

Dr Lex Fridman: Navigating Conflict, Finding Purpose & Maintaining Drive | Huberman Lab Podcast #100

My guest this episode is Lex Fridman, Ph.D., a Research Scientist at the Massachusetts Institute of Technology (MIT), an expert on artificial intelligence (AI) and robotics, and the host of the Lex Fridman Podcast. We discuss Lex's recent trip to the heart of the Ukrainian-Russian War, geopolitics, perspectives on people living in war zones, the shared human experience, and how information is communicated and controlled. As an experienced podcaster and public educator, Dr. Fridman offers unique insights into the art of holding conversations that grow understanding, especially when they involve people with opposing viewpoints. We also discuss the peer-review process for scientific research publications and how social media and podcasts are evolving the way science and technology are communicated. We consider how to find and follow your life's purpose, maintain ongoing motivation and implement support systems to build and sustain momentum. Our conversation also covers capitalism, masculinity, chess and cheating, Lex's idea for an AI robotics start-up and a Q&A from audience questions solicited on social media. As one of the main inspirations for the Huberman Lab podcast, hosting Dr. Fridman for this special centennial episode was an honor and a pleasure!

#HubermanLab #LexFridman

Thank you to our sponsors

AG1 (Athletic Greens): <https://athleticgreens.com/huberman>

LMNT: <https://drinklmnt.com/huberman>

Levels: <https://levels.link/huberman>

Eight Sleep: <https://www.eightsleep.com/huberman>

InsideTracker: <https://www.insidetracker.com/huberman>

Supplements from Momentous

<https://www.livemomentous.com/huberman>

Huberman Lab Premium

<https://hubermanlab.com/premium>

Social & Website

Instagram: <https://www.instagram.com/hubermanlab>

Twitter: <https://twitter.com/hubermanlab>

Facebook: <https://www.facebook.com/hubermanlab>

TikTok: <https://www.tiktok.com/@hubermanlab>

LinkedIn: <https://www.linkedin.com/in/andrew-huberman>

Website: <https://hubermanlab.com>

Newsletter: <https://hubermanlab.com/neural-network>

Dr. Lex Fridman

Website: <https://lexfridman.com>

Podcast: <https://lexfridman.com/podcast>

YouTube: <https://www.youtube.com/@lexfridman>

Twitter: <https://twitter.com/lexfridman>

Instagram: <https://www.instagram.com/lexfridman>

Facebook: <https://www.facebook.com/lexfridman>

LinkedIn: <https://www.linkedin.com/in/lexfridman>

Timestamps

00:00:00 Dr. Lex Fridman

00:04:30 LMNT, Levels, Eight Sleep

00:08:28 Podcasting

00:12:11 Ukraine, Russia, War & Geopolitics

00:23:17 Conflict & Generalized Hate

00:26:23 Typical Day in Ukraine; American Military & Information Wars

00:37:28 AG1 (Athletic Greens)

00:38:42 Deliberate Cold Exposure & Sauna; Fertility

00:46:44 Ukraine: Science, Infrastructure & Military; Zelensky

00:53:33 Firearms; Violence & Sensitization

00:57:40 MIT & Artificial Intelligence (AI), University Teaching & Pandemic

01:05:51 Publications & Peer Review, Research, Social Media

01:13:05 InsideTracker

01:14:17 Twitter & Social Media Mindset, Andrew Tate & Masculinity

01:26:05 Donald Trump & Anthony Fauci; Ideological Extremes

01:35:11 Biotechnology & Biopharma; Money & Status

01:45:08 Robotics, AI & Social Media; Start-ups

01:53:50 Motivation & Competition; Relationships

02:01:55 Jobs; A Career vs. A Calling; Robotics & Relationships

02:12:11 Chess, Poker & Cheating

02:22:25 Ideas of Lately

02:24:44 Why Lex Wears a Suit & Tie

02:27:50 Is There an AI Equivalent of Psychedelics?

02:29:06 Hardest Jiu-Jitsu Belt to Achieve

02:32:07 Advice to Young People

02:39:29 Zero-Cost Support, YouTube Feedback, Spotify & Apple Reviews, Sponsors, Momentous Supplements, Neural Network Newsletter, Social Media

The Huberman Lab Podcast is for general informational purposes only and does not constitute the practice of medicine, nursing or other professional health care services, including the giving of medical advice, and no doctor/patient relationship is formed. The use of information on this podcast or materials linked from this podcast is at the user's own risk. The content of this podcast is not intended to be a substitute for professional medical advice, diagnosis, or treatment. Users should not disregard or delay in obtaining medical advice for any medical condition they may have and should seek the assistance of their health care professionals for any such conditions.

Title Card Photo Credit: Mike Blabac - <https://www.blabacphoto.com>

ANDREW HUBERMAN: Welcome to the Huberman Lab podcast, where we discuss science and science-based tools for everyday life. [MUSIC PLAYING] I'm Andrew Huberman, and I'm a Professor of Neurobiology and Ophthalmology at Stanford School of Medicine. Today, my guest is Dr. Lex Fridman. Dr. Lex Fridman is an expert in electrical and computer engineering, artificial intelligence, and robotics. He is also the host of the Lex Fridman Podcast, which initially started as a podcast focus on technology and science of various kinds, including computer science and physics, but rapidly evolved to include guests and other topics as a matter of focus, including sport. For instance, Dr. Lex Freedman is a Black Belt in Brazilian jujitsu. And he's had numerous guests on who come from the fields of Brazilian jujitsu, both from the coaching side and

from the competitor side. He also has shown an active interest in topics such as chess and essentially anything that involves intense activation and engagement of the mind and/or body. In fact, the Lex Fridman podcast has evolved to take on very difficult topics such as mental health-- he's had various psychiatrists and other guests on that relate to mental health and mental illness, as well as guest focused on geopolitics and some of the more controversial issues that face our times. He's had comedians, he's had scientists, he's had friends, he's had enemies on his podcast. Lex has a phenomenal, I would say a 1 in an eight billion ability to find these people, make them comfortable, and in that comfort, both try to understand them and to confront them and to push them so that we all learn. All of which is to say that Lex Fridman is no longer just an accomplished scientist, he certainly is that. But he has also become one of the more preeminent thought leaders on the planet. And if there's anything that really captures the essence of Lex Fridman, it's his love of learning, his desire to share with us, the human experience, and to broaden that experience so that we all may benefit. In many ways, our discussion during today's episode captures the many facets of Lex Fridman, although no conversation, of course, could capture them all. We sit down to the conversation just days after Lex returned from Ukraine, where he deliberately placed himself into the tension of that environment in order to understand the geopolitics of the region and to understand exactly what was happening at the level of the ground and the people there. You may notice that he carries quite a lot of both, emotion and knowledge and understanding. And yet in a very classic Lex Fridman way, you'll notice that he's able to zoom out of his own experience around any number of different topics and view them through a variety of lenses so that first of all, everyone feel included, but most of all, so that everyone learned something new, that is to gain new perspective. Our discussion also ventures into the waters of social media and how that landscape is changing the way that science and technology are communicated. We also get into the topics of motivation drive and purpose, both finding it and executing on that drive and purpose. I should mention that this is episode 100 of the Huberman Lab Podcast. And I would be remiss if I did not tell you that there would be no Huberman Lab Podcast, were it not for Lex Fridman. I was a fan of the Lex Fridman Podcast long before I was ever invited on to the podcast as a guest. And after our first recording, Lex was the one that suggested that I start a podcast. He only gave me two pieces of advice. The first piece of advice was, start a podcast. And the second piece of advice was that I not just make it me blabbing into the microphone and staring at the camera. So I can safely say that I at

least followed half of his advice, and that I am ever grateful for Lex, both as a friend, a colleague in science, and now fellow podcaster for making the suggestion that we start this podcast. I already mentioned a few of the topics covered on today's podcast. But I can assure you that there is far more to the person that many of us know as Lex Fridman. If you are somebody interested in artificial intelligence, engineering, or robotics, today's discussion is most certainly for you. And if you are not, but you are somebody who is interested in world politics, and more importantly, the human experience, both the individual and the collective human experience, Lex shares what can only be described as incredible insights into what he views

00:04:30 LMNT, Levels, Eight Sleep

as the human experience and what is optimal in order to derive from our time on this planet. Before we begin, I'd like to emphasize that this podcast is separate from my teaching and research roles at Stanford. It is however, part of my desire and effort to bring zero cost to consumer information about science and science-related tools to the general public. In keeping with that theme, I'd like to thank the sponsors of today's podcast. Our first sponsor is LMNT. LMNT is an electrolyte drink with everything you need and nothing you don't. That means the electrolytes, sodium, potassium, and magnesium are in LMNT in the correct ratios. But it has no sugar. As I mentioned before on the podcast, electrolytes are critical to the function of every cell in the body, and especially the cells in your brain, meaning neurons or nerve cells. Indeed, the ability for nerve cells to be active and communicate with one another critically depends on sodium, potassium, and magnesium. You can get electrolytes from a variety of sources. But it's often hard to get them in the proper ratios, even from food. So if you're somebody who's exercising a lot and sweating, or if you're somebody following, for instance, a low carbohydrate or even a semi-low carbohydrate diet, that will cause you to excrete electrolytes. I tend to have my LMNT first thing in the morning when I wake up or within the first few hours of waking, any time while or after I'm exercising, or I've sweat a lot, such as exiting the sauna. If you'd like to try LMNT you can go to [drinkLMNT-- that's LMNT..com/Huberman](https://drinkLMNT.com/Huberman) to claim a free element sample pack with your purchase. Again, that's [drinkLMNT, LMNT.com/Huberman](https://drinkLMNT.com/Huberman) to my free sample pack. Today's episode is also brought to us by Levels. Levels is a program that lets you see how different foods affect your health by giving you real-time feedback on your diet using a continuous

glucose monitor. Now blood glucose or blood sugar is a critical aspect of your immediate and long term health, and indeed, your feelings of vigor and mental clarity and well-being at any moment. One of the key things is to know how different foods and food combinations and timing of food intake is impacting blood glucose. And with Levels, you're able to assess all of that in real time. I tried Levels. And what it taught me, for instance, was that I can eat certain foods at certain times of day. But if I eat them at other times a day, I get a blood sugar crash. It also taught me, for instance, how to space my exercise and my food intake. It turns out for me, exercising fasted is far more beneficial. That's something I learned using Levels. And it's completely transformed, not just the spacing and timing of my diet and exercise, but also use of things like the sauna and other activities. It's been a tremendous learning for me that's really shaped an enormous number of factors in my life that have led to me feeling far more vigorous with far more mental focus and physical strength and endurance. So if you're interested in learning more about Levels and trying a continuous glucose monitor yourself, go to levels.link/Huberman. Again that's levels.link, L-I-N-K/Huberman. Today's episode is also brought to us by Eight Sleep. Eight Sleep make smart mattress covers with cooling, heating, and sleep tracking capacity. I've talked many times on this podcast about the critical relationship between sleep and body temperature. That is in order to fall asleep and stay deeply asleep throughout the night, our body temperature needs to drop by about 1 to 3 degrees. And conversely when we wake up in the morning, that is in large part, because of our body heating up by 1 to 3 degrees. Now people have different core body temperatures. And they tend to run colder or hotter throughout the night. Eight Sleep allows you to adjust the temperature of your sleeping environment so that you have the optimal temperature that gets you the best night's sleep. I started sleeping on an Eight Sleep mattress cover about eight months ago. And it has completely transformed my sleep. I sleep so much deeper, I wake up far less during the middle of the night, if at all, and I wake up feeling far better than I ever have, even after the same amount of sleep. If you want to try Eight Sleep, you can go to eightsleep.com/Huberman to save up to \$400 off their sleep fit holiday bundle, which includes their new Pod 3 cover. Eight Sleep currently ships in the USA, Canada, United Kingdom, select countries in the EU, and Australia.

Again, that's eightsleep.com/Huberman. And now for my discussion with Dr. Lex Fridman, welcome back. LEX FRIDMAN: It's good to be back in a bedroom. This feels like a porn set. I apologize to open that way. I've never been in a porn set, so I should admit this. ANDREW HUBERMAN: Our studio has being renovated. So here we are for the monumental recording of episode 100-- LEX FRIDMAN: Episode 100 of the Huberman Lab Podcast, which was inspired by the Lex Fridman Podcast. Some people already know the story. But I'll repeat it again for those that don't. There would not be a Huberman Lab Podcast, were it not for Lex Fridman. Because after recording as a guest on his podcast a few years ago, he made the suggestion that I start a podcast. And he explained to me how it works. And he said, "You should start a podcast. But just make sure that it's not you blabbing the whole time, Andrew." And I only sort of followed the advice. LEX FRIDMAN: Yeah, well, you surprised me, surprised the world, that you're able to talk for hours and cite some of the best science going on and be able to give people advice without many interruptions or edits or any of that. I mean, that takes an incredible amount of skill that you're probably born with. And some of it is developed. I mean, the whole science community is proud of you, man. Stanford is proud of you. So yeah, it's a beautiful thing. It was really surprising. Because it's unclear how a scientist can do a great podcast that's not just shooting the shit about random stuff, but really is giving very structured, good advice that's boiling down the state of the art science into something that's actually useful for people. So that was impressive. It's like holy shit, he actually pulled this off. And doing it every week on a different topic-- I mean, I'm usually positive, especially for people I love and support. But damn, I thought, there's no way he's going to be able to pull this off week after week. And it's been only getting better and better and better. Had a whole rant on a recent podcast, I forget with who, of how awesome you are with Rana el Kaliouby. She's a emotion recognition person, AI person. And then she didn't know who you were. And I was like, what the hell do you mean? And I just went on this whole rant of how awesome you are. Is hilarious. ANDREW HUBERMAN: Well, I'm very gratified to hear this. I'm-- it's a little uncomfortable for me to hear but listen, I'm just really happy if people are getting information that they like and can make actionable. And it was inspired by you. And look right back at you. I've followed a number of your structural formats. Attire, I don't wear a tie. I'm constantly reminded about this by my father. LEX FRIDMAN: Yeah. ANDREW HUBERMAN: Who says what-- he'd saw my podcast. And he was like, why don't you dress properly like your friend Lex? He literally said that. And it's a debate that goes back and forth. But

nonetheless-- LEX FRIDMAN: How does it feel? Episode 100. How does it feel?

ANDREW HUBERMAN: You know, I think. LEX FRIDMAN: Can you imagine you're here? You hear after so many episodes and done so much. I mean, the number of hours is just insane. The amount of passion, the amount of work you put into this, what's it feel like? ANDREW HUBERMAN: It feels great. And it feels very much like the horizon is still at the same distance in front of me. Every episode, I just try and get information there. And the process that we talked about on your podcast. We won't go into it of collecting information, distilling it down to some simple notes, walking around, listening to music, trying to figure out what the motifs are, and then-- as just like you, I don't use a teleprompter or anything like that. There's very minimal notes. So it feels great, and I love it.

00:12:11 Ukraine, Russia, War & Geopolitics

And again, I'm just grateful to you for inspiring it. And I just want to keep going and do more of it. And I should say I am also relieved that we're sitting here because you recently went overseas to a very intense war zone, literally, the Ukraine. And the entire time that you were there, I was genuinely concerned. The world's a unpredictable place, in general. And we don't always get the only vote and what happens to us. So first of all, welcome back safely, one peace, one alive peace. And what was that like? I mean, at a broad level, at a specific level, what drew you there? What surprised you? And how do you think it changed you in coming back here? LEX FRIDMAN: I think there's a lot to say. But first, it is really good to be back. One of the things that when you go to a difficult part of the world or a part of the world that's going through something difficult, you really appreciate how great it is to be an American. Everything. The easy access to food. Despite what people think, the stable, reliable rule of law. The lack of corruption in that you can trust that if you start a business or if you take on various pursuits in life that there's not going to be at-scale manipulation of your efforts such that you can't succeed. So this kind of capitalism is in it's-- the ideal of capitalism is really still burning bright in this country. And it really makes you appreciate those aspects. And also just the ability to have a home for generations, across generations. So you can have your grandfather live in Kentucky in a certain city. And then his children lived there, and you live there, and then it just continues on and on. That's the kind of thing you can have when you don't have war. Because war destroys entire communities. And it destroys histories,

generations, like life stories that stretch across the generations. So-- ANDREW HUBERMAN: Yeah yeah. I didn't even think about that until you said just now. But photographs, hard drives get destroyed or just abandoned. LEX FRIDMAN: Yeah. ANDREW HUBERMAN: Libraries. I mean, nowadays, things exist in the cloud but are still a lot of-- LEX FRIDMAN: Yeah. ANDREW HUBERMAN: --material goods that are irreplaceable, right. LEX FRIDMAN: Well, even in rural parts of the United States, they don't exist in the cloud, right. A lot of people still, well, even in towns, they still love the physical photo album of your family. A lot of people still store their photographs of families in the VHS tapes and all that kind of stuff, yeah. But I think-- there's so many things I've learned and really felt the lessons. One of which is nobody gives a damn when your photos are gone and all that kind of stuff, your house is gone. The thing time and time again I saw for people that lost everything is how happy they are for the people. They love the friends, the family that are still alive. That's the only thing they talk about. That, in fact, they don't mention actually with much dramatic sort of vigor about the trauma of losing your home. They're just non-stop saying how lucky they are that person X person Y is still here. And that makes you realize that when you lose everything, it's still-- it makes you realize what really matters, which is the people in your life. I mean, a lot of people kind of realize that later in life, when you're facing mortality, when you're facing your death, or you get a cancer diagnosis, that kind of stuff. I think people here in America, in California, with the fires, you you can still lose your home. You are going to realize, like, nah. It doesn't really matter. It's a pain in the ass but what matters is still the family, the people, and so on. I think the most intense thing-- I talked to several hundred people, some of which is recorded. I've really been struggling to put that out because I have to edit it myself. And so you're talking about 30, 40 hours of footage, and it-- ANDREW HUBERMAN: Is emotionally struggling? LEX FRIDMAN: Yeah. It is extremely difficult. ANDREW HUBERMAN: Are you like emotional struggle? LEX FRIDMAN: It's extremely difficult. So I talked to a lot of politicians. The number two in the country, number three. I'll be back there to talk to the president to do a three-hour conversation. Those are easy to edit. They're really heartfelt and thoughtful folks from different perspectives on the geopolitics of the war. But the ones that really hard to edit is like grandmas that are in the middle of nowhere. They lost everything. They still have hope, they still have love. And some of them have-- some of them, many of them, unfortunately, have now hate in their heart. So in February, when Russia invaded Ukraine, this is the thing I realized about War. One of the most painful one lessons is

that war creates generational hate. We sometimes think about war as a thing that kills people, kills civilians, kills soldiers, takes away lives, injures people. But we don't directly think about the secondary and tertiary effects of that which lasts decades. Which is anyone who's lost the father or a mother or a daughter or a son, they now hate not just the individual soldiers or the leaders that invaded their country but the entirety of the people. So it's not that they hate Vladimir Putin or hate the Russian military. They hate Russian people. So that tears the fabric of a thing that, for me-- my half my family's from Ukraine, half of my family is from Russia. But there is-- I remember the pain the triumph of World War two still resonates through my entire family tree. And so, you remember when the Russians and Ukrainians fought together against this Nazi invasion. You remember a lot of that. And now, to see the fabric of this peoples torn apart completely with hate is really, really difficult. For me, just to realize that things will just never be the same on this particular cultural, historical aspect. But also, there's so many painful ways in which things will never be the same. Which is we've seen that it's possible to have a major hot war in the 21st century. I think a lot of people are watching this. China is watching this. India is watching this. United States is watching this and thinking we can actually have a large-scale war. And I think the lessons learned from that. Might be the kind that lead to a major World War III in the 21st century. So one of the things I realized watching the whole scene is that we don't know shit about what's going to happen in the 21st century. And it might-- we kind of have this intuition like surely there's not going to be another war. ANDREW HUBERMAN: Like we'll just coast. LEX FRIDMAN: Yeah. ANDREW HUBERMAN: Yeah. LEX FRIDMAN: Yeah, pandemic. Yeah-- ANDREW HUBERMAN: And back to normal. LEX FRIDMAN: Back to normal-- ANDREW HUBERMAN: Whatever that is. LEX FRIDMAN: But you have to remember, at the end of World War I, as Woodrow Wilson called it, the war to end all wars. Nobody ironically, in a dark way, it was also the roaring 20s when people believed this. There will never be another World War. And 20 years after that, the rise of Nazi Germany. A charismatic leader that captivated the minds of millions and built up a military that can take on the whole world. And so it makes you realize that this is still possible. This is still possible. And then the tension. You see this-- the media machine, the propaganda machine, that I've gotten to see every aspect of. It's still fueling that division between America and China. Between Russia and India. And then Africa has a complicated thing that's trying to figure out who are they with, who are they against. And just this tension is building and building. And like it makes you realize like we might-- the thing that might shake

human civilization may not be so far off. That's a realization you get to really feel. I mean, there's all kinds of other lessons. And one of which is propaganda. Is I got to-- I get a lot of letters, emails. And some of them are full of really intense language, full of hate from every side toward me. Or, well, the hate is towards me as representing side X. And X stands as a variable for every side. So either I'm a Zelensky show, or I'm a Putin show, or I'm a NATO show, or I'm an America-- America show-- American empire show. Or I'm a Democrat or a Republican. Because it's already been, in this country, politicized. I think there's a sense of Ukraine is this place that's full of corruption. Why are we sending money there? I think that's kind of the messaging on the Republican side. On the Democratic side-- I'm not even keeping track of the actual messaging and the conspiracy theories and the narratives, but they are-- the tension is there. And I get to feel it directly. And what you get to really experience is there's a large number of narratives that all are extremely confident themselves that they know the truth. People are convinced, first of all, that they're not being lied to. People in Russia think there's no propaganda. They think that, yes, yes, there is like state-sponsored propaganda, but we're all smart enough to ignore the lame propaganda that's everywhere. They know that we can think on our own, we know the truth, and everybody kind of speaks in this way. Everybody in the United States says, well, yes, there's mainstream media, they're full of messaging and propaganda, but we're smart. We can think on our own. Of course, we see through that. Everybody says this. And then the conclusion of their thought is often hatred towards some group, whatever that group is. And the more you've lost, the more intense the feeling of hatred. It's a really difficult field to walk

00:23:17 Conflict & Generalized Hate

through calmly and with an open mind and try to understand what's really going on. ANDREW HUBERMAN: It's super intense. That's the only words that come to mind as I hear this. You mentioned something that it seems that hate generalizes. It's against an entire group or an entire country. Why do you think it is that hate generalizes and that love may or may not generalize? LEX FRIDMAN: I've had-- sort of one, as you can imagine, the kind of question I asked is, do you have love or hate in your heart? It's a question I asked almost everybody. And then I would dig into this exact question that you're asking. I think some of the most beautiful things I've heard which is people that are full of hate are able to self-introspect about it. They know they shouldn't feel it, but

they can't help it. It's not-- they know that ultimately the thing that helps them and helps everyone is to feel love for fellow man, but they can't help it. They know. It's like a drug, they say like hate escalates, it's like a vicious spiral. You just can't help it. And the question I also asked is, do you think you'll ever be able to forgive Russia? And after much thought almost-- it's split, but most people will say no. I will never be able to forgive. ANDREW HUBERMAN: And because of the generalization you talked about earlier, that could even include all Ru-- LEX FRIDMAN: All Russians. ANDREW HUBERMAN: In that statements, they mean all Russians. LEX FRIDMAN: Because if you do nothing that's as bad or worse than being part of the army that invades. So the people that are just sitting there, the good Germans, the people that are just quietly going on with their lives, you're just as bad, if not worse, is their perspective. ANDREW HUBERMAN: Earlier, you said that going over to the Ukraine now allowed you to realize just so many of the positives of being here in the United States. I have a good friend. We both know him. I won't name him by name, but we've communicated the three of us from tier-one Special Operations. He spent years doing deployments. Really amazing individual. And I remember when the pandemic hit, he said on a text thread you know, Americans aren't used to the government interfering with their plans. Around the world, many people are familiar with governments dramatically interfering with their plans. Sometimes even in a seemingly random way. Here we were not braced for that. I mean, we get speeding tickets, and there's lines to vote and things like that. But I think the pandemic was one of the first times, at least in my life, that I can remember where it really seemed like the government was impeding what people naturally wanted to do.

00:26:23 Typical Day in Ukraine; American Military & Information Wars

And that was a shock for people here. And I have a what might seem like a somewhat mundane question, but it's something that I saw on social media. A lot of people were asking me to ask you, and I was curious about too. What was a typical day like over there? Were sleeping in a bed, were you sleeping on the ground? Everyone seems to want to know. What were you eating? Were you eating once a day? Were you eating your steak? Or were you-- were you in fairly deprived conditions over there? I saw a couple photos that you posted out of doors in front of rubble. With pith helmet on in one case. What was that typical day like over there? LEX FRIDMAN: So there's two modes. One of them-- I spent a lot of time in Kyiv, which is much safer than-- it may be obvious

to state but for people who don't know, it's in the middle of the country, and it's much safer than the actual front. The word the battle is happening. So much, much safer than Kyiv even is Lviv which is the Western part of the country. So the times I spent in Kyiv were fundamentally different than the time I spent at the front. And I went to the Kherson region, which is where a lot of really heated battle was happening. There's several areas. So there's Kharkiv. It's in the Northeast of the country. And then there's Donbas region, which is East of the country. And then there's Kherson region, which, by the way, I'm not good at geography, so is the Southeast of the country. And that's where, at least when I was there, was a lot of really heated fighting happening. So when I was in the Kherson region, it's what you would imagine. The place-- I stayed in a hotel where all the lights have to stay off. So the entire town, all the lights are off. You have to navigate through the darkness and use your phone to shine, and so on. ANDREW HUBERMAN: This is terrible for the circadian system. LEX FRIDMAN: Yeah. ANDREW HUBERMAN: Yeah. LEX FRIDMAN: That's exactly-- I was this-- how can I do this? Where's my element and Athletic Greens? How can I function? No. There's I think it was balanced by the deep appreciation of being alive. [LAUGHTER] ANDREW HUBERMAN: Right now I-- mean, this is the reason that I asked-- LEX FRIDMAN: Stress-wise. ANDREW HUBERMAN: This is the reason I ask is we get used to all these creature comforts. LEX FRIDMAN: Yes. ANDREW HUBERMAN: And we don't need them, but we often come to depend on them in a way that makes us feel like we need them. LEX FRIDMAN: Yeah, but very quickly, there's something about the intensity of life that you see in people's eyes because they're living through a war that makes you forget all those creature comforts. And it was actually-- I'm somebody who hates traveling and so on. I love the creature habits. I love-- I love the comfort of the ritual right but all of that was forgotten very quickly. Just the intensity of feeling, the intensity of love that people have for each other, that was obvious. In terms of food-- so there's a curfew. So depends on what part of the country. But usually, you basically have to scamper home like 9:00 PM. So the hard curfew in a lot of places is 11:00 PM at night. But by then, you have to be home. So-- in some places, it's 10:00. So at 9:00 PM, you start going home. Which, for me, was kind of wonderful also because I get to spend-- I get to be forced to spend time alone and think for many hours in wherever I'm staying. Which is really nice. And everywhere there's a calmness and the quietness to the whole thing. In terms of food, once a day. Just the food is incredibly cheap and incredibly delicious. People are still-- one of the things they can still take pride in is making the best possible food they can. So meat--

but they do admire American meat, so the meat is not as great as it could be in that country. But I ate borsch every day, all that kind of stuff. Mostly meat. So spend the entire day-- wake up in the morning with coffee, spend the entire day talking to people. Which for me is very difficult because of the intensity of the story. It's one after the other after the other. We just talk to regular people, talk to soldiers, talk to politicians, all kinds of soldiers. I talked to people there who are doing rescue missions, so Americans. I hung out with Tim Kennedy. ANDREW HUBERMAN: Oh, yeah? The great Tim Kennedy. LEX FRIDMAN: The great Tim Kennedy, who-- also him and many others revealed to me one of the many reasons I'm proud to be an American is how trained and skilled and effective American soldiers are. ANDREW HUBERMAN: I guess for listeners of this podcast maybe we should familiarize them with who Tim Kennedy is because I realized that a number of them will know, but-- LEX FRIDMAN: How do you do that? How do you try to summarize a man? ANDREW HUBERMAN: Right. We can be accurate but not exhaustive, as any good data are accurate but not exhaustive. Very skilled and accomplished MMA fighter, very skilled and accomplished former Special Operations member, American Patriot, and podcaster too, right? Does he have his own podcast? LEX FRIDMAN: Maybe. ANDREW HUBERMAN: OK. LEX FRIDMAN: Maybe. ANDREW HUBERMAN: We know Andy Stumpf has his own podcast. LEX FRIDMAN: Yes. ANDREW HUBERMAN: Yeah. LEX FRIDMAN: Which is an amazing podcast. Yeah, Andy's great. ANDREW HUBERMAN: Yeah. Clearing Hot podcast with Andy Stumpf. LEX FRIDMAN: But also Tim Kennedy is like the embodiment of America to the most beautiful and the most ridiculous degree. So he's like what you imagine-- what is it, Team America? I just imagine him shirtless on a tank rolling into enemy territory just screaming at the top of his lungs. That's just his personality. ANDREW HUBERMAN: But not posturing. He actually does the work, as they say. LEX FRIDMAN: So this is the thing. He really embodies that. Now, some of that is just his personality and humor. I'd like to sort of comment on the humor of things, not just with him. There's very one other interesting thing I've learned. But also when he's actually helping people he's extremely good at what he does, which is building teams that rescue, that go into the most dangerous areas of Ukraine, dangerous areas anywhere else, and they get the job done. And one of the things I heard time and time again, which what's really interesting to me, that Ukrainian soldiers said that comparing Ukrainian, Russian, and American soldiers, American soldiers are the bravest, which was very interesting for me to hear given how high the morale is for the Ukrainian soldiers. But that just reveals that training enables

you to be brave. So it's not just about how well trained they are and so on, it's how intense and ferocious they are in the fighting. And it makes you realize, this is American army, not just through the technology, especially the special force guys. They're still one of the most effective and terrifying armies in the world. And listen, just for context, I'm somebody who is, for the most part, anti-war, a pacifist. But you get to see some of the realities of war kind of wake you up to what needs to get done to protect sovereignty, to protect some of the values, to protect civilians and homes and all that kind of stuff. Sometimes war has to happen. And I should also mention the Russian side because while I haven't gotten to experience the Russian side yet I do fully plan to travel to Russia, as I've told everybody. I was very upfront with everybody about this. I would like to hear the story of Russians. But I do know from the Ukrainian side, like the grandmas-- I love grandmas. They told me stories that the Russians really-- the ones that entered their villages, they really, really believed they're saving Ukraine from Nazis, from Nazi occupation. So they feel that Ukraine is under control of Nazi organizations and they believe they're saving the country that's their brothers and sisters. I think propaganda and I think truth is a very difficult thing to arrive with in that war zone. I think in the 21st century one of the things you realize that so much of war, even more so than in the past, is an information war. And people that just use Twitter for their source of information might be surprised to know how much misinformation there is on Twitter, like real narratives being sold, and so it's really hard to know who to believe. And through all of that you have to try to keep an open mind and ultimately ignore the powerful and listen to actual citizens, actual people. That's the other maybe obvious lesson is that war is waged by powerful, rich people, and it's the poor people that suffer. And that's just visible time and time again. ANDREW HUBERMAN: You mentioned the fact that people still enjoy food or the pleasure of cooking, or there's occasional humor or maybe frequent humor. I know Jocko Willink has talked about this in warfare in that all the elements of the human spirit and condition still emerge at various times. I find this amazing, and you and I have had conversations about this before, but the aperture of the mind. The classic story that comes to mind is the one of Viktor Frankl or Nelson Mandela. You put somebody into a small box of confinement and some people break under those conditions and other people find entire stories within a centimeter of concrete that can occupy them, real stories and richness or humor or love or fascination and surprise. And I find this so interesting that the mind is so adaptable. We talked about creature comforts and then lack of creature comforts and the way that we can adapt, and

yet, humans are always striving, it seems, or one would hope, for these better conditions to better their conditions. So as you've come back-- and you've been here now back in the States for how long after your trip? LEX FRIDMAN: Depends on this podcast release but it felt like I've never left, so practically speaking, a couple months. ANDREW HUBERMAN: OK. Yeah. And we won't be shy. We're recording this mid-September. LEX FRIDMAN: We actually recorded this several years ago so we're anticipating in the future. ANDREW HUBERMAN: This is where we're

00:37:28 AG1 (Athletic Greens)

going to start telling you this is a simulation, you and Joe. I'm still trying to figure out what that actually means. I'd like to take a quick break and acknowledge one of our sponsors, Athletic Greens. Athletic Greens, now called AG1, is a vitamin mineral probiotic drink that covers all of your foundational nutritional needs. I've been taking Athletic Greens since 2012 so I'm delighted that they're sponsoring the podcast. The reason I started taking Athletic Greens and the reason I still take Athletic Greens, once or usually twice a day, is that it gets me the probiotics that I need for gut health. Our gut is very important. It's populated by gut microbiota that communicate with the brain, the immune system, and basically all the biological systems of our body to strongly impact our immediate and long term health, and those probiotics in Athletic Greens are optimal and vital for microbiotic health. In addition, Athletic Greens contains a number of adaptogens, vitamins, and minerals that make sure that all of my foundational nutritional needs are met, and it tastes great. If you'd like to try Athletic Greens you can go to athleticgreens.com/huberman and they'll give you five free travel packs that make it really easy to mix up Athletic Greens while you're on the road, in the car, on the plane, et cetera, and they'll give you a year supply of vitamin D3, K2. Again, that's athleticgreens.com/huberman

00:38:42 Deliberate Cold Exposure & Sauna; Fertility

to get the five free travel packs and the year supply of vitamin D3, K2. I know I speak for many people when I say that we are very happy that you're back. We know that it's not going to be the first and last trip, that there will be others, and that you'll be going to Russia as well and presumably other places as well in order to explore. And I have to

say, as a podcaster and as your friend, I was really inspired at your sense of adventure and your sense of not just adventure, but thoughtful, respectful adventure. You understood what you were doing. You weren't just going there to get some wartime footage or something. This wasn't a kick or a thrill. This is really serious and remains serious. So thank you for doing it, and please, next time you go, bring Tim Kennedy again. LEX FRIDMAN: I feel like Tim Kennedy gets you into-- will take you because he really loves going to the most dangerous places and helping people. So I think he'd get me into more trouble than it's worth. And I should mention that, I mean, there's many reasons I went, but it's definitely not something I take lightly or want to do again.

ANDREW HUBERMAN: Right. LEX FRIDMAN: So I'm doing things that I don't want to do, I just feel like I have to. ANDREW HUBERMAN: You're compelled. LEX FRIDMAN: So I don't think there's-- now I'll definitely talk about it, as we all should. There's different areas of the world that are seeing a lot of suffering. Yemen. There's so many atrocities going on in the world today, but this one is just personal to me so I want to-- I feel like I'm qualified just because of the language. So most of the talking, by the way, I was doing, it was in Russian. And so because of the language, because of my history, I felt like I had to do this particular thing. I think it's, in many ways, stupid and dangerous, and that was made clear to me. But I do many things of this nature because the heart pulls towards that. But also there's a freedom to not-- I'm afraid of death, but I think there's a freedom to-- it's almost like, OK, if I die, I want to take full advantage of not having a family currently. I feel like when you have a family there's a responsibility for others so you immediately become more conservative and careful. I feel like I want to take full advantage of this particular moment in my life when you can be a little bit more accepting of risk. ANDREW HUBERMAN: Well, you should definitely reproduce at some point. Maybe before next time you should just freeze some sperm. LEX FRIDMAN: I-- ANDREW HUBERMAN: Really, that-- LEX FRIDMAN: Is that what you do with ice baths? Is how that works? ANDREW HUBERMAN: You know, it's interesting. There's always an opportunity to do some science protocols. You know that there are products on the internet, and there are actually a few decent manuscripts looking at how cold exposure can increase testosterone levels, but it doesn't happen by the cold directly. Good scientists, as the authors of those papers, were and are, realized that it's the vasoconstriction and then the vasodilation. As people warm up again there's increased blood flow to the testicles, and in women it seems there's probably increased blood flow to the reproductive organs as well after people warm back up. So that seems to cause

some sort of hyper nourishment of the various cells, the Sertoli and Leydig cells of the testes that lead to increased output of testosterone and in women testosterone as well. So the cold exposure in any case is obviously a-- do you do the ice bath? Are you into that? LEX FRIDMAN: I've not done that yet. ANDREW HUBERMAN: As a Russian you probably consider that a hot tub. LEX FRIDMAN: Yeah, exactly. Yeah. It's a nice thing to have fun with every once in a while to warm up. No, I haven't done that. Been kind of waiting to maybe do it together with you at some point. ANDREW HUBERMAN: Great. LEX FRIDMAN: Because we have a guide. ANDREW HUBERMAN: We have one here. It'll be straightforward for you. I always say that the adrenaline comes in waves, and so if you just think about it walls, like you're going through a number of walls of adrenaline as opposed to going for time, it becomes rather trivial. With your jujitsu background and what you'll immediately recognize the physiological sensation. Even though it's cold specifically, it's the adrenaline that makes you want to hop out of the thing. LEX FRIDMAN: And you've seen Joe's. So Joe set up a really nice man cave-- or it's not even a cave because it's so big. It's like a network of man caves. But it has a ice bath and a sauna next to each other. ANDREW HUBERMAN: We have one of those here, ice bath and sauna. So we'll have to get you in it one of these days. LEX FRIDMAN: Sounds like trouble. ANDREW HUBERMAN: Maybe tonight, maybe tomorrow. No, although there is a-- I don't know the underlying physiological basis but there does seem to be a trend toward truth telling in the sauna. Some people will refer to them as truth barrels. Mine's a barrel sauna shaped like a barrel. Who knows why? Maybe under intense heat duress people just feel compelled to share. LEX FRIDMAN: Well, I have a complicated relationship with saunas because of all the weight cutting. ANDREW HUBERMAN: Oh. LEX FRIDMAN: Some of the deepest suffering-- sorry to interrupt-- I've done was in the sauna. It's very-- I mean, I've gone to some dark places in a sauna because, I mean, I wrestled my whole life, judo, jujitsu, and those weights cuts can really test the mind. So you're-- truth telling. Yeah, it's a certain kind of truth telling because you're sitting there and the clock moves slower than it has ever moved in your life. Yeah. So I usually, for the most part, I would try to have a bunch of sweats, garbage bags, and all that kind of stuff, and run. It's easier because you can distract the mind. In the sauna you can't distract the mind. It's just and all the excuses and all the weaknesses in your mind just coming to the surface, and you're just sitting there and sweating-- or not sweating. That's the worst. ANDREW HUBERMAN: And talk about visual aperture. You're in a small box so it also inspires some claustrophobia even if you're not claustrophobic. That's

absolutely true. And the desire to just get out of the thing is where you get a pretty serious adrenaline surge from in the sauna as well. Now, the sauna actually will-- it won't deplete testosterone but it kills sperm. So for people that-- sperm are on a 60 day sperm cycle so if you're trying to donate sperm-- because that's what got us on to this-- or fertilize an egg or eggs in whatever format, dish or in vivo, as we say in science, which means-- well, you can look it up, folks. The 60 day sperm cycle. So if you go into a really hot sauna or a hot bath or a hot tub, in 60 days those sperm are going to be-- a significantly greater portion of them will be dead, will be non-viable. So there's a simple solution. People just put ice pack down there or a jar, not this jar, but a jar of cold fluid between their legs and just sit there, or they go back and forth between the ice bath and the sauna. But you probably-- if you're going to go back over there you should freeze sperm. We're going to do a couple episodes on fertility when it's relatively inexpensive. And you're young so you probably do it now because there is a association with autism as males get older. It's not a strong one. It's significant but it's still a small contribution to the autism phenotype. LEX FRIDMAN: As you age don't sperm get wiser or no? There's no science to back that? ANDREW HUBERMAN: No, but men can conceive healthy children at a considerable age. But in any case-- but no, they don't get wiser. What happens is interesting-- LEX FRIDMAN: Finely aged steak. ANDREW HUBERMAN: Well, it's a little bit like the maturation of the brain in the sense that some of the sperm get much better at swimming and then many of them get less good. Motility is a strong correlate of the DNA of the sperm. LEX FRIDMAN: This is probably a good time to announce that I'm selling my sperm as an NFTs. I wanted to see how much that-- ANDREW HUBERMAN: Oh my goodness. LEX FRIDMAN: Riding the crypto wave. ANDREW HUBERMAN: Well, your children, your future children and my future children, are supposed to do jujitsu together since I've only done the one jujitsu class so I'm strongly vested in you having children. LEX FRIDMAN: Yes. ANDREW HUBERMAN: But only in the friendly kind of way. LEX FRIDMAN: Well, yes. Friendly competition kind of way. Yeah. Dominance of the clan.

00:46:44 Ukraine: Science, Infrastructure & Military; Zelensky

Yep. For sure. ANDREW HUBERMAN: So moving on to science, but still with our minds in the Ukraine. Did you encounter any scientists or see any universities? As we know, in this country and in Europe and elsewhere, science takes infrastructure. You need

buildings, you need laboratories, you need robots, you need a lot of equipment, and you need minus 80 freezers and you need incubators and you need money and you need technicians. And typically it's been the wealthier countries that have been able to do more research for sake of research and development and prioritization. Certainly the Ukraine had some marvelous universities and marvelous scientists. What's going on with science and scientists over there? And gosh, can we even calculate the loss of discovery that is occurring as a consequence of this conflict? LEX FRIDMAN: So science goes on. Before the war Ukraine had a very vibrant tech sector, which means engineering and all that kind of stuff, and Kyiv has a lot of excellent universities and they still go on. The biggest hit, I would say, is not the infrastructure of the science, but the fact, because of the high morale, everybody is joining the military. So everybody is going to the front to fight, including you, Andrew Huberman, would be fighting, and not because you have to but because you want to. And everybody you know would be really proud that you're fighting, even though everyone tries to convince, Andrew Huberman, you have much better ways to contribute. There's deep honor in fighting for your country, yes, but there are better ways to contribute to your country than just picking up a gun that you're not that trained with and going to the front. Still, they do it. Scientists, engineers, CEOs, professors, students-- ANDREW HUBERMAN: Men and women? LEX FRIDMAN: Actors-- men and women. Obviously, primarily men, but men and women. Much more than you would see in other militaries, women are-- everybody. Everybody wants to fight. Everybody's proud of fighting. There's no discussion of pacifism. Should we be fighting? Is this right? Is this-- everybody's really proud of fighting. So there's this kind of black hole that pulls everything, all the resources, into the war effort that's not just financial but also psychological. So it's like if you're a scientist it feels like what-- it feels almost like you're dishonoring humanity by continuing to do things you were doing before. There's a lot of people that converted to being soldiers. They literally watch a YouTube video of how to shoot a particular gun, how to arm a drone with a grenade. If you're a tech person you know how to work with drones so you're going to use that, use whatever skills you got, figure out whatever skills you got and how to use them to help the effort on the front. And so that's a big hit. But that said, I've talked to a lot of folks in Kyiv-- faculty primarily in the tech economics space, so I didn't get a chance to interact with folks who are on the biology, chemistry, neuroscience side of things, but that still goes on. So one of the really impressive things about Ukraine is that they're able to maintain infrastructure like road, food supply, all that kind of stuff, education, while the

war is going on, especially in Kyiv. The war started where nobody knew whether Kyiv was going to be taken by the Russian forces. It was surrounded. And a lot of experts from outside were convinced that Russia would take Kyiv, and they didn't. And one of the really impressive things as a leader-- one of the things I really experienced is that a lot of people criticized Zelenskyy before the war. He only had about 30% approval rate. A lot of people didn't like Zelenskyy. But one of the great things he did as a leader, which I'm not sure many leaders would be able to do, is when Kyiv was clearly being invaded he chose to stay. He stayed in the capital. Everybody, all the American military, the intelligence agencies, NATO, his own staff, advisors all told him to flee, and he stayed. And so I think that was a beacon, a symbol for the rest, for the universities, for science, for the infrastructure that we're staying too, and that kept the whole thing going. There's an interesting social experiment that happened, I think for folks who are interested in gun control in this country in particular, is one of the decisions they made early on is to give guns to everybody. Semi-automatics. ANDREW HUBERMAN: Early on in the war? LEX FRIDMAN: Early on in the war, yeah. So everybody got a gun. They also released a bunch of prisoners from prison because there was no staff to keep the prisons running. And so there's a very interesting psychological experiment of, like, how is this going to go? Everybody has a gun. Are they going to start robbing places? Are they going to start taking advantage of a chaotic situation? And what happened is that crime went to zero. So it turned out that this, as an experiment, worked wonderfully. ANDREW HUBERMAN: That's a case where love generalized. LEX FRIDMAN: Yes. ANDREW HUBERMAN: Or at least hate did not. We don't know if it's love or it's sort of lack of initiative for common culture directed hate. LEX FRIDMAN: Yeah. I don't-- right. I think that's very correct to say that it wasn't hate that was unifying people. It was love of country, love of community. It's probably the same thing that will happen to humans when aliens invade as well. It's the common effort. Everybody puts everything else to the side. Plus just the sheer amount of guns is similar to Texas. You realize, well, there's going to be a self-correcting mechanism very quickly because the rule of law was also put aside, right? Basically the police force lost a lot of power because everybody else has guns and they're kind of taking the law into their own hands. That system, at least in this particular case

in this particular moment in human history, worked. It's an interesting lesson, you know?

ANDREW HUBERMAN: It is. I had an interesting contrast that I'll share with you because you mentioned Texas. So not so long ago I was in Austin. I often visit you or others in Austin, as you know. And many doors that I walked past, including a school, said no firearms past this point. It was a sticker on the door. You see this on hospitals sometimes. I saw this at Baylor College of Medicine, et cetera. Relatively common to see in Texas, not so common in California. And then I flew to the San Francisco Bay Area, was walking by an elementary school in my old neighborhood, and saw a similar sticker and looked at it and it said, no peanuts or other allergy containing foods past this point on the door of this elementary school. So quite a different contrast, guns and peanuts. Now, peanut allergies, obviously, are very serious for some people, although there's great research out of Stanford showing that early exposure to peanuts can prevent the allergies. But don't start rubbing yourself in peanut butter, folks, if you have a peanut allergy. That's not the best way to deal with it. In any case, the contrast of what's dangerous, the contrast of the familiarity with guns versus no familiarity. In Israel and elsewhere you see machine guns in the airport. In Germany, Frankfurt, you see machine guns in the airport. Not so common in the United States. So again, I feel like there's this aperture of vision. There's this aperture of pleasures versus creature comforts and lack of creature comforts, and then there's this aperture of danger, right? People who are familiar with guns are familiar with people coming in and setting their firearm on the table and eating dinner, you know? But if you're not accustomed to that it's jarring, right?

LEX FRIDMAN: I should mention-- people know this throughout human history-- but the human ability to get assimilated now, get used to violence is incredible. So you could be living in a peaceful time, like we're here now, and there would be one explosion, like a 9/11 type of situation. That would be a huge shock. It's terrifying. Everybody freaks out. The second one is a huge drop off in how freaked out you get. And in a matter of days, sometimes hours, it becomes the normal. I've talked to so many people in Kharkiv, which is one of the towns that's seen a lot of heated battle. You ask them, is it safe there? In fact, when I went to the-- closer and closer to the war zone you ask people, is it safe? And their answer's usually, yeah, it's pretty safe.

ANDREW HUBERMAN: It's all signal to noise.

LEX FRIDMAN: Nobody has told me except Western reporters sitting in the West Side of Ukraine, it's really dangerous here. Everyone's like, yeah, it's good. My uncle just died yesterday. He was shot. But it's pretty good. The farm is still running. How do I put it? They focus on the positive, that's one. But there's a deeper truth there, which is just

get used to difficult situations and the stuff that make you happy and the stuff that make you upset is relative to that new normal that you establish. ANDREW HUBERMAN: Well, I grew up in California and there were a lot of earthquakes. I remember the '89 quake, I remember the Embarcadero Freeway pancaking on top of people and cars. I remember I moved to Southern California, there was a Northridge quake. Wherever I move there seem to be earthquakes. I never worry about earthquakes, ever. I just don't. In fact, I don't like the destruction they cause, but every once in a while an earthquake will roll through and it's kind of exciting. It sounds like a train coming through. It's like, wow, like the Earth is moving. You know? Again, I don't want anyone to get harmed, but I enjoy a good rumble coming through nonetheless. It's signal to noise. But if I saw a tornado I'd freak out, and people from the Midwest are probably comfortable with-- Dan Gable, the great wrestler from the Midwest that you know and I've never met but I have great respect for, he's probably-- sees a tornado and is like, ah, yeah. Maybe. Yeah.

00:57:40 MIT & Artificial Intelligence (AI), University Teaching & Pandemic

You know? So I think signal to noise is real. Before I neglect, although I won't forget, speaking of signal to noise and environment, you are returning to or have gone back to one of your original natural habitats, which is the Massachusetts Institute of Technology which is-- LEX FRIDMAN: Natural habitat, yeah. ANDREW HUBERMAN: It's actually difficult to pronounce in full. MIT, right? So you've been spending some time there teaching and doing other things. Tell us what you're up to with MIT recently. LEX FRIDMAN: Well, I'm really glad that you, being on the West Coast, know the difference between Boston, New York. I feel like a lot of people think it's like the East Coast. ANDREW HUBERMAN: It's very different, especially the Bostonians and New Yorkers. LEX FRIDMAN: They get very aggressive. ANDREW HUBERMAN: Oh my goodness. LEX FRIDMAN: Yeah, I love it. I gave lectures there in front of a in person crowd. ANDREW HUBERMAN: What were you talking about? LEX FRIDMAN: For the AI, so different aspects of AI and robotics, machine learning-- machine learning. So for people who know the artificial intelligence field they usually don't use the term AI, and people from outside AIs. The biggest breakthroughs in the machine learning field with some discussion of robotics and so on. Yeah. It was in person. It was wonderful. I'm a sucker for that. I really avoided teaching or any kind of interaction during COVID because people put a lot of emphasis on but also got comfortable with remote teaching, and I

think nobody enjoyed it. Except there's a notion that it's much easier to do because you don't have to travel. You can do it in your pajamas kind of thing. But when you actually get to do it, you don't get the same kind of joy that you do when you're teaching. As a student you don't get the same kind of joy of learning. It's not as effective and all that kind of stuff. So to be in person together with people, to see their eyes, to get their excitement, to get the questions and all the interactions, that was awesome. And I'm still a sucker and a believer in the ideal of MIT, of the University. I think it's an incredible place. There's something in the air still. But it really hit-- the pandemic hit universities hard because-- and I can say this. This is not you saying it. This is me saying it. That administrations-- as in all cases when people criticize institutions, the pandemic has given more power to the administration and taken away power from the faculty and the students, and that's from everybody involved, including the administration. That's a concern because a university is about the teachers and the students. That should be primary. And whenever you have a pandemic there's an opportunity to increase the amount of rules. One of the things that really bothered me, and I'll scream from the top of the MIT dome, about this is they've instituted a new temp ticket system. Which is if you're a visitor to the campus at MIT, you have to register. You have to, first of all, show that you're vaccinated, but more importantly, there's a process to visiting. You need to get permission to visit. One of the reasons I loved MIT, unlike some other institutions, MIT just leaves the door open to anyone. In classrooms you can roll in the ridiculous characters. The students that are usually doing business stuff or economics can roll into a physics class and just-- you're kind of not allowed but it's a gray area so you let that happen, and that creates a flourishing of a community that was beautiful. And I think adding extra rules puts a squeeze on and limits some of the flourishing, and I hope some of that dissipates over time as we kind of let go of the risk aversion that was created by the pandemic. As we kind of enter the normal return back some of that flourishing can happen. But when you're actually in there with the students, it was magic. I love it. I love it. ANDREW HUBERMAN: Well, some of your earliest videos on your YouTube channel were of you in the classroom, right? That's how this all started. LEX FRIDMAN: Yeah. Yeah. That's how YouTube-- putting stuff on YouTube is terrifying, right? ANDREW HUBERMAN: Well, especially at the time when you did it. Again, you're a pioneer in that sense. You did that, Jordan Peterson did that. Putting up lectures is-- yeah. I teach still. Every winter I teach-- direct a course, and I'll be doing even more teaching going forward. But the idea of those videos being on the web is-- yeah, that spikes my cortisol

a little bit. LEX FRIDMAN: Yeah. It's terrifying because you get-- and everybody has a different experience. For me being a junior research scientist the kind of natural concern is like, who am I? And when I was giving this lecture it's like, I don't deserve any of this. ANDREW HUBERMAN: That's your humility coming through, and I actually think that humility on the part of an instructor is good because those that think that they are entitled, and who else could give this lecture? Then I worry more. I once heard-- I don't know if it's still true-- that at Caltech, the great California Institute of Technology not far from here, that many of the faculty are actually afraid of the students. Not physically afraid, but they're intellectually afraid because the students are so smart. And teaching there can be downright frightening, I've heard. But that's great. Keeps everybody on their toes. And you know, I've been corrected in lecture before at Stanford and elsewhere. When my lab was at UC San Diego where someone will say, hey, wait, last lecture you said this and now you said that-- or on the podcast. You know? And I think it's that moment where you sometimes feel that urge to defend and you go, oh, you're right, and I think it depends on how one was trained. My graduate advisor was wonderful at saying, I don't know, all the time. And she went to Harvard, Radcliffe, UCSF, and Caltech. Brilliant woman. And had no problem saying, I don't know. LEX FRIDMAN: I don't have that problem either. So I usually have two guys that somebody speaks up, grab them, drag them out of the room, never see them again. So everybody is really supportive. You don't understand that the amount of love and support I get is-- ANDREW HUBERMAN: Especially when the last few students are there and everybody seems to be nodding as you're going. No, I think that I'd love to sit-in on one of your lectures. I know very little about AI, machine learning, or robotics. But-- LEX FRIDMAN: Have you ever talked at MIT? Have you ever given lectures? ANDREW HUBERMAN: Oh, yeah. When I went on the job market as a faculty member my final two choices were between MIT Picower-- I had an on-paper offer. Wonderful place. Wonderful place to do neuroscience. And UC San Diego, which is a wonderful neuroscience program. In the end it made sense for me to be on the West Coast for personal reasons, but there's some amazing neuroscience going on there. Goodness. And that's always been true and is going to continue. It's been a long time since I've been invited back there. Oddly enough when I started doing more podcasting-- and I still run a lab but I shrunk my lab considerably as I've done more podcasting-- I've received fewer academic lecture invites, which makes sense. But now they're sort of coming back. And so when people invite now I always say, do you want me to talk about the ventral thalamus and its role in anxiety and aggression or do you

want me to talk about the podcast? And my big fear is I'm going to go back to give a lecture about the retina or something and I'll start off with an Athletic Greens read or something like that just reflexively. Just kidding. That wouldn't happen. But listen, I think it's great to continue to keep a foot in both places. I was so happy to hear that you're teaching at MIT because podcasting is one thing, teaching is another, and there's overlap there in the Venn diagram. But listen, the students that get to sit-in on one of your lectures-- and you may see me sitting there in the audience soon when I creep into your class. LEX FRIDMAN: In sunglasses. ANDREW HUBERMAN: That's right. Wearing a red shirt. You won't recognize me. Are certainly receiving a great gift.

01:05:51 Publications & Peer Review, Research, Social Media

I've watched your lectures on YouTube, even the early ones, and listen, I know you to be a phenomenal teacher. LEX FRIDMAN: Yeah, there's something about-- so I'm also doing-- I stayed up pretty late last night working for a deadline on a paper. One of the things that I hope to do for hopefully the rest of my life is to continue publishing, and I think it's really important to do that even if you continue the podcast because you want to be just on your own intellectual and scientific journey as you do podcasting. At least for me, and especially on the engineering side because I want to build stuff, and I think that keeps your ego in check, keeps you humble because I think if you talk too much on a microphone you start getting-- you might lose track of the grounding that comes from engineering and from science and the scientific process and the criticisms that you get, all that kind of stuff. ANDREW HUBERMAN: And how slow and iterative it is. We have two papers right now that are in the revision stage, and it's been a very long road. And I was asked this recently because I met with my chairman. He said, do you want to continue to run a lab or are you just going to go full time on the podcast? And Stanford has been very supportive, I must say, as I know MIT has been of you. And I said, oh, I absolutely want to continue to be involved in research and do research. And when you start talking about these papers and we're looking over my-- this was my yearly review and looking back I'm like, goodness, these papers have been in play for a very long time. So it's a long road but you learn more and more, and the more time you spend myopically looking at a bunch of data the more you learn and the more you think. I totally agree. Talking to these devices for podcasts is wonderful because it's fun. It relieves a certain itch that we both have and hopefully it lands some important information out

there for people, but doing research is the-- I guess if you know, you know. There's the unpeeling of the onion, knowing that there could be something there. There's just nothing like it. LEX FRIDMAN: I mean, you do-- especially with the pandemic. And for me, both Twitter and the podcast have made me much more impatient about the slowness of the review process because-- ANDREW HUBERMAN: Twitter will do that. LEX FRIDMAN: Twitter will. But even with podcast you have a cool-- you'll find something cool and then you have ideas and you'll just say them and they'll be out pretty quickly. ANDREW HUBERMAN: Then we do a post right now about something that we both found interesting and it's out in the world. Yep. LEX FRIDMAN: And you can write up something, like there is a culture in computer science of posting stuff on arXiv and preprints that don't get annual review, and sometimes they don't even go through the review process ever because people just start using them if it's code. And it's like, what's the point of this? It works. It's self evident that it works because people are using it, and that I think applies more to engineering fields because it's an actual tool that works. It doesn't matter if-- you don't have to scientifically prove that it works. It works because it's using for a lot of people. ANDREW HUBERMAN: Well, sorry to interrupt, but I just-- for point of reference, the famous paper describing the double helix which earned Watson and Crick the Nobel Prize and should have earned Rosalind Franklin Nobel Prize too, of course, but they got it for the structure of DNA of course. That paper was never reviewed at Nature. They published it because its importance was self evident, or whatever. They decided-- LEX FRIDMAN: So the editors. ANDREW HUBERMAN: It was that purely editorial decision, I believe. I mean, that's what I was told by someone who's currently an editor at Nature. If that turns out to not be correct someone will tell us in the comments for sure. LEX FRIDMAN: Well, I think-- ANDREW HUBERMAN: That's pretty interesting, right? LEX FRIDMAN: That's really interested. ANDREW HUBERMAN: Perhaps the most significant discovery in biology and bioengineering which was leading to bioengineering as well, of course, of the last century was not peer reviewed. LEX FRIDMAN: Yeah, but-- so Eric Weinstein, but many others have talked about this, which is, I mean, I don't think people understand how poor the peer review process is. Just the amount of-- because you think peer review it means all the best peers get together and they review your stuff, but it's unpaid work and it's usually a small number of people. And they have a very select perspective so they might not be the best person, especially if it's super novel work. ANDREW HUBERMAN: And it's who has time to do it. I'm on a bunch of editorial boards still. Why, I don't know, but I enjoy the peer review process and

sending papers out. Oftentimes the best scientists are very busy and don't have time to review. And oftentimes the more premiere journals will select from a kind of a unique kit of very good scientists who are very close to the work, sometimes the people are very far from the work. It really depends. LEX FRIDMAN: And both have negatives, right? If you're very close to the work there's jealousy, and all those basic human things. Very far from the work you might not appreciate the nuanced contribution, all that kind of stuff. ANDREW HUBERMAN: And there's psychology. Sorry to interrupt again, but a good friend of mine who's extremely successful neuroscientist, Howard Hughes investigator, et cetera, always told me that they-- I won't even say whether or not who they are. They select their reviewers on the basis of who has been publishing very well recently because they assume that that person is going to be more benevolent because they have been doing well so that the love expands. LEX FRIDMAN: That's a good point to that, actually. But the idea is that editors might actually be the best reviewers, so that was the traditional-- that's the thing I wanted to mention that Eric Weinstein talks about, that back several decades ago editors had much more power. And there is something to be made for that because editors are the ones who are responsible for crafting the journal. They really are invested in this, and they're also often experts, right? It makes sense for an editor to have a bit of power in this case. Usually if an idea is truly novel you could see it, And so it makes sense for an editor to have more power in that regard. Of course for me, I think peer review should be done the way tweets are done, which is crowdsourced or Amazon reviews. ANDREW HUBERMAN: Let the crowd decide. LEX FRIDMAN: Let the crowd decide, and let the crowd add depth and breadth and context for the contribution. So if the paper overstates the degree of contribution, the crowd will check you on that. If there's not enough support or the conclusions are not supported by the evidence, the crowd will check you on that. There could be, of course, political bickering that enters the picture, especially on very controversial topics, but I think I trust the intelligence of human beings to figure that out. And I think most of us are trying to figure this whole process out. I just wish it was happening much faster because on the important topics, the review cycle could be faster. And we learned that through COVID that Twitter was actually pretty effective at doing science communication. It was really interesting. Some of the best scientists took to Twitter to communicate their own work and other people's work, and always putting into the caveats that it's not peer reviewed and so on, but it's all out there and the data just moves so fast.

01:13:05 InsideTracker

And if you want stuff to move fast, Twitter is the best medium of communication for that. It's cool to see. ANDREW HUBERMAN: I'd like to take a brief break and thank our sponsor, InsideTracker. InsideTracker is a personalized nutrition platform that analyzes data from your blood and DNA to help you better understand your body and help you reach your health goals. I've long been a believer in getting regular blood work done for the simple reason that many of the factors that impact your immediate and long term health can only be analyzed from a quality blood test. The problem with a lot of blood and DNA tests out there, however, is that you get data back about metabolic factors, lipids, and hormones and so forth, but you don't know what to do with those data. InsideTracker solves that problem and makes it very easy for you to understand what sorts of nutritional, behavioral, maybe even supplementation based interventions you might want to take on in order to adjust the numbers of those metabolic factors, hormones, lipids, and other things that impact your immediate and long term health to bring those numbers into the ranges that are appropriate and, indeed, optimal for you. If you'd like to try InsideTracker you can visit insidetracker.com/huberman to get \$200 off an ultimate plan or 34% off the entire site as a special Black Friday deal now through the end of November.

01:14:17 Twitter & Social Media Mindset, Andrew Tate & Masculinity

Again, that's insidetracker.com/huberman, and use the code Huberman at checkout. I'm now on Twitter more regularly, and initially it was just Instagram. And I remember you and I used to have these over dinner or drink conversations where I'd say, I don't understand Twitter. And you'd say, I don't understand Instagram. And of course, we understand how it worked and how to work each respective platform, but I think we were both trying to figure out what is driving the psychology of these different venues because they are quite distinct psychologies for whatever reason. I think I'm finally starting to understand Twitter and enjoy it a little bit. Initially I wasn't prepared for the level of reflexive scrutiny. It sounds a little bit oxymoronic, but that people pick up on one small thing and then drive it down that trajectory. It didn't seem to be happening quite as much on Instagram, but I love your tweets. I do have a question about your Twitter account and how you-- do you have sort of internal filters of what you'll put up and won't put up?

Because sometimes you'll put up things that are about life and reflections. Other times you'll put up things like what you're excited about in AI, or of course, point to various podcasts including your own, but others as well. How do you approach social media? Not in how do you regulate your behavior on there in terms of how much time, et cetera. I know you've talked about that before. But you know, what's your mindset around social media when you go on there to either post or forage or respond to information? LEX FRIDMAN: I think I try to add some-- not the sound cliché, but some love out there into the world into, as OJ Simpson calls it, Twitter world. I think there is this viral negativity that can take hold, and I try to find the right language to add good vibes out there. And it's actually really, really tricky because there's something about positivity that sounds fake. I can't quite put my finger on it, but whenever I talk about love and positive and almost childlike in my curiosity and positivity, people start to think, surely he has skeletons in the closet. There's dead bodies in his basement. This must be a fake-- ANDREW HUBERMAN: No, it's the attic. LEX FRIDMAN: It's the attic? ANDREW HUBERMAN: The attic. LEX FRIDMAN: I keep mine in the basement. That's the details. ANDREW HUBERMAN: I was referring to your attic. I don't have an attic or a basement, nor dead bodies. I just want to be very clear. LEX FRIDMAN: Yeah. I do have an attic and actually I haven't been up there. Maybe there is bodies up there. But yes, I prefer the basement. It's colder down there. I like it. No, but there's an assumption that this is not genuine or it's disingenuous in some kind of way. And so I try to find the right language for that kind of stuff, how to be positive. Some of it I was really inspired by Elon's approach to Twitter. Not all of it, but when he just is silly. I found that silliness-- I think it's Hermann Hesse said something to paraphrase-- one of my favorite writers-- ANDREW HUBERMAN: Yeah, same. LEX FRIDMAN: I think in Steppenwolf said, learn what is to be taken seriously and laugh at the rest. I think I try to be silly, laugh at myself, laugh at the absurdity of life, and then in part when I'm serious, try to just be positive, just to see a positive perspective. And also, as you said, people pick out certain words and so on and they attack each other, attack me over certain usage of words in a particular tweet. I think the thing I try to do is think positively towards them, like do not escalate. So whenever somebody's criticizing me and so on, I just smile. If there's a lesson to be learned, I learn it and then I just send good vibes their way. Don't respond, and just hopefully, through karma and through the ripple effect of positivity, have an impact on them and the rest of the Twitter. And what you find is that builds-- your actions create the community. So how I behave gets me surrounded by certain people. But lately,

especially Ukraine is one topic like this, I also thought about talking to-- somebody who reached out to me is Andrew Tate, who's extremely controversial. From the perspective of a lot of people is a misogynist. ANDREW HUBERMAN: I've heard his name and I know that there's a lot of controversy around him. Maybe you could familiarize me. I've been pretty nose down in podcast prep and I tried to do this vacation thing for about three, four weeks. LEX FRIDMAN: I've heard about that. ANDREW HUBERMAN: Yeah. And it sort of worked. I did get some time in the Colorado wilderness by myself, which was great. I did get some downtime. But in any event, it mainly consisted of reading and-- LEX FRIDMAN: And nature? ANDREW HUBERMAN: Reading and nature, sauna, ice bath, working out, good food, a little extra sleep, these kinds of things I really felt I needed it. But I am pretty naive when it comes to the kind of current controversies but I've heard his name, and I think he's been deplatformed on a couple of platforms. Do I have that right? LEX FRIDMAN: Yeah, he's been-- so I should also admit that while I might know more than you, it's not by much. So it's like a five-year-old talking to a four-year-old right now. ANDREW HUBERMAN: Is he an athlete, a podcaster? LEX FRIDMAN: So basic summary, he used to be a fighter, a kickboxer, I believe. Was pretty successful. And then during that and after that I think he was on a reality show, and he had all these programs that are basically pickup artist advice. He has this community of people where he gives advice on how to pick up women, how to be successful in relationships, how to make a lot of money, and it costs money to enter those programs. So a lot of the criticism that he gets is kind of-- it's like a pyramid scheme where you convince people to join so that they can make more money and then they convince others to join, and that kind of stuff. But that's not why I'm interested in talking to him. I'm interested because one of the guests-- maybe I should mention who, but one of the female guests I had, really a big scientist, said that her two kids that are 13 and 12 really look up to Andrew to entertain-- ANDREW HUBERMAN: Is it male children, female children? LEX FRIDMAN: Male. And I hear this time and time again. So he is somebody that a lot of teens, young teens, look up to. So I haven't done serious research. I usually try to avoid doing research until I agree to talk and then I go deep. But there is an aspect to the way he talks about women that, while I understand and I understand certain dynamics in relationships work for people and he's one such person, but I think him being really disrespectful towards women is not what I-- it's not how I see what it means to be a good man. So the conversation I want to have with him is about masculinity. What does masculinity mean in the 21st century? And so when I think about that kind of

stuff, and because we're talking about Twitter, it's like going into a war zone. I'm a happy go lucky person, but-- ANDREW HUBERMAN: You're like, send me to Ukraine, but I don't want to have this conversation on Twitter. LEX FRIDMAN: Because it's a really, really, really tricky one because also, as you know, when you do a podcast, everybody wants you to win. It's everything you do is positive. Maybe you'll say the wrong thing as inaccurate thing and you can correct yourself. With Andrew Tate, with Donald Trump, with folks like this, you have to-- I mean, it's a professional boxing. I think you have to push the person. You have to be really eloquent. You have to be also empathetic because you can't just do what journalists do, which is talk down to the person the entire time. That's easy. The hard thing is to empathize with the person, to understand them, to steel man their case, but also to make your own case. So in that case about what it means to be a man, to me a strong man is somebody who is respectful to women. Not out of weakness, not out of social justice warrior signaling, and all that kind of stuff, but out of that's what a strong man does. They don't need to be disrespectful to prove their position in life. He is often-- now, a lot of people say it's a character. He's being misogynistic. He's being a misogynist as a kind of-- for entertainment purposes. ANDREW HUBERMAN: So like an avatar. LEX FRIDMAN: Yeah. But to me, that avatar has a lot of influence on young folks so the character has impact. ANDREW HUBERMAN: Oh, I don't think you can separate the avatar and the person in terms of the impact, as you said. In fact, there are a number of accounts on Twitter and Instagram and elsewhere which people have only revealed their first names or they give themselves another name or they're using a cartoon image. And part of that, I believe, in at least from some of these individuals who actually know who they are, I understand as an attempt to maintain their privacy, which is important to many people. And in some cases so that they can be more inflammatory and then just pop up elsewhere as something else without anyone knowing that it's the same person. LEX FRIDMAN: Some of-- this is the dark stuff. I've been reading a lot about Ukraine and Nazi Germany, so the '30s and the '40s and so on, and you get to see how much the absurdity turns to evil quickly. One of the things I worry-- one of the things I really don't like to see on Twitter and the internet is how many statements end with LOL. It's like you think just because something is kind of funny or is funny or is legitimately funny, it also doesn't have a deep effect on society. So that's such a difficult gray area because some of the best comedy is dark and mean, but it reveals some important truth that we need to consider. But sometimes comedy is just covering up for destructive ideology, and you have to know the line

between those two. Hitler was seen as a joke in the late '20s and the '30s in Nazi Germany until the joke became very serious. You have to be careful to know the difference between the joke and the reality and do all that. I mean, in a conversation-- I'm just such a big believer in conversation to be able to reveal something through conversation, but I don't know. One of the big-- you and I challenge ourselves all the time. I don't know if I have what it takes to have a good, empathetic, but adversarial conversation. ANDREW HUBERMAN: I need to learn more about this Tate person,

01:26:05 Donald Trump & Anthony Fauci; Ideological Extremes

or not learn about them. Yeah. It sounds like maybe it's something to skip. I don't know because, again, I'm not familiar with the content. But I was going to ask you whether or not you've sought out or whether or not you would ever consider having Donald Trump as a guest on your podcast. LEX FRIDMAN: Yeah, I've talked to Joe a lot about this and I really believe I can have a good conversation with Donald Trump, but I haven't seen many good conversations with him. So part of me thinks-- part of me believes it's possible, but he often effectively runs over the interviewer. ANDREW HUBERMAN: You could sit him down, give him an element in Athletic Greens. LEX FRIDMAN: Just relax. ANDREW HUBERMAN: That nice, cool, air conditioned black curtain studio you've got and a different side might come out. Context is powerful. LEX FRIDMAN: Well, Joe's really good at this, which is relaxing the person. Like here, have a drink. Smoke a joint, or whatever it is. But this energy of just, let's relax, and there's laughter and so on. I don't think-- as people know, I'm just not good at that kind of stuff. So I think the way I could have a good conversation with him is to really understand his worldview, be able to steel man his worldview and those that support him. Which is, I'm sorry to say for people who seem to hate Donald Trump, is a very large percentage of the country. And so you have to really empathize with those people. You have to empathize with Donald Trump, the human being, and from that perspective, ask him hard questions. ANDREW HUBERMAN: So who do you think is the counterpoint if you're going to seek balance in your guests. If you're going to have Trump on, then you have to have who on? LEX FRIDMAN: Well, that's interesting. ANDREW HUBERMAN: Anthony Fauci seems to be strongly associated with counter values, at least in the eye of the public. I think he's retiring soon, but. LEX FRIDMAN: Yeah, he's retiring. So that's really interesting, Anthony Fauci. Yeah, definitely, but I don't think he's a counterbalance. He's a

complicated, fascinating figure who seems to have attracted a lot of hate and distrust, but also-- ANDREW HUBERMAN: And love from some people. LEX FRIDMAN: And love. ANDREW HUBERMAN: And love from some people. I mean, I know people, not even necessarily scientists, who have pro-Fauci shirts. I've seen people with anti-Fauci shirts, excuse me, certainly, but who adore him. There are people who adore him in the same way there are people that adore Trump. It's so interesting that one species of animal you get such divergent neural circuitry. LEX FRIDMAN: It almost feels like it's by design and every single topic we find tension and division is fascinating to watch. I mean, I got to really witness it from zero to a hundred in Ukraine, where there is not huge significant division. There was in certain parts of Ukraine, but across Europe, across the world there was not that much division between Russia and Ukraine, and it was just born overnight, this intense hatred. You see the same kind of stuff with Fauci over the pandemic. At first we were all huddled in uncertainty. There is a togetherness with the pandemic. Of course, there is more difficult because you're isolated. But then you start to figure out-- probably the politicians and the media try to figure out, how can I take a side here and how can I now start reporting on this side or that side and say how the other side is wrong? And so I think Anthony Fauci is a part of just being used as a scapegoat for certain things as part of that kind of narrative of division. But I think-- so Trump is a singular figure that, to me, represents something important in American history. I'm not sure what that is, but I think you have to think-- you put on your historian hat, go forward in time, and think back. How will he be remembered 20, 30, 40, 50 years from now? Who is the opposite of that? You have to-- I would really have to think about that because Trump was so singular. I think AOC is an interesting one, but she's so young it's unclear to know how-- if she represents a legitimately large scale movement or not. Bernie Sanders is an interesting option, but I wish he would be 30, 40 years younger. The young Bernie would be a good-- ANDREW HUBERMAN: There are scientists working on that. LEX FRIDMAN: Yeah, I think so. ANDREW HUBERMAN: Not him specifically, but-- LEX FRIDMAN: Well, yeah. Maybe him. We never know. There is a big conspiracy theory that Putin is-- that that's a body double. It's no longer him. ANDREW HUBERMAN: Bernie is Putin? LEX FRIDMAN: No, no, no, no. ANDREW HUBERMAN: I'm having a hard time merging that image. LEX FRIDMAN: The conspiracy theory is-- no, no, no. That the Putin we see on camera today is a body double. ANDREW HUBERMAN: Well, one thing that in science, and in particular, in anatomy, there's a classification scheme for different types of anatomists, which they

either say you're a lumper or a splitter. Some people like to call a whole structure something, not necessarily just for simplicity but for a lot of reasons. And then other people like to microdivide the nucleus into multiple names. And of course, people used to be able to name different brain structures after themselves. So that would be the nucleus of Lex and the Huberman vesiculus or whatever. Less of that nowadays. And by the way, those structures don't actually exist just yet. We haven't defined those yet. I was making those names up. But what's interesting is it seems like in the last five years, there's been a lot of trend-- there's been a trend, excuse me, toward a requirement for lumping. You can't say-- it seems that it's not allowed, if you will, to say, hey, yeah, you know-- and here I'm not stating my-- I will never reveal my preferences about pandemic related things for hopefully obvious reasons. Some people will say vaccines, yes, but masks, no. Or vaccines and masks, yes, but let people work. And other people will say, no, everyone stay home. And then other people will say, no, no vaccines, no masks. Let everybody work. No one was saying no vaccines, no masks, and stay home, I don't think. So there's this sort of lumping, right? The boundaries around ideology really did start to defy science. I mean, it wasn't scientific. It was one part science-ish at times and sometimes really hardcore science. Other times it was politics, economics. I mean, we really saw the confluence of all these different domains of society that use very different criteria to evaluate the world. I mean, as a scientist, I remember when the vaccines first came out and I asked somebody, one of the early concerns I had that was actually satisfied for me was, how does this thing turn off? If you start generating mRNA, how does it actually get turned off? So I asked a friend, they know a lot about RNA biology. And I said, you know, how does it turn off? They explained it to me and I was like, OK, makes sense. I asked some other questions. But most people aren't going to think about it at that level of detail necessarily, but it did seem that there was just kind of amorphous blobs of ideology that they grabbed on to things and then there was this need for a chasm between them. It was almost felt like it became illegal, in some ways, to want two of the things from that menu and one of the things from that menu. I really felt like I was being constrained by a kind of like Bento box model where I didn't get to define what was in the Bento box. I could either have Bento box A or Bento box Z, but nothing in between. LEX FRIDMAN: And I think on that topic and I think a lot of topics, most people are in the middle with humility, uncertainty, and they're just kind of trying to figure it out. And I think there is just the extremes defining the nature of this division. So I think it's the role of a lot of us in our individual lives, and also if you have a platform of any kind, I

think you have to try to walk in the middle with the empathy and humility. And that's actually what science is about is the humility. I'm still thinking about who's the opposite of Trump. ANDREW HUBERMAN: Well, maybe there is none. I mean, maybe Fauci is orthogonal to Trump. I mean, not everything has an opposite. I mean, maybe he's an n of 1 maybe he's in the minority of one because he was an outsider from Washington who then made it there. LEX FRIDMAN: But also I wonder-- you have to pick your battles because every battle you fight

01:35:11 Biotechnology & Biopharma; Money & Status

you should take very seriously. And just the amount of hate I get, I got, and I still get for having sat down with the Pfizer CEO, that was a very valuable lesson for me. ANDREW HUBERMAN: Oh, that one got you a lot of heat? LEX FRIDMAN: Yeah, it still does because-- ANDREW HUBERMAN: Because you had some pretty controversial guests on from time to time. LEX FRIDMAN: Yeah, that one-- ANDREW HUBERMAN: Is he still the Pfizer CEO? LEX FRIDMAN: I believe so. ANDREW HUBERMAN: CEOs turn over like crazy. This is the thing I didn't realize. In science if somebody moves institutions it's a big deal. Most people don't have more than two moves in their career, maybe. But they often move to the next building is a big deal. But it in biotech-- it's like have a former colleague of mine from San Diego and he's been a CEO here, then he's a CEO there. He went back to a company he was a CEO before. He's probably back at the university we worked at for all I know. It's amazing how much moving around there. It is a very itinerant profession. LEX FRIDMAN: Yeah, I think they're-- in certain companies, I guess in biotech would be the case, the CEO is more of like a manager type so you can-- jumping around benefits your experience so you become better and better being a manager. There's some leader revolutionary CEOs that stick around for longer because they're so critical to pivoting a company, like the Microsoft CEO currently. Sundar Pichai is somebody like that. Obviously, Elon Musk is somebody like that that is part of pivoting a company into new domains constantly, but yeah. In biotech there's a machine. In the eyes of a lot of people, big pharma is like big tobacco. It's the epitome of everything that is wrong with capitalism. It's evil, right? And so I showed up in the conversation where I thought with a pretty open mind and really asked what I thought were difficult questions of him. I don't think he's ever sat down to a grilling of that kind. In fact, I'm pretty sure they cut the interview short because of that, and I thought literally it was hot in the room

and we're sweating and I was asking tough questions. For somebody that half the country or a large percent of the country believes he's alleviated a lot of-- he helped, through the financial resources that Pfizer has, helped alleviate a lot of suffering in the world. And so I thought for somebody like that, I was asking pretty hard questions. Boy, did I get to hear from the side-- usually one of the sides is more intense in their anger. So there are certain political topics-- like with Andrew Tate, for example, I would hear from a very-- it would probably be the left, far left, that would write very angrily. And so that's a group you'll hear from. The Pfizer CEO, I didn't get almost any messages from people saying, why did you go so hard on him? He's an incredible human, incredible leader and CEO of a company that helped us with the vaccine that nobody thought would be possible to develop so quickly. ANDREW HUBERMAN: You did not get letters of that sort? LEX FRIDMAN: I did not. I mean, here and there, but the sea of people that said everything from me being weak that I wasn't able to call out this person, how do you sit down, how do you platform this evil person, how do you make him look human, all that kind of stuff. And you have to deal with that. You have to-- of course, it's great. It's great because I have to do some soul searching, which is like, did I? You have to ask some hard questions. I love criticism like that. You get to-- I had some low points. There's definitely some despair and you start to wonder, was I too weak? Should I have talked to him? What is true? And you sit there alone and just marinate in that. Hopefully over time that makes you better, but I still don't know what the right answer with that one is. ANDREW HUBERMAN: Well, I feel that money plays a role here. When people think big pharma, they think billions of dollars-- maybe even trillions of dollars, really. And certainly people who make a lot of money get scrutiny that others don't. Part of it is that they are often not always visible, but I think that there is a natural and reflexive-- and I'm not justifying it. I certainly don't feel this because I know some people who are very wealthy, some people who are very poor. I can't say it scales with happiness at all. People are always shocked to hear that, but that's what I've observed in very wealthy people. But that people who have a lot of money are often held to a different standard because people resent that, some people resent that, and maybe there are other reasons as well. I mean, among people who are very wealthy, oftentimes the wish is for status, right? Not money. You get a bunch of billionaires in a room, and unless one of them is Elon, who also has immense status for his accomplishments, typically if you put a Nobel Prize winner in a room with a bunch of billionaires they're all talking to that person. Right? And there are many very interesting billionaires. But status is something

that is often but not always associated with money, but is a much rarer form of uniqueness out there, a positive uniqueness-- if one considers status positive because there's a downside to. So I wonder whether or not the Pfizer CEO caught extra heat because people assume, and I probably assume also, that his salary is quite immense.

LEX FRIDMAN: Yeah. So because I have a lot of data on this. I can answer it. It's a very good hypothesis. Let's test that scientifically.

ANDREW HUBERMAN: He's about to tell me it's a great hypothesis but it's wrong. I know the smirk. I know the smirk.

LEX FRIDMAN: I honestly think it's wrong. That effect is there for a lot of people, but I think the distrust is not towards the CEO. The distrust is towards the company. One of the really difficult soul searching I had to do, which is just having to interact with Pfizer folks at every level, from junior to the CEO, they're all really nice people. They have a mission. They talk about trying to really help people because that's the best way to make money is to come up with medicine that helps a lot of people. The mission is clear. They're all good people, a lot of really brilliant people, PhDs. So you can have a system where all the people are good, including the CEO. And by good, I mean people that really are trying to do everything. They dedicate their whole life to do good. And yet, you have to think that that system can deviate from a path that does good because you start to deceive yourself of what is good, you turn it into a game where money does come into play from a company perspective where you convince yourself the more money you make, the more good you'll be able to do. And then you start to focus more and more and more on making more money, and then you can really deviate and lose track of what is actually good. I'm not saying necessarily Pfizer does that, but I think companies could do that. You can apply that criticism to social media companies, to big pharma companies. One of the big lessons for me-- I don't know what the answer is, but that all the people inside the company can be good, people you would want to hang out with, people you would want to work with, but as a company is doing evil. That's a possibility. So the distrust I don't think is towards the billionaire individual, which I do see a lot of in this case. I think it's Wall Street distrust, that the machinery of this particular organization has gone off track.

ANDREW HUBERMAN: It's the generalization of hate again.

LEX FRIDMAN: Yeah. And then good luck figuring out what is true. This is the tough stuff. But I should say the individuals-- individual scientists at the NIH and Pfizer are just incredible people. They're really brilliant people. I never trust the administration or the business people-- no offense, business people. But the scientists are always good. They have the right motivator in life. But again, they can have blinders on. Too focused on the

science. Nazi Germany has a history of people just too focused on the science and then the politicians use the scientists to achieve whatever end they want. But if you just look narrowly at the journey of a scientist, it's a beautiful one because they're ultimately in it for the curiosity, the moment of discovery versus money. I mean, prestige probably does come into play later in life, but especially young scientists. They're after the-- it's like they're pulling at the thread of curiosity to try to discover something big. They get excited by that kind of stuff, and it's beautiful to see. ANDREW HUBERMAN: It is beautiful see. I have a former graduate student, now a postdoc at Caltech, and I don't even know she had a cell phone. She would come in the lab, put her cell phone into the desk, and she was tremendously productive. But that wasn't why I brought it up. She was productive as a side effect of just being absolutely committed and obsessed to discover the answers to the questions she was asking as best she could, and it was-- you could feel it. You could just feel the intensity, and just incredibly low activation energy.

01:45:08 Robotics, AI & Social Media; Start-ups

If there was an experiment to do she would just go do it. You're teaching at MIT. You are obviously traveling the world, you're right on the podcast a lot of coverage of chess recently, which is interesting. I don't play chess but-- LEX FRIDMAN: Oh, I have some scientific questions to you about that. ANDREW HUBERMAN: Oh, OK. Sure. Let's get to those for sure. And then-- LEX FRIDMAN: You're not going to like it. ANDREW HUBERMAN: Oh, no. OK. And then also some very-- do I have to spell Massachusetts again? LEX FRIDMAN: Of course. ANDREW HUBERMAN: Also you still seem to have a proclivity for finding guests that are controversial, right? You're thinking about Tate, we're talking about Trump, we're talking about the Pfizer CEO, we're talking about Fauci. These are intense people. And so what we're getting folks is a-- we're not doing neuroimaging here in the traditional sense of putting someone into a scanner. What we're doing here is we're using, as the great Karl Deisseroth, who was on your podcast-- LEX FRIDMAN: Thank you for that. Thank you for connecting us. He's an incredible person. ANDREW HUBERMAN: He's an incredible psychiatrist, bioengineer, and human being and writer, and your conversation with him was phenomenal. I listened to it twice. I actually have taken notes. We talk about it in this household. We really do. His description of love is not to be missed, I'll just leave it at that, because if I try and say it I won't capture it well. But we're getting a language based map of at least a portion of Lex

Fridman's brain here. So what else is going on these days in that brain as it relates to robotics, AI? Our last conversation was a lot about robots and the potential for robot-human interaction. Even what is a robot, et cetera. Are you still working on robots or focused on robots, and where is science showing up in your life besides the things we've already talked about? LEX FRIDMAN: So I think the last time we talked was before Ukraine. ANDREW HUBERMAN: Yes. You were just about to leave. LEX FRIDMAN: Yes. I mean-- ANDREW HUBERMAN: So that's why I went on. I was like, you know, this might be the last-- you said you wanted to come out here before or after. I was like, come out there before. I want to see you before you go. But here you are in the flesh. LEX FRIDMAN: So a lot of-- just a lot of my mind has been occupied, obviously, with that part of the world. But most of the difficult struggles that I'm still going through is that I haven't launched the company that I want to launch and the company has to do with AI. I mean, it's maybe a longer conversation, but the ultimate dream is to put robots in every home. But short term I see there a possibility of launching a social media company, and it's a nontrivial explanation why that leads to robots in the home. But it's basically the algorithms that fuel effective social robotics, so robots that you can form a deep connection with. And so I've been really-- yeah, I've been building prototypes but struggling that I don't have maybe, if I were to be critical, the guts to launch a company. ANDREW HUBERMAN: Or the time. LEX FRIDMAN: Well, it's combined. ANDREW HUBERMAN: I think you've got the guts. I mean, it's clear if you'll do an interview with the Pfizer CEO and you're considering putting this Tate fellow on your podcast and you've gone to the Ukraine that you have the guts. It means not doing quite a lot of other things. LEX FRIDMAN: That's what I mean. It does take-- the thing is, as many people know, when you fill your day and you're busy, that busyness becomes an excuse that you use against doing the things that scare you. A lot of people use family in this way. You know, my wife, my kids, I can't. When in reality some of the most successful people have a wife and have kids and have families and they still do it. And so a lot of times we can fill the day with busy work, with-- yeah, of course, I have podcasts and all this kind of stuff. And they make me happy and they're all-- they're wonderful and there's research, there's teaching, and so on. But all of that can just serve as an excuse from the thing that my heart says is the right thing to do, and that's why I don't have the guts, the guts to say no to basically everything and then to focus all out. Because part of it is I'm unlikely to fail at anything in my life currently because I've already found a comfortable place. With a startup it's mostly going to be-- most likely going to be a failure, if not an

embarrassing failure. ANDREW HUBERMAN: Well, the machine learning data that I'm aware of-- I don't know a lot about machine learning, but within the realm of neuroscience, say that a failure rate of about 15% is optimal for neuroplasticity and growth. Whether or not that translates to all kinds of practices isn't clear, but getting trials right 85% of the time seems to be optimal for language learning, seems to be optimal for mathematics, and it seems to be optimal for physical pursuits on average, right? I'm sure I'm going-- you have more machine learning geeks that listen to your podcast than listen to this podcast, but it doesn't mean you have to fail on 15% of your weight sets, folks. I mean, it could be 16%. No, I'm just kidding. It's not exact, but it's a pretty good rule of thumb. LEX FRIDMAN: I think a lot of startup founders would literally murder for 85% chance of success. I think given all the opportunities I have, the skill set, the funding, all that kind of stuff, my chances are relatively high for success. But what relatively high means in the startup world is still far, far below 85. You're talking about single digit percentages. Most startups fail. ANDREW HUBERMAN: Well, I think it means-- the decision to focus on the company and not on other things means the decision to close the hatch on dopamine retrieval from all these other things that are very predictable sources of dopamine. Not that everything is dopamine, but dopamine is, I think, the primary chemical driver of motivation. If you know that you can get some degree of satisfaction from scrolling social media or from that particular cup of coffee, that's what you're going to do. That's what you're going to consume unless you somehow invert the algorithm and you say, it's actually my denial of myself drinking that coffee that's going to be the dopamine. Right? LEX FRIDMAN: Oh, interesting. ANDREW HUBERMAN: And that's the beauty of having a forebrain is that you can make those decisions. This is the essence, I do believe, of what we see of David Goggins. There's much more there. There's a person that none of us know and only he knows, of course. But the idea that the pain is the source of dopamine. The limbic friction, as I sometimes like to call it, is the source of dopamine. That runs counter to how most nervous systems work, but it's decision based, right? It's not because his musculature is a certain way or he had CRISPR or something. It's because he decides that. And I think that's amazing, but what it means in terms of starting a company and changing priorities is a closing the hatch on all or many of the current sources of dopamine so that you can derive dopamine from the failures within this narrow context, and there's a very reductionist view and neurocentric view of what we're talking about. But I think about this a lot. I mean, the decision to choose one relationship versus another is a decision to close down other

opportunities, right? So I think that the decision to order one thing off the menu versus others is the decision to close down those other hatches. So I think that you absolutely can do it. It's just a question of, can you flip the algorithm? LEX FRIDMAN: Yeah. Remap the source of dopamine to something else. ANDREW HUBERMAN: Right. And maybe go out there not to succeed but make the-- the journey is the destination type thing, but when you're financially vested in your time-- and as far as I know, we only get one life, at least on this planet and you want to spend that wisely, right? LEX FRIDMAN: And a lot of the people that surround you-- people are really important, and I don't have people around me that say you should do a start up. It's very difficult to find such people because-- ANDREW HUBERMAN: Is Austin big startup culture right now? LEX FRIDMAN: Yeah, it is. It is. But it doesn't make sense for me to do a startup. This is what the people that love me my whole life have been telling me, it doesn't make sense what you're doing right now. Just do the thing you were doing previously.

01:53:50 Motivation & Competition; Relationships

ANDREW HUBERMAN: Why do I get the sense that because they are saying this you're apt to go against them? LEX FRIDMAN: No. Actually, I was never that, unfortunately. Unfortunately, I need-- I've talked to people I love, my parents, family, and so on, friends. I'm one of those people that needs unconditional support for difficult things. I know myself coaching wise is good-- so here's how I get coached best. Let's say wrestling. I like a coach that says, you want to win the Olympics? They will not-- if I say I want to win the gold medal at the Olympics in freestyle wrestling I want a coach that doesn't blink once and hears me and believes that I can do it, and then is viciously intense and cruel to me on that pursuit. If you want to do this, let's do this. Right? But that's support. That positivity, I don't-- I'm never-- I'm not energized, nor do I see that as love, a person saying-- basically criticizing that. Saying, you're too old to win the Olympic gold medal, right? Or all the things you can come up with. That's not helpful to me and I can't find a dopamine, or I haven't yet, a dopamine source from the haters. Basically people that are criticizing you, trying to prove them wrong. It never got me off. It never-- ANDREW HUBERMAN: Whereas some people seem to like that. I mean, David Goggins seems to come to mind. He seems driven by many sources. He has access-- I don't know because I've never asked him, but if I were to venture a guess, I'd say that he probably has a lot of options inside his head as how to push through challenge. Not just overcome

pain, but he'll post sometimes about the fact that people will say this or people will do this and talk about the pushback approach. He'll also talk about the pushback approach that's purely internal that doesn't involve anyone else. Great versatility there. LEX FRIDMAN: Yeah. There's literally like a voice he yells that represents some kind of devil that wants him to fail, and he calls them bitch and all kinds of things saying, you know, fuck you. I'm not. There's always an enemy and he's going against that enemy. I mean, I wish-- maybe that's something. I mean, it's really interesting. Maybe you can remap it this way so that you can construct-- that's a kind of obvious mechanism. Construct an amorphous blob that is a hater that wants you to fail, right? That's kind of the David Goggins thing. And that blob says you're too weak, you're too dumb, you're too old, you're too fat, you're too whatever, and getting you to want to quit and so on. And then you start getting angry at that blob, and maybe that's a good motivator. I haven't personally really tried that. ANDREW HUBERMAN: Well, I've had external challenge when I was a postdoc, very prominent laboratory-- several prominent laboratories, in fact, were working on the same thing that I was, and I was just this lowly postdoc working on a project pretty independent from the lab I was in. And there was competition but there was plenty of room for everybody to win, but in my head-- and frankly, I won't disclose who this is. And because there was some legitimate competition there and a little bit of friction-- not too much, healthy scientific friction-- yeah, I might have pushed a few extra hours or more, a little bit. I have to say, it felt metabolizing. It felt catabolic, right? I couldn't be sustained by it. And I contrast that with the podcast or the work that my laboratory is doing now focused on stress and human performance, et cetera, and it's pure love. It's pure curiosity and love. I mean, there are hard days, but I never-- there's no adversary in the picture. They're the practical workings of life that-- LEX FRIDMAN: That was the thing that Joe really inspired me on, and people do create adversarial relationships in podcasting because you get-- YouTubers do this. They hate seeing somebody else be successful. There's a feeling of jealousy, and some people even see that as healthy. Mr. Beast is somebody, some of these popular YouTubers, how do they get 100 million views and I only get 20 views? ANDREW HUBERMAN: Mr. Beast devoted his entire-- according to him, his entire life he's been focused on becoming this massive YouTube channel. LEX FRIDMAN: Well, that, he's inspiring in many ways, but there's some people that become famous for doing much less insane pursuit of greatness than Mr. Beast. People become famous and on social media and so on, and it's easy to be jealous of them. One of the early things I've learned from Joe just

being a fan of his podcast is how much he celebrated everybody. And again, maybe I ruined my whole dopamine thing but I don't get energized by people that become popular. In the podcasting space and YouTube, it doesn't-- it's awesome. All of it is awesome and I'm inspired by that. But the problem is that's not a good motivator. Inspiration is like, oh, cool, humans can do this. This is beautiful. But it's not-- I'm looking. I'm looking for a forcing function. That's why I gave away the salary from MIT. I was hoping my bank account had zero. That would be a forcing function to be like, oh shit. You know? And you're not allowed to have a normal job, so I wanted to launch-- and then the podcast becomes a source of income. So it's like, goddammit. ANDREW HUBERMAN: Yeah. Yeah. Well, and here I have to confess my biases. You are so good at what you do in the realm of podcast-- and you're excellent at other things as well, I just have less experience in those things. I know here I'm taking the liberty of speaking for many, many people in just saying, I sure as hell hope you don't shut down the podcast. But as your friend and as somebody who cares very deeply about your happiness and your deeper satisfaction, if it's in your heart's heart to do a company, well then, damn it, do the company. LEX FRIDMAN: And a lot of it I wouldn't even categorize as happiness. I don't know if you have things like that in your life, but I'm probably the happiest I could possibly be right now. ANDREW HUBERMAN: That's wonderful. LEX FRIDMAN: But the thing is there's a longing for the start up that has nothing to do with happiness. It's something else. ANDREW HUBERMAN: That's that itch. That's that itch. LEX FRIDMAN: I'm pretty sure I'll be less happy because it's a really tough process. I mean, to whatever degree you can extract happiness from struggle, yes, maybe. But I don't see it. I think I'll have some very, very low points. There's a lot of people who find companies-- found companies know about. And I also want to be in a relationship, I want to get married, and sure as hell a startup is not going to increase the likelihood of that. ANDREW HUBERMAN: We could start up a family and start a company. LEX FRIDMAN: Well, that's a-- I'm a huge believer in that, which is get in a relationship at a low point in your life, which is-- [LAUGHTER] ANDREW HUBERMAN: Sorry. I'm not disputing your stance, nor am I agreeing with it. It's just every once in a while there's a Lex Fridmanism that hits a particular circuit in my brain. I have to just laugh out loud. LEX FRIDMAN: I just think that it's easy to have a relationship when everything is good. The relationships that become strong and are tested quickly

are the ones when shit is going down. ANDREW HUBERMAN: Well, then there's hope for me yet. Before we sat down I was having a conversation with my podcast producer, who is a-- I wouldn't say avid, rather he's a rabid consumer of podcasts and finds these amazing podcasts, small podcasts and unique episodes. Anyway, we were talking about some stuff that he had seen and read in the business sector, and he was talking about the difference between job, career, and a calling, right? And I think he was extracting this from conversations of CEOs and founders, et cetera. I forget the specific founders that brought this to light for him. But that this idea that if you focus on a job you can make an income, and hopefully you enjoy your job or not hate it too much. A career represents a sort of, in my mind, a kind of series of evolutions that one can go through-- junior professor, tenure, et cetera. But a calling has a whole other level of energetic pull to it because it includes career and job and it includes this concept of a life. It's very hard to draw the line between a calling in career and a calling in the other parts of your life. So the question, therefore, is, do you feel a calling to start this company or is it more of a compulsion that irritates you? Is it something you wish would go away or is it something that you hope won't go away? LEX FRIDMAN: No, I hope it won't go away. It's a calling. It's a calling. ANDREW HUBERMAN: That's beautiful. LEX FRIDMAN: It's like when I see a robot-- when I first interacted with robots, and it became even stronger the more sophisticated the robots I interacted, with I see a magic there. And you're like, you look around, does anyone else see this magic? It's kind of like maybe when you fall in love, like that feeling. Does anyone else notice this person that just walked in the room? I feel that way about robots, and I can elaborate what that means but I'm not even sure I can convert it into words. I just feel like the social integration of robots in society will create a really interesting world. And our ability to anthropomorphize when we look at a robot and our ability to feel things when we look at a robot is something that most of us don't yet experience, but I think everybody will experience in the next few decades. And I just want to be a part of exploring that because it hasn't been really thoroughly explored. The best roboticists in the world are not currently working on that problem at all. They try to avoid human beings completely, and nobody's really working that problem in terms of when you look at the numbers. All the big tech companies that are investing money, the closest thing to that is Alexa and basically being a servant to help tell you the weather or play music and so on. It's not trying to form a deep connection. And so sometimes you just notice the thing. Not only do I notice the magic. There's a gut feeling, which I try not

to speak to because there's no track record, but I feel like I can be good at bringing that magic out of the robot. And there's no data that says I would be good at that, but there's a feeling. It's just a feeling. Because I've done so many things-- I love doing playing guitar, all that kind of stuff, jujitsu. I've never felt that feeling. When I'm doing jujitsu I don't feel the magic of the genius required to be extremely good. At guitar I don't feel any of that. But I've noticed that in others, great musicians, they notice the magic about the thing they do and they ran with it. And I just always thought-- I think it had a different form before I knew robots existed, before I existed. The form was more about the magic between humans. I think of it as love, but the smile that two friends have towards each other when I was really young. And people would be excited when they first know each other and notice each other, and there's that moment that they share that feeling together. I was like, wow, that's really interesting. It is really interesting that these two separate intelligent organisms are able to connect all of a sudden on this deep emotional level. It's like, huh. It's just beautiful to see, and I notice the magic of that. And then when I started a programming-- programming, period, but then programming AI systems, you realize, oh, that could be-- that's not just between humans and humans. That could be humans and other entities, dogs, cats, and robots. And so I-- for some reason it hit me the most intensely when I saw robots. So yeah, it's a calling. But it's a calling that I can just enjoy the vision of it, the vision of a future world, of an exciting future world that's full of cool stuff, or I can be part of building that. And being part of building that means doing the hard work of capitalism, which is like raising funds from people, which for me, right now, is the easy part, and then hiring a lot of people. I don't know how much you know about hiring, but hiring-- ANDREW HUBERMAN: Hiring excellent people. LEX FRIDMAN: Excellent people that will define the trajectory of not only your company, but your whole existence as a human being. And building it up, not failing them because now they all depend on you, and not failing the world with an opportunity to bring something that brings joy to people. And all of that pressure, just non-stop fires that you have to put out. The drama, the having to work with people you've never worked with like lawyers and human resources and supply chain. And because this is very compute heavy, the computer infrastructure, managing security, cybersecurity, because you're dealing with people's data. So now you have to understand not only the cybersecurity of data and the privacy, how to maintain privacy correctly with data, but also the psychology of people trusting you with their data. And how, if you look at Mark Zuckerberg and Jack Dorsey and those folks, they seem to be hated by a large number

of people. ANDREW HUBERMAN: Jack seemed-- I didn't-- LEX FRIDMAN: Much less so, yes. ANDREW HUBERMAN: I think I always think of Jack as a loved individual, but-- LEX FRIDMAN: Well, yeah, you have a very positive view of the world, yes. ANDREW HUBERMAN: I like Jack a lot and I like his mind and I-- someone close to him described him to me recently as he's an excellent listener. That's what they said about Jack, and that's my experience of him too. Very private person so we'll leave it at that. But listen, I think Jack Dorsey is one of the greats of the last 200 years and is just much quieter about his stance on things than a lot of people. But much of what we see in the world that's wonderful, I think we owe him a debt of gratitude. I'm just voicing my stance here, but-- LEX FRIDMAN: And the person. This is really important. ANDREW HUBERMAN: Yeah. LEX FRIDMAN: A wonderful person, a brilliant person, a good person, but you still have to pay the price of making any kind of mistakes as the head of a company. You don't get any extra bonus points for being a good person. ANDREW HUBERMAN: But his willingness to go on Rogan and deal directly and say, I don't know an answer to that in some cases. But to deal directly with some really challenging questions to me earned him tremendous respect. LEX FRIDMAN: Yes. As an individual. He was still part of him-- you've said-- OK, and I love Jack too, and I interact with him often. ANDREW HUBERMAN: He's been on your podcast. LEX FRIDMAN: Yes. But he's also part of a system, as we talked about, and I would argue that Jack shouldn't have brought anyone else with him on that podcast. If you go-- ANDREW HUBERMAN: Oh, that's right. He had a cadre of-- LEX FRIDMAN: Oh, he had I guess the head legal with him. And also it requires a tremendous amount of skill to go on a podcast like Joe Rogan and be able to win over the trust of people by being able to be transparent and communicate how the company really works because the more you reveal about how a social media company works, the more you open up for security, the vector of attacks increases. Also, there's a lot of difficult decisions in terms of censorship and not that are made that if you make them transparent you're going to get an order of magnitude more hate. So you have to make all those kinds of decisions, and I think that's one of the things I have to realize is you have to take that avalanche of potentially hate if you make mistakes. ANDREW HUBERMAN: Well, you have a very clear picture of this architecture of what's required in order to create a company. Of course, there's division of labor too. I mean, you don't have to do all of those things in detail, but finding people that are excellent to do-- to run the critical segments is obviously key. I'll just say what I said earlier, which is if it's in your heart's heart to start a company, if that, indeed, is your calling, and it sounds like it

is, then I can't wait. LEX FRIDMAN: Does the heart have a heart? I don't know. What's that expression even mean? ANDREW HUBERMAN: Probably not. LEX FRIDMAN: We romanticize the heart. ANDREW HUBERMAN: In my lab at one point, early days we worked on cuttlefish, and they have multiple hearts,

02:12:11 Chess, Poker & Cheating

but they pump green blood, believe it or not. Very fascinating animal. Speaking of hearts and green blood, earlier today before we sat down I solicited four questions on Instagram in a brief post. LEX FRIDMAN: Do you want to-- ANDREW HUBERMAN: If you'll-- LEX FRIDMAN: --look at some of them? ANDREW HUBERMAN: Yes, let's take these in real time. My podcast team is always teasing me that I never have any charge on my phone. I'm one of these people that likes to run in the yellow, or whatever it is. LEX FRIDMAN: An iPhone? ANDREW HUBERMAN: Yeah. LEX FRIDMAN: It's funny how always the iPhone people are out of battery. It's weird. ANDREW HUBERMAN: Well, I just got a new one. LEX FRIDMAN: So weird. ANDREW HUBERMAN: I mean, this one has plenty of battery. I just got a new one so I have different numbers for different things, personal and work, et cetera. I'm trying that now. All right. Get into the-- LEX FRIDMAN: I have a chess thing too to mention to you. ANDREW HUBERMAN: Oh, yes, please. Will I insult you if I look up these questions as you ask me? LEX FRIDMAN: No, no. But I will insult you by asking you this question because I think it's hilarious. So there's been a controversy about cheating where Hans Niemann, who is a 2,700 player-- ANDREW HUBERMAN: Oh, yeah. LEX FRIDMAN: --was accused of cheating. ANDREW HUBERMAN: I saw that clip on your clips channel. By the way, I love your clips channel, but I listen to your full channel. LEX FRIDMAN: The big accusation is that he cheated by having-- I mean, it's half joke but it's starting getting me to wonder whether-- so that you can cheat by having vibrating anal beads so you can send messages to-- ANDREW HUBERMAN: Well, let's rephrase that statement. Not you can, but one can. LEX FRIDMAN: One can. One can. ANDREW HUBERMAN: Yeah, thank you. LEX FRIDMAN: That was a personal attack, yes. But it made me realize, I mean-- ANDREW HUBERMAN: I'm just going to adjust myself in my seat here. LEX FRIDMAN: I use it all the time for podcasting to send myself messages to remind myself of notes. But it's interesting. I mean, it-- ANDREW HUBERMAN: I'm not going to call you again. LEX FRIDMAN: Yeah, that's exactly where I keep my phone. It did get me down this

whole rabbit hole of, well, how would you be able to send communication in order to cheat in different sports? I mean, that doesn't even have to do with chess in particular, but it's interesting in chess and poker that there's mechanisms modern day where you're streaming live the competition so people can watch it on TV. If they can only send you a signal back, they-- it's just a fun little thing to think about and if it's possible to pull off. So I wanted to get your scientific evaluation of that-- ANDREW HUBERMAN: To cheat using some sort of interoceptive device? LEX FRIDMAN: Yeah. Vibrating of some kind. Yeah. Or no, no. That's one way to send signals is, like, Morse code, basically.

ANDREW HUBERMAN: Yeah. So there's a famous-- I believe there's a famous real world story of physics students-- I'm going to get some of this wrong so I'm saying this in kind of coarse form so that somebody will correct this. But I believe it was physics graduate students from UC Santa Cruz or somewhere else, maybe it was Caltech-- a bunch of universities so that no one associates it with any one university that went to Vegas and used some sort of tactile device for card counting thing. This was actually demonstrated also-- not this particular incident, I don't think-- in the movie Casino where they spotted a-- I remember Robert De Niro, who you have a not so vague resemblance to, by the way, in Taxi Driver. LEX FRIDMAN: God, I wish I had a De Niro impression right now. Travis Bickle. ANDREW HUBERMAN: Look it up, folks. Travis Bickle is if Lex ever shaved his head into a Mohawk. LEX FRIDMAN: I would. ANDREW HUBERMAN: So he had a tapping device on his ankle that was signaling. Someone else was counting cards and then signaling to that person. So yeah, that could be done in the tactile way. It could be done, obviously, earpieces if it's deep earpiece. I think there are ways that they look for that. Certainly any kind of vibrational device in whatever orifice provided someone could pay attention to that while still playing the game. Yeah, I think it's entirely possible. Now, could it be done purely neurally? Could there be something that was-- and listen, it wouldn't have to even be below the skull. This is where whenever people hear about Neuralink or brain machine interface they always think, oh, you have to drill down below the skull and put a chip below into the skull. I think there are people walking around nowadays with glucose monitoring devices, like Levels-- which I've used and it was very informative for me, actually, as a kind of an experiment. Gave me a lot of interesting insights about my blood sugar regulation, how it reacts to different foods, et cetera. Well, you can implant a tactile device below the skin with a simple incision. Actually, one of the neurosurgeons at Neuralink I know well because he came up at some point through my laboratory and was at Stanford, and he actually has put in a

radio receiver in his hand, and his wife has it too. And he can open locks of his house and things like that, so he's been doing-- LEX FRIDMAN: Under the skin? ANDREW HUBERMAN: Under the skin. You can go to-- LEX FRIDMAN: How does that work? So how do you use-- ANDREW HUBERMAN: A piercer. You go to a body piercer type person and they can just slide it under there, and it's got a battery life of something and some fairly long duration. LEX FRIDMAN: How do you experience the tactile-- the haptics of it? ANDREW HUBERMAN: Oh, no. That just allows him to open certain locks with just his hand, but you could easily put some sort of tactile device in there. LEX FRIDMAN: But does it have to connect to the nerves or is it just like-- just vibration? ANDREW HUBERMAN: No, just vibration. LEX FRIDMAN: And you can probably sense it even if it's under the skin, I wonder. ANDREW HUBERMAN: And it can be by-- it can be Bluetooth linked. I mean, I've seen-- there's an Engineering Laboratory at the University of Illinois, Champaign-Urbana, that's got an amazing device which is about the size of a Band-Aid. It goes on the clavicles and it uses sound waves pinged into the body to measure cavitation. Think about this for a moment. This is being used in the military where, let's say, you're leading an operation or something. People are getting shot, shot at, and on a laptop you can see where the bullet entry points are. Are people dead? Are they bleeding out? Entry, exit points. You can get-- take it out of the battlefield scenario. You can get breathing, body position 24 hours a day. There's so much that you can do looking at cavitation. So these same sorts of devices on 12 hour Bluetooth could be used to send all sorts of signals. Maybe every time you're supposed to hold your hand-- I'm not a good gambler so I only play roulette when I go to Vegas because you just long, boring games, but you get some good mileage out of each out of each run, usually. But maybe every time you're supposed to hold, the person gets a stomach cinching because this is stimulating the vagus a little bit and they get a little bit of an ache. So it doesn't have to be Morse code. It can be yes, no, maybe. Right? It can be green, red, yellow type signaling. It doesn't have to be very sophisticated to give somebody a significant advantage. Anyway, I haven't thought about this in detail before this conversation but, oh, yeah, there's an immense landscape. LEX FRIDMAN: I don't know if you know a poker player named Phil Ivey? ANDREW HUBERMAN: No, I don't follow the gambling thing. LEX FRIDMAN: Well, he's considered to be one of the greatest poker players of all time legitimately. He's just incredibly good. But he got-- there's this big case where he was accused of cheating and prove-- and it's not really cheating, which is what's really fascinating. Is it turns out-- so he plays poker. Texas

Hold'em, mostly, but all kinds of poker. It turns out that the grid on the back of the cards is often printed a little bit imperfectly, and so you can use the asymmetry of the imperfections to try to figure out certain cards. So if you play and you remember that a certain card is, like-- I think the 8 in that deck that he was accused of-- an 8 and 9 were slightly different symmetry wise. So he can now ask the dealer actually to rotate it to check the symmetry. So you would ask the dealer to rotate the card to see that there's-- to detect the asymmetry of the back of the card, and now he knows which cards are 8's and 9's or likelier to be 8's and 9's, and he was using that information to play poker and win a lot of money. But it's just a slight advantage. And his case is-- and in fact, the judge found this, that he's not actually cheating, but it's not right. You can't use this kind of extra information. So it's fascinating that you can discover these little holes in games if you pay close enough attention. ANDREW HUBERMAN: Yeah. It's fascinating. And I think that I did watch that clip about the potential of a cheating event in chess, and the fact that a number of chess players admit to cheating at some point in their career. Very, very interesting. LEX FRIDMAN: Well, it was online. So online cheating is easier, right? When you're playing online cheating in a game where the machine is much better than the human, it's very difficult to prove that you're human. And that applies, by the way, another really big thing is in social media, the bots. If you're running a social media company you have to deal with the bots and they become-- one of the really exciting things in machine learning and artificial intelligence, to me, is the very fast improvement of language models. So neural networks that generate text, that interpret text, that generate from text, images and all that kind of stuff. But you're now going to create incredible bots that look awfully a lot like humans. ANDREW HUBERMAN: Well, at least they're not going to be those crypto bots that seem to populate my comment section when I post anything on Instagram. I actually delete those even though they add to the comment roster and if-- they bother me so much. I spend at least 10, 15 minutes on each post just deleting those. I don't know what they need to do but I'm not interested in those, whatever it is they're offering. Speaking of nonbots, I'm going to assume that all the questions are not from bots. There are a lot of questions here-- more than 10,000 questions.

02:22:25 Ideas of Lately

Goodness. I'll just take a few, working from top to bottom. What ideas have you been

wrestling with lately? And I think about the company as one, but as I scroll to the next, what are some others? LEX FRIDMAN: Well, some of the things we've talked about, which is the ideas of how to understand what is true, what is true about a human being, how to reveal that, how to reveal that through conversation, how to challenge that properly, that it leads to understanding not derision. So that applies to everybody from Donald Trump to Vladimir Putin. Also another idea is there's a deep distrust of science in trying to understand-- the growing distrust of science, trying to understand what's the role of those of us that have a foot in the scientific community, how to regain some of that trust. Also, there's-- as we talked about, how to find and how to-- yeah, how to find and how to maintain a good relationship. I mean, that's really been-- I've never felt quite as lonely as I have this year with Ukraine. It's just like, so many times I would just lay there and just feeling so deeply alone because I felt that my home-- not my home literally because I'm an American. I'm a proud American. I'll die an American. But my home in the sense of generationally, my family's home, is now going-- has been changed forever. There's no more being proud of being from the former Russia or Ukraine. It's now a political message to say-- to show your pride, and so it's been extremely lonely. And within that world, with all the things I'm pursuing, how do you find a successful relationship? It has been tough. But obviously-- and there's a huge number of technical ideas with the startup of, like, how the hell do you make this thing work? ANDREW HUBERMAN: Well, the relationship topic is one we talked a little bit about,

02:24:44 Why Lex Wears a Suit & Tie

and last time we touched on in a little bit more detail. We're going to come back to that, so I've made a note here. What or who inspired Lex, you, to wear a suit every time you podcast? That's a good question. I don't know the answer to that. LEX FRIDMAN: So there's two answers to that question. One is a suit and two is a black suit and black tie because I used to do-- I used to have more variety, which is like it was always a black suit but I would sometimes do a red tie and a blue tie. But that was mostly me trying to fit in to society because varieties-- you're supposed to have some variety. What inspired me at first was a general culture that doesn't take itself seriously in terms of how you present yourself to the world. So in academia, in the tech world, at Google, everybody was wearing pajamas and very relaxed. In the tech. I don't know how it is in the science, in the chemistry, biology, and so on. But in computer science everybody was very-- I

mean, very relaxed in terms of the stuff they wear so I wanted to try to really take myself seriously and take every single moment seriously and everything I do seriously, and the suit made me feel that way. I don't know how it looks, but it made me feel that way. And I think, in terms of people I look up to that wore a suit that made me think of that is probably Richard Feynman. I see-- ANDREW HUBERMAN: He was a wonderful human being. LEX FRIDMAN: I see him as the epitome of class and humor and brilliance, and obviously I could never come close to that kind of-- be able to simply explain really complicated ideas and to have humor and wit, but definitely aspire to that. And then there's just the Mad Men, that whole era of the '50s, the classiness of that. There's something about a suit that both removes the importance of fashion from the character. You see the person. I think not to-- I forgot who said this. Might be, like, Coco Chanel or somebody like this. Is that you wear a shabby dress and everyone sees the dress. You wear a beautiful dress and everybody sees the woman. So in that sense it was-- hopefully I'm quoting that correctly, but-- ANDREW HUBERMAN: Sounds good. LEX FRIDMAN: I think there's a sense in which a simple, classy suit allows people to focus on your character and then do so with the full responsibility of that, this is who I am. Yeah. ANDREW HUBERMAN: I love that, and I love what you said just prior to that. My father, who, again, is always asking me why I don't dress formally like you do always said to me growing up, if you overdress

02:27:50 Is There an AI Equivalent of Psychedelics?

slightly, at least people know that you took them seriously. So it's a sign of respect for your audience too in my eyes. Someone asked, is there an AI equivalent of psychedelics? And I'm assuming they mean is there something that machines can do for themselves in order to alter their neural circuitry through unconventional activation patterns. LEX FRIDMAN: Yes, obviously. Well, I don't know exactly how psychedelics work, but you can see that with all the diffusion models now with Dali and the stable diffusion that generates from text, art. It's basically a small injection of noise into a system that has a deep representation of visual information. So it is able to convert text to art in introducing uncertainty into that noise into that. That's kind of maybe. I could see that as a parallel to psychedelics, and it's able to create some incredible things. From a conceptual understanding of a thing, it can create incredible art that no human, I think, could have at least easily created through a bit of introduction of randomness.

02:29:06 Hardest Jiu-Jitsu Belt to Achieve

Randomness does a lot of work in the machine learning world. Just enough. ANDREW HUBERMAN: There are a lot of requests of you for relationship, a lot of requests about statistics about you, data about you specifically. Flipping past those, what was the hardest belt to achieve in jujitsu? I would have assumed the black belt, but is that actually true? LEX FRIDMAN: No. I mean, everybody has a different journey through jujitsu, as people know. For me, the black belt was the ceremonial belt, which is not usually the case, because I fought the wars. I trained twice a day for I don't know how many years-- seven, eight years. I competed nonstop. I competed against people much better than me. I competed against many and beaten many black belts and brown belts. I think, for me personally, the hardest belt was the brown belt because, for people who know jujitsu, the size of tournament divisions for blue belts and purple belts is just humongous. Like Worlds, when I competed at Worlds it was, like, 140 people in a division, which means you have to win-- I forget how many times, but seven, eight, nine times in a row to medal. And so I just had to put in a lot of work during that time. And especially for competitors, instructors usually really make you earn a belt. So to earn the purple belt was extremely difficult. Extremely difficult. And then to earn the brown belt means I had to compete nonstop against other purple belts, which are young. You're talking about-- the people that usually compete are, like, 23, 24, 25-year-olds that are shredded, incredible cardio. They can, for some reason, are in their life where they can-- no kids, nothing. They can dedicate everything to this pursuit so they're training two, three, four times a day. Diet is on point. You're going-- and for me, because they're usually bigger and taller than me and just more aggressive, actual good athletes, yeah, I had to go through a lot of wars to earn that brown belt. But then-- ANDREW HUBERMAN: I got to try this jujitsu thing. LEX FRIDMAN: Yeah, you should. But it's a different-- ANDREW HUBERMAN: Well, I tried it. I did the one class, but I really want to embrace it. LEX FRIDMAN: As you know, many pursuits like jujitsu are different if you're doing it in your 20s and 30s and later. It's like it's a different-- you're not-- you can have a bit of an ego in your 20s. You can have that fire under you, but you should be more zenlike and wise and patient later in life. ANDREW HUBERMAN: Well, one would hope. That's the wisdom. LEX FRIDMAN: I think Rogan is still a meathead. He still goes hard and crazy and he's still super competitive on that, so some people can-- Jocko is

somebody like that. ANDREW HUBERMAN: Well, whatever they're

02:32:07 Advice to Young People

doing they're doing something right because they're still in it, and that's super impressive. There were far too many questions to ask all of them, but several, if not many, asked a highly appropriate question for where we are in the arc of this discussion. And this is one, admittedly, that you ask in your podcast all the time, but I get the great pleasure of being in the question asker seat today. And so, what is your advice to young people? LEX FRIDMAN: So I just gave a lecture at MIT and the amount of love I got there is incredible. And so of course, who you're talking to is usually undergrads, maybe young graduate students, and so there one person did ask for advice as a question at the end. I did a bunch of Q&A. So my answer was that the world will tell you to find a work-life balance, to explore, to try to-- try different fields to see what you really connect with, variety, general education, all that kind of stuff. And I said in your 20s I think you should find one thing you're passionate about and work harder at that than you worked at anything else in your life. And if it destroys you, it destroys you. That's advice for in your 20s. I don't know how universally true that advice is, but I think at least give that a chance. Sacrifice, real sacrifice towards a thing you really care about, and work your ass off. That said, I've met so many people, and I'm starting to think that advice is best applied or best tried in the engineer disciplines, especially programming. I think there's a bunch of disciplines in which you can achieve success with much fewer hours, and it's much more important to actually have a clarity of thinking and great ideas and have an energetic mind. The grind in certain disciplines does not produce great work. I just know that in computer science and programming it often does. Some of the best people ever that have built systems, have programmed systems are usually like the John Carmack kind of people that drink soda, eat pizza, and program 18 hours a day. So I don't know actually. You have to, I think, really go discipline specific. So my advice applies to my own life which has been mostly spent behind that computer, and for that you really, really have to put in the hours. And what that means is essentially it feels like a grind. I do recommend that you should at least try it in your own. That if you interview some of the most accomplished people ever, I think if they're honest with you they're going to talk about their 20s as a journey of a lot of pain and a lot of really hard work. I think what really happens, unfortunately, is a lot of those successful people later in life will talk

about work-life balance. They'll say, you know what I learned from that process is that it's really important to get, like, sun in the morning, to have health, to have good relationships. ANDREW HUBERMAN: Hire a chef. LEX FRIDMAN: Yeah, a chef. Exactly. But I think you have forgot-- those people have forgotten the value of the journey they took to that lesson. I think work-life balance is best learned the hard way. My own perspective. There are certain things you can only learn the hard way, and so you should learn that the hard way. Yeah, so that's definitely advice. And I should say that I admire people that work hard. If you want to get on my good side, I think there are the people that give everything they got towards something. It doesn't actually matter what it is, but towards achieving excellence in a thing. That's the highest thing that we can reach for as human beings I think is excellence at a thing. ANDREW HUBERMAN: I love it. Well, speaking of excellent at a thing. Whether or not it's teaching at MIT or the podcast or the company that resides in the near future that you create-- once again, I'm speaking for an enormous number of people that excellence and hard work, certainly, are woven through everything that you do. Every time I sit down with you I begin and finish with such an immense feeling of joy and appreciation and gratitude, and it wouldn't be a Lex Fridman podcast, or in case of Lex even being a guest on a podcast, if the word love weren't mentioned at least 10 times. So the feelings of gratitude for all the work you do, for taking the time here today to share with us what you're doing, your thoughts, your insights, what you're perplexed about and what drives you and your callings. LEX FRIDMAN: Can I read a poem? ANDREW HUBERMAN: Yes, please. He was trying to cut me off post. That was getting a little long. LEX FRIDMAN: No. No, no, no. I was thinking about this recently. It's one of my favorite Robert Frost poems, and I-- because I wrote several essays on it, as you do, because I think it's a popular one that's read. Essays being, like, trying to interpret poetry, and it's one that sticks with me. I mean, both its calm beauty, but in the seriousness of what it means because I ultimately think it's the-- so "Stopping by a Woods on a Snowy Evening." I think it's ultimately a human being, a man, asking the old Sisyphus, the old Camus question of, why live? I think this poem, even though it doesn't seem like it is a question of a man contending with suicide and choosing to live. Whose woods these are, I think I know. His house is in the village, though. He will not see me stopping here to watch his woods fill up with snow. My little horse must think it queer to stop without a farmhouse near between the woods and frozen lake, the darkest evening of the year. He gives this harness bells a shake to ask if there's some mistake. The only other sound's the sweep of easy wind

and downy flake. The woods are lovely, dark, and deep, but I have promises to keep and miles to go before I sleep, and miles to go before I sleep. The woods representing the darkness, the comfort of the woods representing death, and he's a man choosing to live. Yeah, I think about that often, especially my darker moments is you have promises to keep. Thank you for having me, Andrew. You're a beautiful human being.

02:39:29 Zero-Cost Support, YouTube Feedback, Spotify & Apple Reviews, Sponsors, Momentous Supplements, Neural Network Newsletter, Social Media

I love you, brother. ANDREW HUBERMAN: I love you, brother. Thank you for joining me today for my discussion with Dr. Lex Fridman, and special thanks to Dr. Lex Fridman for inspiring me to start this podcast. If you're learning from and/or enjoying this podcast, please subscribe to our YouTube channel. That's a terrific zero cost way to support us. In addition, please subscribe to the podcast on Spotify and on Apple, and on both Spotify and Apple you can leave us up to a five star review. If you have questions or suggestions about topics and guests you'd like me to include on the Huberman Lab podcast, please put those in the comments section on YouTube. I do read all the comments. In addition, please check out the sponsors mentioned at the beginning of today's episode. That's the best way to support this podcast. During today's episode we did not discuss supplements, but on many previous episodes of the Huberman Lab podcast we do discuss supplements because while supplements aren't necessarily for everybody, many people derive tremendous benefit from them for things like enhancing sleep and focus and hormone augmentation and so forth. The Huberman Lab podcast has partnered with Momentous Supplements because they are of the very highest quality and they ship internationally. In addition to that, they have single ingredient formulations that allow you to devise the supplement regimen that's most effective and most cost effective for you. If you'd like to see the supplements discussed on the Huberman Lab podcast, please go to livemomentous.com/huberman. If you haven't already signed up for the Huberman lab podcast zero cost neural network newsletter, we invite you to do so. It's a monthly newsletter that has summaries of podcast episodes and various protocols distilled into simple form. You can sign up for the newsletter by going to hubermanlab.com, go to the menu, and look for Newsletter. You supply your email, but we do not share it with anybody else. And as I mentioned before, the newsletter is completely zero cost. And if you're not already following us on social media,

we are @hubermanlab on Instagram, @hubermanlab on Twitter, and @hubermanlab on Facebook, and at all of those sites I provide science and science related tools for mental health, physical health, and performance, some of which overlap with information covered on the Huberman Lab podcast, but often which is distinct from information covered on the Huberman Lab podcast. So again, that's @hubermanlab on Instagram, Twitter, and Facebook. Thank you, again, for joining me for the discussion with Dr. Lex Fridman, and as always, thank you for your interest in science. [MUSIC PLAYING]