance to re-watch all of these, but when you do go back and watch it, they are very much written like the non humanoid AIs in tos as well. So there's not a ton of difference. And they're seen to be sort of threatening, in the same way that like M5 was. Not exactly the same way, not in a replace Kirk kind of way, but in the "We're stronger than you, we're better than you, we don't need to eat," you know, that sort of thing.

Rumman: And I wonder how much of that was sort of brought about because of the cold war and, you know, following up in world war two and all of these advances in technology. I mean, we weren't quite at computers being mainstream, but we were definitely in a post nuclear era. We are in an era of, you know, expansion of science and technology. You know, we are in an era where we're going to the moon. So I do think that it's a logical leap to think about, "Well, what if we just created robot people?"

Aliza: Yeah. For the time, it also makes sense that the main concern is that threats that they pose to us. It's like, it's not about their humanity. It's about them replacing us, or them harming us, or wanting to kill all of us.

Sue: Which changes entirely in the Next Generation. We're there. It's Data.

Aliza: Data!

Sue: And Lore, and Soong, and Joanna, and B4 *laughs* and the Soong type Androids.

Rumman: And Lal. Let's not forget Lal.

Sue: Oh, and Lal. Yes. But, Data. Created in the image of his creator. Right? Noonien Soong, quite literally because Brent Spiner played all of them. And seeking to be human. So the thing that was a big knock against the AI in TOS." You're cold, you're unfeeling, you're un-empathetic" becomes Data's pursuit in the Next Generation.

Rumman: Yeah. I mean, I will say the one thing I do want to point out is the idea of an emotion chip cracks me up. So it's just like, you can just like take this thing out of your head and that makes Data Data and Lore Lore or, you know, whatever. Swap them out. That's what makes Data uniquely Data. I mean, I think as a thought experiment also actually kind of fascinating. What if you could generate an emotion chip and you know, you can download your personality. I think that's, you know, some of the hype around things like Neuralink, you know, the ability to stick things in your brain and either augment you as a human being or change you as a human being. So independent of, you know, an Android having a chip that theoretically makes him more human. There is actually this- the opposite where, you know, there are a lot of people who do body augmentation with different, you know, fairly low tech things, but you know, a lot of the conversation about things like Neuralink would be, "is it possible to have a perfect memory" for example. Or, you know, remember all your dreams very clearly, or, you know, know every language, by augmenting our brains with different microchips about things.

So over simplification of what these technologies could have- how they could theoretically look. But yeah, I mean, a couple of interesting things about Data. So first is, you know, I would wonder why- I mean, and I suppose this is the answer is, you know, human hubris. Why would you gender AI? And also, heteronormative AI. Like, Data really wanted a white picket fence, and a house outside Cleveland, and the 2.5 children, and the minivan. And I'm like, "Dang, Data of all of the things you could be in all of the world. You want to be like a soccer Mom?" Data wants to be a soccer Mom. *all laugh*

Sue: Well, I think it- it is reflecting back what, especially in the eighties, we were told we were supposed to want. Right? That that is the epitome of humanity and successful living, right, is the relationship and the children and the home and the successful career and the cat.

Rumman: Let's not- let's not forget Spot, cause spot is a good cat. And I agree. I think it's really interesting, and you're right, there's this interesting eighties reflection of what it means to have a fulfilled life. And to have a fulfilled life it means you're married, and you're gainfully employed, and you have children, and you have the pet and you have your sort of lovely nuclear family, and all of the trappings that come along with that. It is very- it's very fascinating. Especially if you think of, you know, TNG is. I always saw it- thought of it as a very sanitized version of Trek. It's just very like elite. Quite literally right? Their chairs are these like beautiful leather chairs, basically all space Eames chairs, as opposed to like, in DS9 where essentially they're just like sitting on bar stools *laughs* all the time. *all laugh* And again, like for me, as I mentioned in the beginning, this transition from TNG to DS9, which for me happened in like this very pivotal- like I was a kid when I watched TNG. So like, having the safe, comfortable, happy world where like, frankly, everything was very normative in every single way. Like heteronormative, gender normative, and even think of like Data as a reflection of, as you mentioned, like the normativity and the boringness of the eighties.

And then you jump into the nineties and you're getting, you know, DS9. And all of a sudden you're thrown into all of these complex conversations. And while we don't really have a ton of aI in this sense, in sort of the humanoid sense in DS9, I think it does spark a lot of the most interesting conversations. And frankly, I would have loved to see Data, try to navigate the world of DS9 *laughs* rather than the sort of very fixed and, you know, very calm and complacent worlds of TNG.

Aliza: Yeah. I mean- and not to skip ahead, but we when we get to Picard, we can talk about like Data in Picard as well, and how his role, his relationship to Picard is really important in that story. And then his role in that story is also, I think, very different from his role in TNG. But, I want us to say real quick that another thing about Data in TNG- his, you know, his aspirations of being more human and that picket fence dream he has, I think now looking back, it's easy to say this, but it feels- it just shows like how naval gazey sci-fi writing can be. *laughs* Like, especially- in this day and age right now, 2021, I think from now on, we will have stories that are more open and they break open the human experience of what it can be more. And we'll have better representation in those as well. But back then,

as progressive and forward facing Star Trek was, it still was written mostly by white, cisgendered, straight men. So that naval gazing of their experience, like they're writing their desires into that character as well. But it's just so explicit when you look at it through the 2021 lens.

Rumman: Yeah, absolutely. I totally agree. And maybe we can talk a little bit about Lal and, you know, the literal invention of a child.

Aliza: Right.

Rumman: Which again, going back to this idea of hubris, if there's anything that comes out of Lal, it's not so much that Data learned to love a child. It's just that- it's that human hubris of wanting to make a thing and own it essentially. *laughs*

Aliza: Yeah, and make it perfect. And because it wasn't perfect, it had to- it had to go away. It was just like, oh God. Yeah.

Sue: I mean, her matrix was fragmenting. It's not that she wasn't perfect, she was dying.

Aliza: Yeah. But what I'm saying is like, that is like a parenthood thing. Where, you know, you look at your children and you feel broken if they're ill, if there's something like that. Data went through that with Lal in a very visceral way. For sure.

Rumman: Absolutely. And there is a lot to Data that is so fascinating, right? I mean, there is so much more than an emotion chip. And I think, to your point Aliza, you were talking about that in Picard, there is so much more to Data than just sort of the neurons. That's a creative hand in the ability to stick this chip into an Android's head, that's transferrable. Like, I was joking about it earlier, but ultimately, there are certainly instances in which Data is acting more human in the philosophical sense, you know? And sometimes what I loved about Data is he sort of served as the team. Socrates. Like he would ask seemingly childish questions that are actually quite complex, that is quite familiar with the Socratic method, right? You prove or disprove an idea by starting from basic principles and asking why, why, why? And asking everyone to explain themselves, and asking the definition of something. And I think Data served as their conscience, to an extent. Because sometimes as humans we sort of rush past decision-making and we

assume everyone's on the same page as us. But there's something very methodical to Data's approach to humanity. He tried to solve it like a puzzle, or a problem. And in doing so, he actually started to tear apart what it meant to be human. And I think that a parallel that I think is really fascinating is, you know, thinking about gender fluidity.

And we think about today, we start to dissect what it means to- all the assumptions that we all have been raised with, and lots of people hold, about what it means to be a particular gender and what it means. So today I was having a conversation about nail Polish with somebody on my team who is male. And we were talking about how companies are now selling gender neutral nail Polish, but actually there is no difference with other nail Polish.

It's just- we just decided that one of it got gendered and the other one isn't. And it's interesting that the things we assume, and then when you start from a fresh perspective or sometimes an outsider's perspective, you re-ask a lot of the basic questions that makes all of it crumble and fall apart.

Sue: And that's exactly what he does in that Exocomp episode, in The Quality of Life. He goes in and his first question, when he suspects something is going on, is "What is life?" And then as he learns more and as he's working on this problem, it becomes "Well, how are they different from me?" Ah, Data. Love. *laughs* But one of the things Star Trek does is very early on, season two Next Gen, they have him fighting for his rights, for his personhood, for honestly, ownership of himself. Right? Cause the trial is "is Data the property of Starfleet? Can he even resign?" Right? "Is he allowed to resign?" But what's interesting to me is that once they win that case, it never really comes up again. Right? So if this is an allegory for marginalized people who have had to fight for different rights over the years, you never win all at once. It's much more, and we'll get there, it's a much more like Author Author, right? Where you kind of win, but mostly lose. And it's, you know, two steps forward, one step back the whole way. But Data wins once and that's it. Which kind of takes us into Star Trek: Picard because that decision almost sort of gets reversed with the synths because something goes wrong. Spoilers, by the way, Star Trek: Picard.

Aliza: Major Picard spoilers. So yeah, let's get into it.

Rumman: There's a lot to unpack in Picard. I mean, I know some of the reviews of it were not always really positive, but I loved it as somebody who loved TNG. And you got to do a bit of a walk down memory lane in it. And especially, as you mentioned earlier, the relationship between Data and Picard. And actually, as you were talking about Measure of a Man I was reflecting on Picard. And I was thinking about how I actually cried in some of the scenes, *laughs* the relationship between the two of them was something so beautiful and transcendent and the most beautiful kind of friendship that, you know, how could you not see Data as human, essentially. Cause your ability to have this very, very deep and long lasting friendship that you literally sacrificed everything for.

Sue: Quick overview for the setup for Picard. It's not even really the story yet. *laughs* It's just the setup of the world we're in is Bruce Maddix has continued to work on synthetic life and has sort of used Data as a template to create synths. Not- and they don't call them Androids. They specifically called them synths, and they are intended, if I understand it correctly, intended to not be sentient, but be Androids in the sense that like we today think of Androids. Like, workers, or doing difficult tasks, and lifting things that are heavier than humans can lift. And they're employed on Utopia Planetia building ships, and one of them blows it up.

We still don't really know why. And there's this disaster on Mars. We can assume there was foul play by the Romulans, I think that's hinted at, but not made explicit. But as a result of that, the Federation bans all synthetic life, which is a pretty extreme reaction. And this causes ripple effects throughout the story.

Rumman: I think one of the most interesting things to discuss here is the Romulan quote "religion." And this idea that AI is this fundamental threat to all existence. And here's where, yeah, I talked a little bit earlier about some cults of personality, where what I loved about Picard is you start to merge the narrative of evangelical religion, to the narrative of technology. And you start to see how sometimes there are a lot of parallels. And especially in the worlds we live in today, there's a lot of technological solutionism. And I know we haven't gotten to the borg yet, but this idea of, you know, "technology is fundamentally good. And as long as you are pursuing technology, it is abstract good for everyone." and the opposite side of that is sort of this Romulan religious cultural fear of AI that's going to come and kill you. I think it was a pretty brilliant connection to have made.

Aliza: Wow. I hadn't thought of it that way. For sure. Going back to the Picard and Data connection in Picard. I think what I saw that was different in their relationship, this added layer, was that Data now serves as an entry point for Picard's next chapter of his physical body. Like, his existence. I don't think I ever viewed their relationship that way in all of TNG. It was very much like "this Human Captain and this Android Lieutenant Commander are besties, and this is what it is." But in Picard it was this beautiful ushering in for Data to kind of- Data was kind of like instrumental, in a way, for Picard to continue his life by becoming more machine, *laughs* like adding some machine to the human. And I thought that was really poignant.

Sue: See, and as I was thinking about Picard and the universe, the story, the place that we're in. And then rewatching Measure of a Man this week, I was thinking, you know, what would- if Data had not died, at the end of the last TNG movie, what would he have been going through during all of this? Data's still around when the synths are created, would he have something to say about it?

Aliza: Oh, I'm sure he would.

Sue: Would he be fighting for their rights? What if he were around when there was a ban on synthetic life, would they shut him down? Even though they had previously ruled that he was his- literally his own person?

Rumman: Yeah. I mean, if Exocomps, you know, his defense of the Exocomps is of any example, my venture would be yes. I think it would have been really interesting to see a timeline in which a viable, humanoid, functioning, android that had actually served the Federation, right? It is worth mentioning that the Federation is the military, and he served in the military. And it's the equivalent of, you know, thinking through immigrants who come to this country and serve in the military and their rights to citizenship, and their rights to have some sort of say and ownership over the United States. There's a very direct parallel. That's an interesting thought experiment. I would love to imagine what that defense literally would look like.

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All right. So from Androids, we move on to holograms. Of course, our biggest example is going to be the Doctor. But first, I don't think we could do this episode and not talk about Moriarty.

Rumman: Oh, absolutely. So, I'm going to admit that this is actually my favorite part of the conversation, because as I mentioned earlier, this idea of algorithms is really more of the world in which AI looks like. I think it was a antiquated idea that AI would look- have physical form and be physical robots. The likelihood of us creating a virtual environment with virtual beings is actually more highly likely within our lifetimes and in the fairly near future. So I am a fan of everything we're about to talk about.

Sue: *laughs* But the thing that is most, *frustrated noise* I dunno, concerning? To me *laughs* about Moriarty it's that he's created by the slip of the tongue. Geordie says, "Create a villain or a nemesis that can defeat Data", rather than that can defeat Sherlock Holmes. And because he said "That can defeat Data", the ship creates an intelligence.

Rumman: Right. And apparently only once and never again. *Sue laughs* In the history of all ships in all of the Federation, and also not in the Federation, that can create, holo-images and holo-people. Nobody ever does that *laughs* ever again. Thank goodness.

Sue: And again, they're not very concerned about it.

Rumman: They're not- they're like "I guess we're just gonna roll with the punches here." I mean, I suppose if you fly around space and literally meet new life forms all the time you kind of get a little bit numb to random things happening. But I do agree, but I think the most poignent thing about this episode is how it ends. And, you know, sort of putting him in this forever simulation, which one can wonder about the ethics of doing something like that. And especially- I know we've had sort of dystopian sci-fi or even thought experiments about "what if we created virtual prisons for people." So if somebody had to have some sort of a sentence, but if you like stuck an individual in a virtual cell, in some sort of virtual environment where they couldn't harm people, but they're serving out a sentence. And to me, this kind of felt like the same sort of thought experiment. Like, "Isn't it fine then? He's exploring some galaxy. It's just not real."

Sue: But he was lied to, because he thinks it's real.

Rumman: No, absolutely. And then one might ask, "Does he deserve to not be lied to?" Does this quote unquote "individual" virtual or real, you know, have the same sort of expectations of interaction and conversation as the rest of us might? But I would like to move to my favorite character of all time. I love Vic Fontane.

Sue: Vic Fontaine! Yeah!

Rumman: I love Vic Fontaine so much! Also because Fontaine is, you know, associated with Rom and Nog and all my favorite Ferengi. But what I love about Vic Fontaine is that he is sort of everyone's favorite therapist and everyone's bartender. And always, always has an ear to land and a helping hand.

Sue: Well, unless my memory is really failing me, I don't recall DS9 ever really dealing with like AI ethics, or Vics rights, or anything along those lines. But he certainly becomes a part of that crew. But the closest I ever recall of him- like we know he's self-aware, we know he knows when the program is off, right? Which is unusual for a hologram. But he only ever really talks about it when Nog is struggling in Paper Moon, right? And he says, "This is no life for you. You can do so much more." Which for the first time we get the impression that Vic sees himself as being limited because of his nature.

Rumman: And I think you're right. You know, for all the talk about social justice issues that DS9 exposed us to, they really did treat Vic like an object and a tool. And they sort of pick it up and you use it when it's useful to you and otherwise you discard it. And we do get some inklings that they are aware of how they're being talked about, or treated, or, interacted with as an object that provides a service rather than a being in its own right. Yeah. So that's, that is a really fascinating take, and maybe a good segue into talking about the Doctor.

Sue: Yes. The Doctor, I love the Doctor.

Rumman: I do too. And again, like, I feel like the doctor- I know a lot of when people talk about AI and Trek, they think about Data. But actually I think some of the most poignant conversations came up with the Doctor, more so than Data. And in part, because the Doctor is an incredibly annoying person. So he- Data is not the type that would raise his hand and be like, "Hey, so, you know, I'm being marginalized and I'm being hurt." And the doctor was absolutely that person, and good for him *laughs* for raising awareness. So we're talking about Vic and theoretically how these holograms understand when they're not being utilized, and they understand all the shutdown time, and the fact that they can't ever leave where they are. And then we get Author Author, where the doctor is creating- writing a fictionalized narrative. And the Doctor talks about specifically being burdened and oppressed and the crew is like, "I don't understand what the problem here is. What's your problem?"

Sue: Yeah. I think Janeway says directly to him, "You're making it seem like we don't care about you." like, I'm going to have to find the exact line now because it's so *groans* kind of clueless. Oblivious on her part.

Rumman: Yeah. No, it's very patronizing. And I think, you know, sometimes- and especially I think in that episode, it's very cringy. A lot of these narratives, Measure of Man too right, was an analogy for the treatment of minorities and marginalized groups. And very very often, you know- and again, today we specifically talk about this. This sort of "Oh, I didn't intend to hurt you. I didn't intend for a bad thing to happen." And the number one thing you learn in any activist community is intent does not equal impact. Sure. They don't think they're treating the Doctor poorly, and they don't think that they're marginalizing him, or they're they are oppressing him. That doesn't actually matter. And the idea that, "because I didn't mean something, it is somehow okay that I did this thing" that

somehow absolves you, it's really a narrative of the privileged more than it ever is a narrative of the oppressed. I did find that really eye-opening and really interesting. And re-watching this episode in the context of the time we're in, and the conversations we have that are really difficult conversations to have. And a lot of people facing a lot of things about themselves that that may be kind of ugly. Especially, you know, that relationship, holds very different meaning.

Sue: So I pulled up the transcript, and what Janeway says is "If I didn't know better, I'd think this story was written by someone who feels oppressed. Is that how you see yourself Doctor?"

Rumman: I'm cringing, cause that's like vibes of HR.

Sue: Oh no, wait. A few lines later, like four lines later, she says, "I understand you have your reasons for writing this, but you should consider how it's going to make your friends feel." *Rumman gasps* Yeah.

Rumman: Oh my goodness!

Sue: No. That's not *laughs*- that's not it.

Rumman: *laughs* Wow. And I mean, honestly, the first thing I thought of were actually women of color I know of, Ifeoma Ozoma, Timnit Gebru, folks who got fired from tech companies for speaking up, and being ethical, and doing the right thing, and being women of color speaking up. And quite literally, these are the narratives you hear. I mean, there was just an article about Google and how a common response to- well, and actually not just Google, someone was speaking up at apple as well, to put in particular women when it comes to sexual harassment and people of color when it comes to blatantly racist and oppressive situations is to A) offer them counseling and B) offer them leave. So quite literally, there's a go-fund-me going around right now for this employee at Google who got raped. And her rapist is at Google. She is on unpaid leave, and he is still employed while the investigation goes on. And this is exactly the kind of narrative, right? "How do you think it'll impact everyone else if you speak up?" Janeway, we didn't know you were such a narc. Don't break my heart. *all laugh*

Sue: Well, and it's especially disappointing because the whole crew is on Janeways side of like "the doctor is being unreasonable. This isn't how he's treated at all"

until his rights of authorship are being taken away. And then they're all shocked and appalled at how he does not have the same rights that they do. So it is very very relevant to people today not quote unquote, "seeing" the oppression until it is something that they can fully understand, until it's something they can relate to.

Rumman: Absolutely. And what I think of is any black woman I know, will say "listen to black women", right? And we've had so many instances of malicious things that occur in society, so some of the things that we worry about today on social media, like sock puppet accounts, and bot harassment actually start off by attacking marginalized communities. Right? So we did not have a narrative around trolls, and doxing, et cetera until Gamergate, what black women experience. At first we did not understand what sock puppet accounts were, or bot accounts were, but it was actually black communities that pointed it out first because there were white supremacists groups creating fake accounts, pretending to be people of color within these groups in order to say inflammatory things. So there's definitely this constant repeated narrative of someone who is of an outsider group saying, "Hey, this really bad thing is happening." Everyone else being very oblivious because it does not impact their lives. And until it impacts them, they're like, "Oh wait, what? This is a problem?" And the person in the corner is like, "I have been yelling this for ages!"

So the thing about Author Author that really spoke to me, when I was young and I watched it for the first time, is the very end. You know, when we see these Mark One's doing forced labor in a mine and they're sort of reading the Doctor's book and his story, and it seems to be meaningful for them. And I thought that was very beautiful in a sense.

So can AI be liberated by inspirational word? That is such a human condition, is to read words, or to hear a song and to feel something, right? I think one of the proposed tests for an artificial general intelligence is "does it cry when it hears beautiful music?" Because human beings do, there's something about these- it's a literal noises that touch us in our soul. What does that even mean? So this idea that there could be these oppressed AI systems that read a story, and they make that parellel and say, "That's just like me, and we should get together and do something about it" is probably the ultimate human condition, the ultimate human experience. And I really love the end of that episode.

Sue: And it's exactly what Guinan warned us about in The Measure of a Man.

Rumman: Yes, we did not give Guinan due credit when we discussed Measure of a Man. That was actually one of my favorite- I mean, Guinans great for many things in that episode, hands down, one of the most moving monologues.

Sue: We've said it a million times on the podcast, but in case anyone has never heard the story, that scene was added later because Whoopi Goldberg needed another appearance to fulfill her contract.

Rumman: That's incredible.

Sue: One other thing I want to touch on real quick is a Voyager's Flesh and Blood. And that is the the two-parter really with the Hirogens who have the- Voyager gave the Hirogens holodeck technology essentially, so that they wouldn't hunt living people anymore. But they went and altered the programs to make it more "realistic" quote unquote, so that the holograms could experience both pain and death.

Rumman: Yeah. That's a painful Two-parter to watch it. You know, it's very The Most Dangerous Game plus AI, right? And again, it's that line between what we consider to be part of the human condition. So I would question that just because holograms are not programmed to experience pain or death, going through the act of killing them is not somehow better or okay.

Like, a simulated murder still speaks to the pathology that one would need to ask, "why do you need to go commit murder?" And again, like a lot of these episodes, like make us pause and think about humanity and where we draw the line. And what I love about a lot of these episodes is it sort of nudges at the line. And sometimes you can fall on one side or the other. But you know, here I'm definitely of the camp that I don't think it's okay that you could be able to hunt a simulated person and it doesn't experience any sort of pain or death and, you know, just kind of floats off into the ether, because I think the act of murder is not literally just killing the thing. It is having whatever it is in you that would lead you to go kill another being, even if it's a purely fake being. And I don't want to extend that analogy to video games. I think video games, like totally different. I mean, if the

holodeck is what we think it is, these are essentially beings that look and feel and act quite real.

Sue: The whole situation is dodgy.

Rumman: It's very very dodgy.

Sue: And there's a lot in Voyager, almost as much as the Next Generation, maybe more, with AI and holograms and everything. But we can't spend a lot more time on it.

Rumman: Unfortunately.

Sue: Yeah. A little bit- a unique rather, AI created being that did not occur to me, but is all you is Tuvix

Rumman: *laughs* Yes. Let us open up the Pandora's box that is Tuvix. *laughs*

Sue: Very briefly.

Rumman: That was very very briefly. What I always found funny about the whole Tuvix episode was he was everybody liked him more than Tuvok *laughs* and Neelix. *laughs* And that was- that was the unsaid part, but like, yeah. But, he's social but not annoying like Neelix and you know, he's smart but not dry like Tuvok. But you know, while not traditional AI, Tuvix is the accidental creation of a sentient independent being. So not born quote unquote "naturally." And again, we have another situation where there is literally a life or death decision made. And it's highly controversial and it's highly contentious. I think one of the- one of the most telling scenes is when the decision is made about Tuvix, Janeway makes the decision and he's sort of, I think, playing pool or whatever with the crew. And they all kind of look down and look away, and nobody can look at him in his eyes. And that's the thing. It's like, the fact that you can't look at Tuvix right now, to me means you know you're doing the wrong thing. And while you can intellectualize and rationalize your way out of the situation, fundamentally, emotionally, and in your heart you know that kind of the wrong thing happened.

Sue: It honestly, never even crossed my mind to bring up Tuvix in- among these episodes, but it makes complete sense now. But we have to move on to our third,

I guess, division, segment of, are cyborgs and augmented humans. So obviously the big player here is the Borg.

Rumman: I love talking about the Borg because there's so many analogies to be made to kind of the world today. I talked a little bit about this idea of technological solutionism, and the Borg is such a perfect example. You know, this idea of the acquisition and development of technology being the end goal. We see that reflected in a lot of the narrative that exists today that comes out of Silicon valley. This idea that as long as something is automated, it is just fundamentally better. And I think also that there is this part of building a lot of AI that is about removing ourselves from the messiness that is humanity, right? So when we think about, you know, technologies like Neuralink and what they're selling, they're selling things like "you're never going to have to sleep again." And "you're going to have a perfect memory." This idea that the human condition is flawed and broken, and we need to build the technology to compensate for our shortcomings. But I will say there are people out there who actually have perfect memories and it's kind of a disastrous thing to have. You know, maybe another approach would be to think that we have evolved a very particular way because it is actually the way that is the best suited. But this idea that upgrading to a machine is the cold perfection and the pinnacle of humanity I think is a very fascinating take. Yeah. So I- you know, I love talking about Borg, and we can talk about the Borg Queen, and Hugh, and Seven. I mean, Seven's journey back into humanity is one of the most interesting story arcs for me.

Sue: I think it's really interesting- I mean, I think a lot of people know the Borg are based on Dr. Who's Cybermen. And I think- I mean don't at me, *all laugh* but I think the Cybermen more eloquently explain their philosophy than the Borg ever really do. Right? Cause the Borg are just "Perfection, technological perfection," right? The Cybermen state, more than once, that by getting rid of all the humanities messiness, they're becoming closer to what they consider perfection. They are upgrading to machines to get rid of emotions and sleep. And the- I have no other words for it, *laughs* but the Cybermen lay it out really well. Whereas the argument against it, of course, is humanity. The compassion, the feeling, the relationships, the individualism that we see mostly Picard fight- well, and Janeway, fight the Borg about or with throughout their stories. And maybe this sounds like I haven't slept enough lately, but streamlining things and looking for efficiencies, right? That's what so many of us do all the time.

Rumman: That's so interesting. Cause you know, I think the analogy here is to things like hustle culture, and hack culture, where everything is something to be hacked. Whether it's body hacks, or efficiency hacks, or workplace hacks. Like there was some sort of- and even just the definition, the word hack is some sort of like sideways halfway done work around that solves a problem better than the way it's done today. But I do think it kind of speaks to a problematic narrative we have in society in general. And it's not just about technology. It could be about diet. It could be about exercise. It could be about what you spend your time doing. There's a lot of shaming for doing things that are just enjoyable *laughs* and not going to result in some sort of quote "productive output". Productivity being very narrowly defined as sort of doing more work or making money from a thing. So I find it sad that, you know, if you have a hobby one of the first thing someone's going to say is, "Oh, you should make an Etsy." It's like, I don't want to make an Etsy. Cause I make an Etsy it's going to suck all the joy out of doing this thing that I love doing.

Sue: I am in a crafting group on the book of face that has banned the phrase "You should make an Etsy" or "Do you sell this?" you're just- no one, you're not allowed to ask it. Because that's not the point. The point is to make and share things.

Rumman: Absolutely. Because then things start to become judged and assessed not by the pleasure you get out of making it, but the value to others. Or the value again based on some sort of marketplace ideal. So, yes. While I do agree, the Borg are really incoherent. But I think hustle culture is incoherent. You do reach a point where you're like, "What is the point of hyper maximized everything?" Like, it's almost childish to be perfectly honest, to think that we need to squeeze every last bit of efficiency out. And again, like, I work in an industry that is full of efficiency maximizers. There are movements called The Quantified Self, which are pretty much about tracking everything about your body and your health so that you can ideally cheat death, or you know, mathematically and quantifiably figure out a way to live as long as possible. There's Effective Altruism, which started off as a movement to pretty much say, you know, "Let's quantify, you know, the idea of doing good." So theoretically, and I will say if there's any EA people listening, I know that movement has changed quite a bit, but quite literally the early iterations of this movement was about like making a spreadsheet of utility functions for everything. And then one could sit there and say, "Yeah, you know, I'm a big CEO or like a high level person in some really terrible company that's polluting the earth. But I take my bonus and I put it towards planting trees, so that

balances out." It's the sort of weird math behind carbon gains and that kind of thing. And that's just not how anything works. *laughs*

Sue: And it certainly can be related to the cold unfeeling calculations that the Borg have.

Rumman: Absolutely. And when we think about AI in particular, one of the reasons why you asked me earlier, whether or not- or actually Aliza had asked earlier, if we could program a model that at some point could reach some sort of sentience. And one of the reasons it can't is that the way we built AI today, you have an optimization function. It is literally literally a mathematical function. And you choose, as the person making the AI, what it will optimize. So you might remember some of the earlier iterations of creating video games, right? You can create an AI that was getting a perfect score on a video game, but it would do all sorts of weird things. So, one is in a collaborative war game, it would spawn and it would just kill everyone in the room, including the people on its own team, because that was the best way to win. So it has no- it has no sort of moral guide rails or guidelines. But we think about how those video games are built. They're more of the first person shooter or a single winner type game. That is actually not how humanity works. Humanity works as a collaborative. So my joke has always been, "I want an AI that plays Animal Crossing. *Sue laughs* Show me an AI that can beat Animal Crossing, you know, make a little village, plant the trees, decorate it's home, deal with Tom Nook and all of his nonsense. And then you'll actually be closer to achieving AGI."

Sue: Well, in this category there are a few other things I just want to mention really quick. We don't have to spend a bunch of time on them. And those are the two augments that we've seen in new Trek. Or not augments, but augmented humans rather. Augments are something different. That is Airiam in Discovery, and Rutherford in Lower Decks. And both of them, even though they're separated by time and space, both of them have implants or augmentations that they can be controlled by if something goes wrong. To the point where, Lower Decks season one spoilers, when Rutherford loses his implant, he loses his memory.

Rumman: That's so funny, cause I think also this is an analogy of our reliance on technology. I mean, I will freely admit that when I was 10, I knew more phone numbers that I know today.

Sue: Oh, 100%.

Rumman: *laughs* I barely, like I was thinking about the other day. I'm like, "I actually don't know my parents' phone number." Anyway, but I can rattle off by best friend's phone number from second grade, for sure. And we think about how much we are literally attached to our smartphone. So I think it's really interesting, if I were to lose my smartphone, I'd essentially lose my memory too. There are pictures on there. Moments. My calendar is on there. Like, my sad existence today is if it is not on my calendar, it does not exist in reality. I don't show up for it. I don't remember it. I'm literally a product of my Google *laughs* calendar. So it is not such a crazy thing to think about, because we kind of are those beings today.

Sue: Yeah. The one other one I have on this list is Lieutenant Barclay in the Nth Degree. Where he hooks himself into- like interfaces with the Enterprise's computer in order to better control it, because his brain is moving so fast after his interaction with a probe.

Rumman: Yeah. That's also a really fascinating one. And what I think of in that episode in particular is sort of the transhumanist movement. This idea of, you know, merging people and computers. I think that's a narrative that exists in a lot of comic books, science fiction, et cetera. But you know, there is a whole movement of people known as Trans Humanism. This is kind of- essentially the world that they are arriving towards- want to arrive towards, this idea that you can hook up to a computer. And again, I mentioned neural link a couple of times. I think this is where we get the inspiration for things like neurolink. It is interesting that all throughout this episode, I keep thinking of these episodes and immediately thinking of things that sort of exists in a pale version today. And I can't help but emphasize and go back to this idea of AI narrative. That the stories that we tell shape the things that we build. And what I love about Trek is a lot of the philosophical conversations that you only see in Trek, and you really don't see in a lot of other places, are so very needed because it frames some of the conversations that we're having today, even in some of the most basic applications of AI. Like, we are in the infancy of AI, we're nowhere near many of the things that we're even talking about. And yet we already have some of the parallels of the complexity of the narrative. So, you know, one thing I will say is this series really sparks us to think about ourselves and the technology that we're building, which is really important in my line of work.

Sue: So let me ask you this. We've been through our big list here. We have to wrap the episode up soon. But I want to ask you your thoughts on Star Trek as a whole, and how it presents artificial intelligence. Based on what we see in star Trek, based on what you see in work- in your experience, do you think that we as humans respect the quote unquote "personhood" or rights of an artificial intelligence more when they present humanoid, when they're in a human-like body, or is it when we can see them seeking humanity?

Rumman: I absolutely believe that we respect the idea of personhood for an AI system if it is generated to be humanoid. We think of Sophia the robot, frankly. Sophia, the robot has been granted rights in Saudi Arabia that women in Saudi Arabia don't have. She has citizenship. I say she, but I really mean "it." Sophia the robot is nothing more than a complex set of gears. It is the ultimate Mechanical Turk. Yet, you know, it tweets, it has perspectives. All of that is completely smoke and mirrors. Yet, because it has the face of a woman, a conventionally- I suppose, a conventionally attractive white woman. And she has the body proportions and et cetera that we might expect, it is actually treated with more care and respect than we treat a lot of people. Certainly than we treat animals. And, you know, to give it another analogy, I have always heard that it is much harder to get people to support species that are going extinct if they're unattractive species. It is so much easier to get behind "save the pandas." Even though pandas are actually quite vicious creatures. And not like "save the weird creepy angler fish that lives underwater and has razor teeth", right.

Sue: Because pandas are cute.

Rumman: Pandas are cute and fuzzy, so we love them. And so the second part of the question "is it when they seek humanity," I actually think that's what- that's when we would want to turn them off. I think it would scare us. And it would scare us too much. And not just because humans have inferiority complex and we'd worry that they take over, but because we ultimately have ego. The thing we would fear is that we're not special. I think that is actually the big thing that a sentient AI would make us question, is that we're actually not that special.

Sue: So you're saying in real life, when faced with a Data or the Doctor, that we wouldn't take them under our wing and teach them about humanity, we'd turn them off.

Rumman: I think so. I think it would speak to something very visceral, you know, in the human condition, which we talked about a few times already, is this idea of ego and centering the human. I mean, think about how we construct the world, how we think about economies, and markets, and the planet, and space. We always put ourselves at the center of everything. So being faced with the idea that there's a thing that could exist that has the thing about us that makes us special, that we think makes us different from animals or other creatures, I actually don't think we'd respond very positively to it.

Sue: Interesting. So looking at Star Trek as a whole, everything we've just talked through, all of our different depictions of AI, of machine learning. Does Star Trek send a unified message about artificial intelligence?

Rumman: I think Star Trek sends very targeted messages towards the era that the episode was made. You know, we were sort of joking about the femme-bots of the sixties, but also there was some interesting shades and reflections of an overly automated technological future. You know, in the eighties we have Data as the soccer parent driving his kids in a minivan, but it's very real. Like I can see this minivan in my head. And then, you know, we get Vic Fontaine and we get the Doctor. Which is starting to talk more in a more complex fashion. I think Star Trek evolves with our times, and it evolves with how we, as a species, start to think about and dissect the same problems that have plauged the human condition for the known millennia.

Sue: I could not agree with you more. That is- you're phenomenal. *all laugh* Is there anything I didn't ask you that you want to talk about? Anything that we didn't touch on that you need to sound off about? *laughs*

Rumman: Yeah. I will point out that when I first started in this field, you know, so many of the folks in the ethics of AI were people who are huge huge Star Trek fans. And this is why. It is because we can have a lot of controversial conversations. And the thing about Star Trek, and scifi in general, is that it has always allowed us to be a little bit removed from the deep social- and like the deep polarized conversations of our time by adding this veneer of "Oh it's in space," you know, "Oh, it's a robot" instead of a person of color. Or "it's Spock" instead of somebody who is maybe autistic or on the spectrum. And because we

can do that, we can be more reflective. And that is probably the thing I'm the most thankful for Star Trek for bringing us.

Sue: I love it. Well, we have certainly spent a lot of time on this today, and we shouldn't spend any more. Rumman, where can people find you on the internet if they want to keep talking to you about this?

Rumman: Sure. Well, my website is my name. RummanChowdhury.com and of course you can find me on Twitter @RUChowdh.

Sue: Awesome. And Aliza?

Aliza: I'm Aliza Pearl. You can find me @Alizapearl on Twitter and Instagram. And on Twitch @apizaliza and also Ripley improv.

Sue: And I'm Sue, you can find me on Twitter @Spaltor. That's S P A L T O R. To learn more about our show or to contact us, visit womenatwarp.com, or find us on Facebook, Twitter, or Instagram @womenatwarp. you can also email us at crew@womenatwarp.com. And for more Roddenberry podcasts, visit podcasts.roddenberry.com. Thanks so much for listening.

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