

[Transcript] Huberman Lab / Marc Andreessen: How Risk Taking, Innovation & Artificial Intelligence Transform Human Experience

Welcome to the Huberman Lab Podcast, where we discuss science and science-based tools for everyday life.

I'm Andrew Huberman and I'm a professor of neurobiology and ophthalmology at Stanford School of Medicine.

Today my guest is Mark Andreessen.

Mark Andreessen is a software engineer and an investor in technology companies.

He co-founded and developed Mosaic, which was one of the first widely used web browsers.

He also co-founded and developed Netscape, which was one of the earliest widespread-used web browsers.

And he co-founded and is a general partner at Andreessen Horowitz, one of the most successful Silicon Valley venture capital firms.

All of that is to say that Mark Andreessen is one of the most successful innovators and investors ever.

I was extremely excited to record this episode with Mark for several reasons.

First of all, he himself is an incredible innovator.

First of all, he has an uncanny ability to spot the innovators of the future.

And third, Mark has shown over and over again the ability to understand how technologies not yet even developed are going to impact the way that humans interact at large.

Our conversation starts off by discussing what makes for an exceptional innovator, as well as what sorts of environmental conditions make for exceptional innovation and creativity more generally.

In that context, we talk about risk-taking, not just in terms of risk-taking in one's profession, but about how some people, not all, but how some people who are risk takers and innovators in the context of their work also seem to take a lot of risks in their personal life and some of the consequences that can bring.

Then we discuss some of the most transformative technologies that are now emerging, such as novel approaches to developing clean energy, as well as AI or artificial intelligence.

With respect to AI, Mark shares his views as to why AI is likely to greatly improve human experience.

And we discuss the multiple roles that AI is very likely to have in all of our lives in the near future.

Mark explains how not too long from now, all of us are very likely to have AI assistance.

For instance, assistance that give us highly informed health advice, highly informed psychological advice.

Indeed, it is very likely that all of us will soon have AI assistance that govern most, if not all, of our daily decisions.

And Mark explains how, if done correctly, this can be a tremendously positive addition to our life.

In doing so, Mark provides a stark counter argument for those that argue that AI is going to diminish human experience.

So if you're hearing about and or concerned about the ways that AI is likely to destroy us, today you are going to hear about the many different ways that AI technologies now in development are likely to enhance our human experience at every level.

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What you'll soon find is that while today's discussion does center around technology and technology development, it is really a discussion about human beings and human psychology. So whether you have an interest in technology development and or AI, I'm certain that you'll find today's discussion to be an important and highly lucid view into what will soon be the future that we all live in.

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.

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I've spoken many times before in this podcast about the fact that sleep, that is getting a great night's sleep, is the foundation of all mental health, physical health and performance.

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When we are not sleeping well, we're enough.

Everything gets far worse at the level of mental health, physical health and performance.

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And now for my discussion with Mark Andreessen.

Mark, welcome.

Hey, thank you.

Delighted to have you here and have so many questions for you about innovation, AI, your view of the landscape of tech and humanity in general.

I want to start off by talking about innovation from three different perspectives.

There's the inner game, so to speak, or the psychology of the innovator or innovators.

Things like their propensity for engaging in conflict or not, their propensity for having a dream or a vision.

And in particular, their innovation as it relates to some psychological trait or expression.

So we'll get to that in a moment.

The second component that I'm curious about is the outer landscape around innovators, who they place themselves with, the sorts of choices that they make, and also the sorts of personal relationships that they might have or not have.

And then the last component is this notion of the larger landscape that they happen to find themselves in.

What time in history, what's the geography, Bay Area, New York, Dubai, et cetera.

So to start off, is there a common trait of innovators that you think is absolutely essential as a seed to creating things that are really impactful?

So I'm not a psychologist, but I've picked up some of the concepts, some of the terms.

And so it was a great moment of delight in my life when I learned about the Big Five personality traits.

I was like, aha, there's a way to actually describe the answer to this question in at least reasonably scientific terms.

And so I think what you're looking for when you're talking about real innovators, like people who actually do really create a breakthrough work, I think you're talking about a couple of things.

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So one is very high in what's called trait openness, which is one of the Big Five, which is basically just flat out open to new ideas.

And of course, the nature of trait openness is trait openness means you're not just open to new ideas.

In one category, you're open to many different kinds of new ideas.

And so we might talk about the fact that a lot of innovators also are very creative people in other aspects of their lives, even outside of their specific creative domain.

So that's important.

But of course, just being open is not sufficient, because if you're just open, you could just be curious and explore and spend your entire life reading and talking to people and never actually create something.

So you also need a couple of other things.

You need a high level of conscientiousness, which is another one of the Big Five.

You need somebody who's really willing to apply themselves.

And in our world, typically over a period of many years, right, to be able to accomplish something great, they typically work very hard.

That often gets obscured because the stories that are getting told about these people are, you know, it's just like there's this kid and he just had this idea and it was like a stroke of genius and it was like a moment in time and you know, it's just like, oh, he was so lucky.

And it's like, no, like for most of these people, it's years and years and years of applied effort.

So you need somebody with like an extreme, you know, basically willingness to defer gratification and really apply themselves to a specific thing for a long time.

And of course, this is why there aren't very many of these people, is there aren't many people who are high in openness and high in conscientiousness, because to a certain extent they're opposed, right, traits.

And so you need somebody who has both of those.

Third is you need somebody high in disagreeableness, which is the third of the Big Five.

So you need somebody who's just like basically ornery, right, because if they're not ornery, then they'll be talked out of their ideas by people who will be like, oh, well, you know, because the reaction, most people have new ideas is, oh, that's dumb.

And so somebody who's too agreeable will be easily dissuaded to not pursue, you know, not pulling the thread anymore.

So you need somebody highly disagreeable.

Again, the nature of disagreeableness is they tend to be disagreeable disagreeable about everything.

Right.

So they tend to be these very sort of iconoclastic, you know, kind of renegade characters.

And then there's just a table stakes component, which is they just also need to be high IQ.

They just they just need to be really smart, because it's just it's hard to innovate in any category if you can't set the size, large amounts of information quickly.

And so those are four, like basically, like high spikes, you know, very rare traits that

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basically have to have to come together.

You could probably also say they probably at some point need to be relatively low in neuroticism, which is another of the Big Five, because if they're too neurotic, they probably can't handle the stress.

Right.

So it's kind of this this this dial in there.

And then of course, if you're if you're into like this, the sort of science of the Big Five, basically, you know, these are all people who are on like the far outlying kind of point on the on the normal distribution across all these traits.

And then that just gets you to I think the sort of hardest topic of all around this this whole concept, which is just there are very few of these people.

Do you think they're born with these traits?

Yeah, well, so they're born with the traits.

And then and then, of course, the traits are not, you know, genetics are not destiny.

And so the traits are not deterministic in the sense of that, you know, just because they have those personality traits doesn't mean they're they're gonna, you know, deliver great creativity.

But like, they need to have those properties, because otherwise, they're just not either going to be able to do the work or they're not going to enjoy it, right?

Or I mean, look, a lot of these people are highly capable, competent people.

You know, it's very easy for them to get like high paying jobs in traditional institutions and, you know, get lots of, you know, traditional awards and, you know, end up with big paychecks.

And, you know, there's a lot of people at, you know, big institutions that we, you know, you and I know well, and I deal with many of these where people get paid a lot of money and they get a lot of respect and they go for 20 years and it's great and they never create anything new, right?

And so there's there's a lot of administrators.

A lot of them, yeah, a lot of them end up in administrative jobs.

And that's fine.

That's good.

The world needs, you know, the world needs that also, right?

The innovators can't run everything because everything, you know, the rate of change would be too high society.

I think probably wouldn't be able to handle it.

So you need some people who are on the other side who are going to kind of keep the lights on and keep things running.

But but there is this decision that people have to make, which is okay.

If I have the sort of latent capability to do this, is this actually what I want to spend my life doing?

And do I want to go through the stress and the pain and the trauma, right?

And the anxiety, right?

And the risk of failure, right?

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And so do I really want to once in a while, you run into somebody who's just like, can't do it any other way?

Like they just have to.

Who's an example of that?

I mean, you know, you know, the paramount example of our time and he and I bring him up in part because he's such an obvious example, but in part because he's talked about this in interviews where he basically says like, he's like, I can't turn it off.

Like the ideas come, I have to pursue them.

Right.

It's why he's like running five companies at the same time and like working on a sixth, right?

Um, uh, it's just like he can't, he can't turn it off.

You know, look, there's a lot of other people who are probably have the capability to do it, who ended up talking themselves into or, you know, whatever events conspired to put them in a position where they did something else.

Um, you know, obviously there are people who try to be creative, who just don't have the capability.

And so there, there's some band diagram there of determinism through traits, but also choices in life.

And then also, of course, the situation in which they're born, the context within which they grow up, the culture, right?

What their parents expected of them and so forth.

And so you have to, you know, you kind of get all the way through this.

You have to thread all these, all these needles kind of at the same time.

Do you think there are folks out there that meet these criteria who are disagreeable, but that can feign agreeableness, you know, that can, for those just listening, March has raised his right hand.

Um, um, in other words, that, that can sort of, um, phrase that comes to mind, maybe because I can relate to a little bit.

They, um, sneak up through the system, meaning they behave ethically as it relates to the requirements of the system.

They're not breaking laws or breaking rules.

In fact, quite the opposite.

They're paying attention to the rules and following the rules until they get to a place where being disagreeable feels less threatening to their overall sense of security. Yeah.

I mean, look, the really highly competent people don't have to break laws, right?

Like it's, it's the, there was this, there was this, there was this myth, you know, that sort of happened around the movie, the Godfather.

And then there was this character, Meyer Lansky, you know, who's like ran basically the mafia, you know, 50, 60, 70 years ago.

And there was this, there was this great line of like, well, if Meyer Lansky had only

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like applied himself to run a general motors, he would have been the best CEO of all time.

It's like, no, not really.

Right.

Like the, the, the people who are like great at running the big companies, they don't have to, they don't have to be mob losses.

They don't have to like break laws.

They can, you know, they can, they can do, they can work as they're smart and sophisticated enough to be able to work inside the system.

You know, they don't need to take the easy out.

So I don't think there's any implication that they have to, you know, that they have to, if to break laws, that said, they have to break norms.

Right.

And it's specifically the thing, this is probably the thing that gets missed the most because the process of, the process of innovating, the process of creating something new, like once it works, like the stories get retconned, as they say, in comic books.

So the stories get adapted to where it's like, it was inevitable all along, you know, everybody always knew that this was a good idea, you know, the person has won all these awards, society embraced them.

And it's invariably, if you, if you were with them, when that was, when they were actually doing the work, or if you actually get a couple drinks into them and talking about it, it'd be like, no, that's not how it happened at all.

They faced a wall of skepticism, just like a wall of basically social, you know, essentially denial.

No, this is not going to work.

No, I'm not going to join your lab.

No, I'm not going to come work for your company.

No, I'm not going to buy your product.

Right.

No, I'm not going to meet with you.

And so they, they, they, they get just like tremendous social resistance.

So they're, they're not getting positive feedback from their, from their social network, the way that more agreeable people need to have, right?

And this is why, this is why agreeableness is the problem for innovation.

If you, if you're agreeable, you're going to listen to the people around you.

They're going to tell you that new ideas are stupid.

Right.

End of story.

You're not going to proceed.

Um, and so I would put it more on, like they need to be able to deal with, they need to be able to deal with social discomfort to the level of ostracism.

Um, or at some point they're going to get shaken out and they're just going to quit.

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Do you think that people that meet these criteria do best by banding with others that meet these criteria early, or is it important that they form this deep sense of self, like the ability to cry oneself to sleep at night or, you know, lying in the fetal position, worrying that things aren't going to work out and then still get up the next morning and get right back out there.

Right.

So Sean Parker has the best line, by the way, on, on, on this, he says, uh, you know, being a, being an entrepreneur or being a creator is like, uh, you know, getting pushed to the face, like over and over again.

He said, eventually you start to like the taste of your own blood.

And I love that line because it makes everybody like massively uncomfortable.

Right.

But it gives you a sense of like how basically painful the process is.

You should talk to any entrepreneur, you know, who's been through it about that.

They're like, Oh yeah, that's exactly, that's exactly what it's like.

So, so, so there is this, there is a big individual component to it, but, but look, it can be very lonely, right?

Um, and it'd be, especially, you know, very hard, I think, to do this.

If, if nobody around you is trying to do anything even remotely similar, right.

And if you're getting just universally negative responses, like I, you know,

very few people, I think, very few people have the ego strength to be able to survive that for years.

So I do think there's a huge advantage.

And this is why you do see clusters.

There's a huge advantage to clustering, right?

And so you, and you know, throughout history, you've had this clustering effect, right?

You had, you know, clustering of the great artists and sculptors and Renaissance

Florence, you know, you have the clustering of the philosophers agrees.

You have the clustering of tech people in Silicon Valley.

You have the clustering of creative, you know, arts, movie, TV, people in Los Angeles, right?

And so forth and so on, you know, for, you know, there's always a scene, right?

There's, there's always, there's always like a nexus and a place where people come together, you know, for, for these kinds of things.

So generally speaking, like if somebody wants to work in tech, they're going to be much better off being around a lot of people who are trying to do that kind of thing than they are in a place where nobody else is doing it.

Having said that, the clustering has, it can have downsides.

It can have side effects.

And, and you put any group of people together and you do start to get group think, even among people who are individually very disagreeable.

And so the same clusters where you get these very idiosyncratic people, they

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do have fads and trends just like every place else, right?

And so they get, they get, they get wrapped up in their own social dynamics.

And the good news is the social dynamic in those places is usually very forward-looking, right?

Um, and so it's usually, it's usually like, you know, it's, I don't know,

it's like a herd of iconoclasts looking for the next big thing, right?

So iconoclasts looking for the next big thing, that's good.

The herd part, right?

That's what you got to be careful of.

So even when you're in one of these environments, you have to be careful

that you're not getting sucked into the group thing too much.

When you say group thing, do you mean excessive friction?

Do you do pressure testing each other's ideas to the point where things just don't move forward, or are you talking about group think where people start to form a consensus or the, um, self-belief that, gosh, we are so strong because we are so different?

Um, what do you, can we better define group think?

It's actually less either one of those things both happen.

Those are good.

I was, those are good.

Uh, the part of group thing I'm talking about is just like we all, we all

basically zero in, we just end up zeroing in on the same ideas, right?

In Hollywood, there's this classic thing.

It's like, you know, there, there are years where there are all of a sudden there's like a lot of volcano movies.

It's like, why are there all these volcano movies?

And it's just like, I don't, there was just something in the gestalt, right?

There was just something in the air, you know, the, look tech Silicon Valley has this, you know, there, there are moments in time where you'll, you'll have these.

Well, it's like the old thing.

Like what's the difference between the fad and the trend, right?

You know, the fad, the fad is the trend that doesn't last, right?

Um, and so, you know, Silicon Valley is subject to fads and both fads and trends just like anyplace else, right?

In other words, you take smart disagreeable people, you cluster them together.

They will act like a herd, right?

They will end up thinking the same things unless they try very hard not to.

You've talked about these personality traits of great innovators before.

Um, and we're talking about them now.

Uh, you invest in innovators, you try and identify them and you are one.

So you can recognize these traits here.

I'm making the presumption that you have these traits.

Indeed, you do.

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Um, we'll just get that out of the way.

Um, have you observed people trying to feign these traits?

Um, and are there any specific questions or, um, behaviors that are a giveaway, um, that they're pretending to be the young Steve jobs or that they're pretending to be the, the young Henry Ford, um, pick your list of other, other names that qualify as, uh, authentic legitimate innovators.

Um, we won't name names of people who have tried to disguise themselves as true innovators, but what are some of the, um, uh, the, the litmus tests?

And, uh, I realize here that, um, we don't want you to give these away to the point where they're, uh, lose their potency, but if you could share a few of those, yeah, no, it's good.

We're actually pretty open book on this.

So, um, so yeah, so, so first of all, yes, so there are people who definitely try to like him in and basically present as being something that they're not.

And they, you know, like they've read all the books.

They will have listened to this interview, right?

They, they will, they, you know, they study everything and they, they construct a facade, um, and they come in and present to something they're not.

Um, I would say the amount of that varies exactly correlated to the Nasdaq.

Um, right.

And so when stock prices are super low, like you actually get the opposite.

When stock prices are super low, people get too demoralized and people who should be doing it basically give up because they just think that whatever, whatever the industry's over, the trend is over, whatever, it's all hopeless.

Um, and so you get this flushing thing.

So nobody ever shows up at a stock market low, right?

And so it's like, I'm the new, I'm the new, I'm the new next big thing.

Um, uh, and, and, and, and doesn't, and doesn't really want to do it because, because there are higher status, the kinds of people who do the thing that you're talking about, they're fundamentally oriented for social status, they're, they're, they're, they're, they're trying to get the social status without actually, without actually the substance.

And there are always other places to go get social status.

So, so after 2000, the joke was, um, so, you know, when I got to Silicon Valley at 93, 94, the valley was dead.

We talked about that by 98, it was roaring.

And you had a lot of these people showing up who were, you know, basically had a lot of, a lot of people showing up with, with cyber kind of stories.

2000 market crash by 2001, the joke was that, um, there were these terms B to C and B to B and in 1998, they meant B to C meant, um, uh, business to consumer and B to B meant business to business, which is two different kinds of business models for internet companies.

By 2001, uh, B to B, B to B meant back to banking, uh, and B to C meant back

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to consulting, right?

Which is the high status people who, the people oriented to status who showed up to be in tech were like, yeah, screw it.

Like this is over, stick a fork in it.

I'm going to go back to, you know, in Goldman Sachs or go back to McKinsey, you know, where I can, where I can, where I can be high status.

And so you, you, you get this flushing kind of effect that happens in a downturn.

Um, that said, on a, on a, on a big upswing, yeah, you, you get, you get a lot of, you get a lot of people showing up with, with a lot of, um, you know, with a lot of, uh, you know, kind of let's say public persona without the substance to back it up.

Um, so the way we stress that, I can actually say exactly how we test for this, which because it's, it, the test exactly addresses the issue in a way that is impossible to fake.

Um, and, and it's actually this, it's actually the same way homicide detectives trying to find out if you, if you, if you're, if you've actually life you're innocent or whether you've killed somebody, it's the same, it's the same tactic, um, which is you, you ask increasingly detailed questions, um, right.

And so, you know, the way the homicide cop does this is, you know, what were you doing last night?

You know, oh, I was at a movie, which movie, you know, which theater, you know, okay, which seat did you sit in, you know?

Okay.

What was the end of the movie, right?

Like, right.

And you ask increasingly detailed questions and people have trouble at some point people have trouble making up and things just fuzz into just kind of obvious bullshit and basically fake founders basically have the same problem. They have a con, they're able to really a conceptual theory of what they're doing that they've kind of engineered.

Um, but as they get into the details, it just, it just fuzzes out.

Whereas the, the, the true people that you want to back, they can do it.

Basically what you find is they've spent five or 10 or 20 years obsessing on the details of whatever it is they're about to do.

And they're so deep in the details that they know so much more about it than you ever will.

And in fact, the best possible reaction is when they get mad, right?

Um, which is also what the homicide cops say, right?

Which actually wants you, you actually want the, you obviously want the emotional response of like, I can't believe that you're asking me questions this detailed and specific and picky.

And they kind of figure out what you're doing.

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Um, and then they get upset.

Like that's good.

That's perfect.

Right.

But, but, but they, they have, you know, but then they have to approve in themselves and in the sense of like, they have to be able to answer the questions in, in, in great detail.

Do you think that people that are able to answer those questions in great detail have actually taken the time to systematically think through the if fans of all the possible implications of what they're going to do.

And they have a specific vision in mind of how things need to turn out or will turn out, or do you think that, um, they have a vision and it's a, no matter what, it will work out because the world we're sort of bend around it.

I mean, in other words, do you think that they place their vision in context?

Or they simply have a vision and they have that tunnel vision of that thing.

And that's going to be it.

Let's use you for an example, um, with Netscape.

I mean, that's how I first came to know your name.

Um, when you were conceiving Netscape, do you think, okay, there's this search engine and this browser and, and it's going to be this thing that looks this way and works this way and feels this way.

Um, did you think that and also think about, you know, that there was going to be a gallery of other search engines and it would fit into that landscape of other search engines, or were you just projecting your vision of this thing as this unique, um, and special, um, brainchild?

Well, let me give the general answer and then we can talk about the specific example.

So the general answer is what, what entrepreneurship, creativity, innovation is what economists call decision-making under uncertainty.

Right.

And so in both parts, that's important decision-making.

Like you're going to make a ton of decisions because you have to decide what to do, what not to do.

And then uncertainty, which is like the world's a complicated place, right?

And in mathematical terms, the world is a complex adaptive system with feedback loops and like it's really, I mean, it's, it's extreme.

You know, uh, Isaac Asimov wrote the, you know, the, in his novels, he, he wrote about this field called psycho history, right?

Which is the idea that there's like a super computer that can predict the future of like human affairs, right?

And it's like, we don't have that.

Not yet.

Not yet.

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Well, we'll get to that later.

We certainly don't have that yet.

Um, and so you're just dealing, you know, military, uh, uh, commanders call this the fog of war, right?

You're, you're just dealing with the situation where the number of variables are just off the charts.

It's all these other people, right?

Who are inherently unpredictable, making all these decisions in different directions, and then the whole system is combinatorial, which is these people are colliding with each other, influencing the decisions.

And so, I mean, look, the most straightforward kind of way to think about this is it's just, it's amazing.

Like anybody who believes in economic central planning, it always blows my mind cause it's just like, it's just like, try opening a restaurant.

Like try just opening a restaurant on the corner down here and like 50, 50 odds the restaurant's going to work.

And like all you have to do to run a restaurant is like, have a thing and serve food and like, and it's like most restaurants fail, right?

And so in restaurant, people who run restaurants are like pretty smart.

Like they're, you know, they're, they're usually thinking about these things very hard, they all want to succeed.

Um, and it's hard to do that.

And so to start a tech company or to start an artistic movement or to, or to fight a war, like you're just going into this, like basically about conceptual battleground or military terms, real battleground where there's just like incredible levels of complexity branching future paths.

And so there, there's nothing, it's, it's, you know, there's nothing predictable.

And so what we look for is basically the, the, the sort of drop the, the really good innovators, they've got to drive to basically be able to cope with that and deal with that.

And they, they basically do that in two steps.

So one is they try to pre-plan as much as they possibly can.

And, and, and we call that the process of navigating the, we call the idea maze. Right.

And so the idea maze basically is I've got this general idea and it might be the internet's going to work or search or whatever.

And then it's like, okay, in their head, they have thought through of like, okay, if I do it this way, that way, this third way, here's what will happen.

Then I have to do that.

Then I have to do this.

Then I have to bring in somebody to do that.

Here's the technical challenge I'm going to hit.

And they've got in their, they've got in their heads as best anybody could.

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They've, they've got as complete as sort of a map of possible futures as they could possibly have.

And this is where I say, when you ask them increasing detail questions, that's what you're trying to kind of get them to kind of chart out is, okay, how far ahead have you thought and how much are you anticipating all of the different twists and turns that this is going to take?

Okay.

So then they start on day one.

And then of course, what happens is, you know, now they're, now they're in it.

They're in, now they're in the fog of war, right?

They're in future uncertainty.

And now that idea maze is maybe not helpful practically, but now they're going to be basically constructing on the fly day by day as they learn and discover new things.

And as the world changes around them, and of course it's a feedback loop because they're going to change, you know, if their thing starts to work, it's going to change the world.

And then the fact the world is changing is going to cause, you know, their plan to, you know, to change as well.

Um, and so, yeah, the great, the great ones, basically they, they course correct, you know, they court, the great ones, course correct every single day. You know, they take stock of what they've learned, um, uh, you know, they, they modify the plan.

Um, the great ones tend to think in terms of hypotheses, right?

It's a little bit like a scientific sort of mentality, which is they tend to think, okay, I'm going to try this, like, I'm going to go into the world.

I'm going to announce that I'm doing this for sure.

Like I'm going to say, like, this is my plan.

I'm going to tell all my employees that I'm going to tell all my investors that I'm going to put a stake in there on this, my plan.

I'm going to try it.

Right.

Um, and even though I sound like I have complete certainty, I know that I need to test to find out whether it's going to work.

And if it's not, then I have to go back to all those same people.

I have to say, well, actually we're not going left or going right.

And they have to run that loop thousands of times, right.

And they had, you know, to get through the other side.

And this, this led to the creation of this great term pivot, uh, which has been very helpful in our industry.

Cause the, the, the word when I was, when I was young, the word we used was fuck up, um, and pivot like sounds like so much better.

Sounds like so much more professional, but yeah, you like make mistakes.

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You, you, it's just, it's just too complicated to understand.

You course correct.

You adjust, you evolve often these things, at least in business, the businesses that end up working really well tend to be different than the original plan.

But that's, that's part of the process of a really smart founder basically working their way through reality, right?

As, as, as they're executing their plan.

The way you're describing this has parallels to a lot of models in biology and the practice of science, um, you know, random walks, but that aren't truly random, pseudo random walks in biology, et cetera.

But one thing that, uh, is becoming clear from the way you're describing this is that I could imagine a great risk to early success.

So for instance, somebody develops a product, people are excited by it.

Um, they start to implement that product, but then the landscape changes and they don't learn how to pivot to use the, um, less profane version of it, right?

They don't learn how to do that.

That in other words, the, uh, and I think of everything these days, um, or most everything in terms of a reward schedules and dopamine reward schedules, because that is the universal currency of reward.

Um, and so when you talk about the Sean Parker quote of, um, learning to enjoy the taste of one's own blood, that is very different than learning to enjoy the taste of success, right?

It's about internalizing success as a process of being self-determined and less agreeable, et cetera.

In other words, building up of those five traits becomes the source of dopamine, perhaps in a way that's highly adaptive.

So on the outside, we just see the product, the end product, the iPhone, the MacBook, the Netscape, et cetera.

But I have to presume, and I'm not a psychologist, um, but I have done neurophysiology and I've studied the dopamine system enough to know that what's being rewarded in the context of what you're describing sounds to be a reinforcement of those five traits rather than, Oh, it's going to be this particular product or the company's going to look this way or the logo is going to be this or that.

That all seems like the peripheral to, um, what's really going on that great innovators are really in the process of, of establishing neural circuitry that is all about reinforcing the me and the process of being me.

Yeah.

Yeah.

So this, this goes to, yeah.

So this is like extrinsic versus intrinsic motivation.

So the Steve Jobs kind of Zen version of this, right?

Or the sort of hippie version of this was the journey is the reward.

Right.

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And you know, you always, you always told him, you always told his employees that it's like, look, like, you know, everybody thinks in terms of these big public markers, like the stock price or the IPO or the product launch or whatever. He's like, no, it's actually the process itself is the point.

Right.

And, and, and if you had to your point, if you have that mentality, then that's that's an intrinsic motivation, not an extra extrinsic motivation.

And so that's the kind of intrinsic motivation that can keep you going for a long time.

Another way to think about it is competing against yourself.

Right.

It's like, can I get better at doing this?

Right.

And can I prove to myself that I can get better?

Um, there's also a big social component to this.

And this is one of the reasons why Silicon Valley punches so, so far above its weight as a place, um, there's a psychological component, which is also goes to the comparison set.

Um, so a phenomenon that we've deserved over time is the leading, uh, tech company in any city, uh, will aspire to be as large as the previous leading tech company in that city, but often not larger, right?

Cause they sort of have, they have a model of success.

And as long as they beat that level of success, they've kind of, you know, check the box, like they've made it, you know, and, and then they, but then in contrast, you're in Silicon Valley and you look around and it's just like Facebook and Cisco and Oracle and, you know, Tula Packard and gladiators. Yeah.

And you're just like looking at these, you know, giants and, and, you know, many of them are still, you know, Mark Zuckerberg's still, you know, going to work every day and like trying to, trying to, you know, like, and, and so like these people are like, you know, the role models are like alive, right?

Right.

They're like right there, right?

And it's so clear, like how much better they are and how much bigger their accomplishments are.

And so what, what we find is young founders in that environment have much greater aspirations, right?

Cause they just, again, maybe it's like maybe at that point, maybe it's the social status, maybe there's, there's an extrinsic component to that, but I remember maybe it helps calibrate that internal system to basically say, actually, you know, no, the opportunity here is not to build a local, you know, what you may call a local maximum form of success, but let's build to a global

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maximum form of success, which is, which is something as big as we possibly can. Ultimately, the great ones are probably driven more internally than externally when it, when it comes down to it.

And that is where you get this phenomenon where you get people who are, you know, extremely successful and extremely wealthy, who very easily can punch out and move to Fiji and just call it.

And they're still working 16 hour days, right?

And so obviously something explains that, that has nothing to do with external rewards. And I think it's, it's, it's an internal thing.

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I've heard you talk a lot about the inner landscape, the inner psychology of these folks, and I appreciate that we're going even deeper into that today.

And we will talk about the landscape around whether or not Silicon Valley or New York, whether or not there are specific cities that are ideal for certain types of pursuits.

I think there was an article written by Paul Graham some years ago about the conversations that you overhear in a city will tell you everything you need to know about whether or not you belong there in terms of your professional pursuits. Some of that's changed over time.

And now we should probably add Austin to the mix because it was written some time ago in any event.

I want to return to that, but I want to focus on an aspect of this intrinsic versus extrinsic motivators in terms of something that's a bit more cryptic, which is one's personal relationships.

You know, if I think about the catalog of innovators in Silicon Valley, some

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of them like Steve Jobs had complicated personal lives, romantic personal lives early on, and then it sounds like he worked it out.

I don't know.

I didn't, I wasn't there a couple's therapists, but, you know, he, when he died, he was in a marriage that for all the world seemed like a happy marriage. You also have examples of innovators who have had many partners, many children with other partners.

Elon comes to mind, you know, I don't think I'm disclosing anything that isn't already obvious.

Um, those could have been happy relationships and just had many of them.

But the reason I'm asking this is you can imagine that for the innovator, the person with these traits who's trying to build up this, this thing, whatever it is, that having someone or several people in some cases, um, who just truly believe in you when the rest of the world may not believe in you yet or at all could be immensely powerful.

And we have examples from cults that, um, uh, embody this.

We have examples from politics.

We have examples from tech innovation and science.

Uh, and I've always been fascinated by this because I feel like it's the more cryptic and yet very potent form of allowing someone to build themselves up.

It's a combination of inner psychology and extrinsic motivation, because obviously if that person were to die or leave them or, um, cheat on them or, you know, pair up with some other innovator, which we've seen several times recently and in the past, it can be devastating to that person.

But what are your thoughts on the role of personal and in particular romantic relationship as it relates to people having an idea and they're feeling that they can really bring that idea to fruition in the world.

So it's a real mixed bag.

You have lots of examples in all directions and I think it's something like, it's something like, something like following.

So first is we talked about the personality traits of these people.

They tend to be highly disagreeable.

Doesn't foster a good, romantic relationship.

I may have heard of that once or twice before.

A friend may have given me that example.

Yeah.

Right.

And, you know, maybe you just need to find the right person who like compliments that and is willing to, you know, there's, there's a lot of relationships for like you.

It's always this question about relationships, right?

Which is, do you want to have the same personality, you know, grow a profile of the same behavioral traits basically as your partner?

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Do you actually want to have, you know, is it an opposites, opposites thing?

And, you know, look, I'm sure you've seen this.

There are relationships where you'll have somebody who's highly disagreeable, who's paired with somebody who's highly agreeable.

Actually, we're not great.

Cause one person just gets to be on their soapbox all the time.

And the other person's just like, okay, right.

It's fine.

Right.

It's fine.

It's good.

Um, you know, you put two disagreeable people together, you know, maybe sparks fly and they have great conversations all the time.

And maybe they come to hate each other.

Right.

And so, um, so anyway, so these people, if you're going to be with one of these people, you're fishing out of the disagreeable end of the pond.

And again, when I say disagreeable, I don't mean, you know, these are, these are normal distributions.

I don't mean like 60% disagreeable or 80% disagreeable.

The people we're talking about are 99.99% disagreeable.

Right.

So these are ornery, ornery people.

So, so, so part of it's that, uh, and then of course they have the other personality traits, right?

They're, they're, you know, super conscientious.

They're super driven as a consequence.

They tend to work really hard.

They tend to not have a lot of time for, you know, family vacations or other things.

You know, they're not, they don't enjoy them if they're forced to go on them.

And so again, that kind of thing can fray at a, at a relationship.

So, so there's a, so there's a fair amount in there that's loaded.

Like somebody who's going to partner with one of these people needs to be signed up for the ride.

Um, and that's, that's a hard thing.

You know, that's a hard thing to do, or you need a true partnership of two of these, which is also hard to do.

So I think that's part of it.

Um, and then look, I think a big part of it is, you know, people achieve a certain level of success, um, and, you know, either in their minds or, you know, publicly, um, and then they start to be able to get away with things.

Right.

Um, and they start to be able to, it's like, well, okay, you know, now we're

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rich and successful and famous and now I deserve, you know, and this is where you get into, I've, I've viewed this now in the realm of personal choice.

Right.

You get in this thing where people start to think that they deserve things.

Um, and so they start to behave in, you know, very bad ways.

Um, and, and then they blow up their personal worlds as a consequence.

And maybe they regret it later and maybe they don't, right?

It's always a, always a question.

Um, so, yeah, so I think there's that.

Um, and then I don't know, like, yeah, some people just need, maybe the other part of it is some people just need more emotional support than others.

And I don't know that that's a big, I don't know that that tilts either way.

Like, I know, I know some of these people who have like great loving relationships and seem to draw very much on having this kind of firm foundation to rely upon.

And then I know other people who are just like their personal lives are just a continuous trainwreck and it doesn't seem, it doesn't seem to matter.

Like professionally, they just keep doing what they're doing.

And, and, and maybe there's a, maybe we could talk here about like, you know, whatever is the personality trait for risk taking, right?

Like some people are so incredibly risk prone that they need to take risk in all aspects of their lives at all times.

And if, if, if part of their life gets stable, they find a way to blow it up.

Um, and that's some of, some of these people you could describe in those terms also.

Yeah, let's talk about that.

Um, because I think, um, risk taking and sensation seeking is something that fascinates me, um, for my own reasons and in my observations of others.

Um, does it dovetail with these five traits in a way that can really serve innovation in ways that can benefit everybody?

The reason I say to benefit everybody is because there is a view of how we're painting this picture of the innovator as this like really cruel person.

Um, but oftentimes what we're talking about are innovations that make the world far better for billions of people.

Yeah.

Yeah, by the way, we're, everything we're talking about also is not just in tech or science or, or in business.

It's also everything we're also talking about is true for the arts.

Right.

So now you have a history of like artistic expression as, you know, you have people with all these same kinds of traits.

Well, I was thinking about Picasso and his, and his regular turnover of lovers and partners, and he was very open about the fact that it was one of the sources of his productivity, uh, slash creativity.

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Uh, he wasn't shy about that.

Um, I, I suppose if you were alive today, uh, it might be a little bit different.

He might be judged a little differently.

Right.

Or that was his story for, you know, behaving in a pattern that, you know, it was very awful for the people around him and he didn't care, right?

Right.

Maybe they left him, you know, like, you know, who knows, right?

So, so, so, you know, puts and takes to all this.

Um, but, um, but no, okay.

So I have a theory.

So here's a theory.

This, this is one of these.

I keep a list of things that will get me kicked out of a dinner party.

Um, uh, topics at any given point in time.

Do you read it before you go in?

Yeah.

I just, I, yeah.

So I have it on auto recall so that I can, I can get out of these things.

But, um, so here's the thing that get me kicked out of a dinner party.

Um, uh, especially these days.

Um, so, uh, think of the kind of person where it's like very clear that they're like super high to your point.

There's somebody who's super high output, whatever domain they're in.

They've done things that have like fundamentally like changed the world.

They've brought new, whether it's businesses or technologies or art, you know, works of art, um, uh, you know, entire schools of creative

expression, some cases, uh, to the world.

And then at a certain point, they blow themselves to smithereens, right?

And they do that either through like a massive, like financial scandal.

They do that through a massive personal, you know, breakdown.

They do that through some sort of public expression that causes them a huge amount of problems.

You know, they say, they say the wrong thing, maybe not once, but several hundred times and blow themselves to smithereens.

Um, and, and, and there's this, you know, there's this kind of arc.

There's this moral arc that people kind of want to apply, which it's like the Icarus, you know, the, the, you know, flying too close to the sun.

And, you know, he had it coming and he needed to keep his ego under control and you get kind of this, you know, kind of this, this, this judgment that applies.

Um, so I have a different theory on this.

So the term I use to describe these people and a lot of, and by the way, a lot of other people who don't actually blow themselves up, but get close to it.

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Um, which is a whole nother set of people.

Um, uh, I call them martyrs to civilizational progress.

Right.

So, so we're backwards, civilizational progress.

So look, the only way civilization gets moved forward is when people like this do something new, right?

Cause civilization as a whole does not do new things, right?

Groups of people do not do new things, right?

These things don't happen automatically.

Like by default, nothing changes.

The only way civilizational change on any of these axes ever happens is because one of these people stands up and says, you know, no, I'm going to do something different than what everybody else has ever done before.

So this is the, this is progress.

Like this is actually how it happens.

Sometimes they get line as you're awarded.

Sometimes they get crucified.

Sometimes the crucification is literal.

Sometimes it's just, you know, symbolic, but like, you know, they are those kinds of people, uh, and then, and then, and then murders.

Like when, when they go down in flames, like they have, and again, this is where it really screws the people's moral judgments.

Cause everybody wants to have the sort of super clear story of like, okay, he did a bad thing and he was punished.

And I'm like, no, no, no, no, no, no, he was the kind of person who was going to do great things and also was going to take on a level of risk and take on a level of sort of extreme behavior, such that he was going to expose himself to flying too close to the sun, wings melt and crash to ground.

But, but, but it's a package deal.

Right.

The reason you have the Picasso's and the Beethoven's and all these people is because they're willing to take these extreme level of risks.

They, they, they are that creative and original, not just in their art or their business, but in everything else that they do, that they will set themselves up to be able to fail.

Psychologic, you know, a psychologist would probably, a psychiatrist would probably say, you know, maybe, you know, to what extent do they actually like have a death wish?

Do they, do they actually, you know, at some point, do they want to punish themselves or do they want to fail?

That I don't know.

But you see this, they, they, they deliberately move themselves too close to the sun and you can, you can see it when it's happening.

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Cause like, if they get too far from the sun, they deliberately move back towards it, right?

They, you know, they, they come right back and they, they, they want the risk.

Uh, and so anyway, like I, I, I, yeah, so murders to civilization for progress.

Like this is how progress happens.

When these people crash and burn, the natural, you know, inclination is to judge them morally.

I tend to think we should basically say, look, like, and I don't even know if this means like giving them a moral pass or whatever, but it's like, look, like this is how civil civilization progresses.

And we need to at least understand that there's a self-sacrificial aspect of this that may be tragic and often is tragic, but it is, it is quite literally self-sacrificial.

Are there any examples of great innovators who, um, were able to compartmentalize their risk taking, uh, to such a degree that they had what seemed to be a morally impeccable life in every domain, except in their business pursuits.

Yeah, that's right.

So some people are very, some people are very highly controlled like that.

Um, some people are able to like very narrowly, and I don't, I don't really want to set myself an example on a lot of this, but I will tell you, like, as an example, like, I, I, I will never use debt in business.

Uh, number one, you know, number two, like I have the most placid personal life you can imagine.

Number three, I'm not, I'm the last person in the world is ever going to do an extreme sport.

I mean, I'm not even going to go on the song on the ice bath.

Like, I'm not, I'm not doing any of this.

Like, I don't, I'm not doing any of that.

I'm not, I'm not going down to see the Titanic.

I'm not doing any of this.

I'm not doing any of this stuff.

I have no interest.

I don't play golf.

I don't ski.

I have no interest in any of this stuff.

Right.

And so like there are, and I know people like this, right?

They're very high achievers.

It's just like, yeah, they're, they're, they're completely segmented.

They're extreme risk takers in business.

They're completely buttoned down on the personal side.

They're completely buttoned down, you know, financially, they're, you know, they, they're scrupulous with following every rule and law you can possibly imagine.

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But, but they're still fantastic innovators.

And then I know many others who are just like, they've, their life is on fire all the time in every possible way.

And whenever it looks like the fire is turning into embers, they figure out a way to like, relight the fire, right?

Um, and they just really want to live on the edge.

And so I, I think that's maybe, I think that's an independent variable.

And again, I would apply the same thing.

I think the same thing applies to the arts.

Um, you know, classical music is an example.

Like I think Bach was, you know, as an example, one of the, you know, kind of best musicians of all time had just a completely sedate personal life.

You know, never had any aberrant behavior at all in his personal life, you know, family man, tons of kids, apparently, you know, pillar of the community. Right.

And so like if Bach could be Bach and yet not like burn his way through, you know, 300 mistresses or whatever, you know, maybe you can too.

So in thinking about these two different categories of innovators, those that take on tremendous risk in all domains of their life and those that take on tremendous risk in a very compartmentalized way.

Um, I don't know what the percentages are.

Uh, but I have to wonder if in this modern age of the public being far less forgivable, what I'm referring to is cancel culture.

Um, do you think that we are limiting the number of innovations in total, like by just simply frightening or eliminating an enormous category of innovators because they don't have the confidence or the means or the, um, strategies in place to regulate.

So they're just either bowing out or they're getting crossed off.

They're getting canceled one by one.

So do you think the public is less tolerant than it used to be or more tolerant?

Well, the systems that, uh, I'm not going to be careful here.

I think the, um, the large institution systems are not tolerant of what the public tells them they shouldn't be tolerant of.

Um, and so if there's enough noise, there's enough noise in the mob.

I think institutions bow out.

And here I'm referring not just to universe, they essentially say, okay, they let the cancellation proceed or they, and maybe they're the, maybe they're the gavel that comes down, but, but they're not the, the lever that got the thing going.

And so I'm not just thinking about universities.

I'm also thinking about advertisers.

I'm thinking about, um, the big movie houses that, um, cancel a film that a given actor might be in because they had something in their personal life

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that's still getting worked out.

I'm thinking about people who, um, are in a legal process that's not yet resolved, but the public has decided they're a bad person, et cetera.

And my question is, are we really talking about the public?

I agree with your question and I'm going to come back to it, but I'm going to, I'm going to examine one part of your question, which is this, really, the public we're talking about.

And, and I would just say exhibit A as who is the current front runner for the Republican nomination, um, today, the public, at least on one side of the political aisle seems very on board, right?

Um, number two, like, look, uh, you know, there's a certain musician who like, you know, flew too close to the sun, blew himself to smithereens, he's still hitting all-time highs on, uh, music streams every month. The public seems fine.

Like, I think the public might, I would argue the public is actually more open to these things than it actually maybe ever has been.

Um, and we could talk about why that's the case.

I think it's a, it's a differentiation.

And this is what, what your question was aiming at, but it's a differentiation between the public and the elites.

Um, and so, so, so I, my view is everything that you just described as an elite phenomenon, um, and actually the public is very much not on board with it. Interesting.

And, and, and so what's actually happening as the division, what's happened is the public and the elites have gapped out.

The, the, the, the public is more forgiving of, of, of what previously might have been considered kind of ever an extreme behavior.

Um, right.

It's, it's, it's, it's Scott Fitzgerald.

There are no second acts in American lives.

It turns out completely wrong.

Turns out there's second acts, third acts, fourth acts.

Apparently you can have a limited number of acts.

The public is actually up for it.

Yeah.

I mean, I think of somebody like Mike Tyson, right?

I feel like he's every, you know, his life exemplifies, um, everything that's amazing and great and also terrible about America.

If we took Mike Tyson to dinner tonight at any restaurant anywhere in the United States, what would happen?

He would be loved.

Oh, he would be like, he would be the outpouring of enthusiasm and passion and love would be incredible.

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Like it would be unbelievable.

This is a great example.

Like it just like then, and again, I'm not even going to draw more.

I'm not even going to say I agree with that or disagree with that.

I'm just like, we, I think we all intuitively know that the public is just like 100% like absolutely.

Like he's a legend.

Like he's a legend.

He's a living legend.

He's like a cultural touchstone.

Absolutely.

And then you see it when he shows up in movies, right?

He shows, I don't remember the, I mean, the big breakthrough where I figured this out with respect to him because I don't really follow sports.

But when he showed up in that, it was that first hangover movie and he shows up.

And then, you know, I was in a theater and like the audience just goes, but Nana's crazy.

They're so excited to see him.

Yeah.

He evokes delight.

I always say that Mike Tyson is the only person I'm aware of that can wear a shirt with his own name on it and it somehow doesn't seem wrong.

In fact, it just kind of makes you like him more.

Yeah.

It's, his ego feels very contoured in a way that he knows who he is and who he was.

And, and yet there's a, there's a humbleness woven in maybe as a consequence of all that he's been through.

I don't know.

But yeah, people love Mike.

Public loves him.

Now, exactly.

Now, you know, if he shows up to like Leicester at Harvard, right?

Like I think you're probably going to get a different reaction.

I don't know.

I don't know.

Well, I mean, David Simon, you know, the guy who wrote the wire gave a, gave a talk at Harvard and, and it sounded to me based on his report of that, which is very interesting.

In fact, that people adore people who are connected to everybody in that way.

Like I feel like everybody loves Mike from, from above his status, the sides below his status.

He's just sort of, he, he occupies this, this halo of, of love and adoration.

Okay.

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All right.

Yeah.

Um, yeah.

And then look, the other side of this is the, is, is the elites.

And you kind of alluded to this or the institution.

So, so basically it's like the people who are like, at least nominally in charge or feel like that they should be in charge.

Yeah.

I want to make sure we define elite.

So you're not necessarily talking about people who are wealthy or talking about people who have authority within institutions.

So the ultimate definition of an elite is who can get who fired.

Right.

Like that's the ultimate test.

Who can get who fired boycotted, blacklisted, ostracized, like when a push prosecuted jailed, like when push comes to shove.

Right.

I think that's always the question.

Who can destroy his career?

And of course you'll notice that that is heavily asymmetric.

Even when they, when these fights play out, like there's very clear which side can get the other fired and which side, which side can't.

Um, and so yeah.

So look, I think we, we live in a period of time where the elites have gotten to be extreme in a number of dimensions in them.

And, and I think it's characterized by for sure extreme group think, um, extreme sanctimony, um, extreme, you know, moral, you know, let us say dudgeon, um, you know, extreme, you know, this, this weird sort of modern Puritanism, um, and then an extreme sort of morality of like punishment and terror, um, I guess they're perceived enemies.

Um, but, but I wanted to, I wanted to go through that because I actually think, I actually think that's a very different phenomenon.

I think what's happening with the elites is very different than what's happening in the, in the population at large.

And then of course I think there's a feedback loop in there, which is, I think the population at large is not on board with that program.

Right.

I think the elites are aware that the population is not on board with that program.

I think they judge the population negatively as a consequence that causes the elites to harden their own positions that causes them to be even more alienating to the population.

And so they're, you know, they're in sort of an oppositional negative feedback

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loop.

Um, and yeah, it's going to be, and you know, it's, but again, it's a sort of question of who can get who fired.

And so, you know, elites are really good at getting like normal people fired, uh, ostracized bands, you know, hip pieces in the press, like whatever, um, you know, for normal people to get elites fired, they have to really light band together, right?

And really mount a serious challenge, which mostly doesn't happen, but, but might be starting to happen in some cases.

Do you think this, um, power of the, of the elites over, um, stemmed from social media, sort of going against its original purpose?

I mean, when you think social media, you think you're giving each and every person their own little reality TV show, their own voice.

And yet, um, we've seen a traumatic uptick in the number of cancellations and firings related to immoral behavior based on things that were either done or amplified on social media.

It's almost as if, um, the public is holding the wrong end of the knife.

Yeah.

So the way I describe it, so, so I, so I use these two terms and they're somewhat interchangeable, but it leads in institutions and then they're, they're somewhat interchangeable because who runs the institutions, the elites, right?

And so it's a, it's a sort of a self-reinforcing thing.

Um, anyway, institutions of all kinds, institutions, everything from, you know, the government, bureaucracies, companies, nonprofits, foundations, NGOs, you know, tech companies, you know, on and on and on, like, you know, people who are in people who are in charge of big complexes and that carry a lot of basically power and influence and capability and money as a consequence of their positional authority, right?

So, you know, the head of a giant foundation may never have done anything in their life that would cost somebody to have a high opinion of them as a person, but they're in charge of this, you know, gigantic multi-billion dollar complex and have all this power of the results.

And so that's just to define terms, the elites and institutions.

Um, so it's actually interesting, uh, Gallup, uh, uh, has, uh, been doing polls on the following, on the question of, of trust in institutions, which is sort of a, therefore proxy for trust in elites, uh, basically since the early 1970s, um, and what you find, and they do this across all the categories of big institutions, you know, basically every, every, every one, I just talked about a bunch of others, big business, small business, banks, newspapers, broadcast television, um, the military police.

And so they've got like 30 categories or something.

And basically what you see is almost all the categories basically

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started in the early 70s at like 60 or 70% trust.

And now they've basically, almost across the board, they've just done it.

They had a complete, basically linear slide down for 50 years, basically my, my whole life.

Um, and you know, they're, they're, they're now bottoming out, you know, Congress and journalists bottom out at like 10%.

Right.

Like the two groups everybody hates are like Congress and journalists.

Um, and then it's like a lot of other big institutions are like 20 in their 20s, 30s, 40s.

Um, actually big business actually scores fairly high.

Tech actually scores quite high.

The military scores quite high, but basically everything else has really caved in.

And so, so that this is sort of my fundamental challenge to everybody who basically says, and you didn't do this, but you, you'll hear this, the simple form of this, which is social media caused the current trouble.

And it's called this an example, you collapse in faith and institutions and, and it leads, let's call that part of the current trouble.

Um, everybody's like, well, social media caused that.

I was like, well, no, social media, social media is new, right?

In the last, you know, social media is effectively new, practically speaking, since 2010, 2012 is when it really took off.

Um, and so if the trend started in the early 1970s, right, and it's been continuous, then we're dealing with something broader.

Uh, and, and, and, uh, Martin Gurry, uh, wrote, I think the best book on this called the revolt of the public where he goes through this in detail.

And, and he, he does, he does say that, um, social media had a lot to do with what's happened in the last decade, but he says, yeah, if you go back, you look further, it was basically two things coinciding.

Uh, one was just a general change in the media environment.

And in particular, the 1970s is when you started to, and especially in the 1980s is when you started to get, um, specifically talk radio, which was a new outlet.

Um, and then you also start, you also got cable television.

Um, and then you also, by the way, it's actually interesting in the 50s, 60s, you had paperback books, which was another one of these, which was an outlet.

So you, you just, you had like a fracturing in the media landscape that started in the 50s through the 80s.

And then of course the internet like blew it wide open.

Having said that, if the elites and the institutions were fantastic, you would know it more than ever information is more accessible.

And so the other thing that he says, and I agree with is the public is not being tricked into thinking the elites and institutions are bad.

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They're, they're, they're learning that they're bad.

Right.

And the mystery and therefore the mystery of the Gallup poll is why those numbers aren't all just zero, right?

Which is arguably, you know, a lot of cases where they should be.

I think one reason that,

Oh, by the way, he thinks this is bad.

So he and I have a different view on it.

So here's our, he and I disagree.

He thinks this is bad.

So he's, he basically says you, you can't replace elites with nothing.

You can't replace institutions with nothing.

If, if, if, because what you're just left with is just going to be wreckage.

You're going to left with this completely, basically, you know, atomized out of control society that has no ability to marshal, you know, any sort of activity in your direction is just going to be a doggie dog, awful, you know, world.

Um, I have a very different view on that, which we can, which we can talk about.

Yeah.

I'd love to, I'd love to hear your views on that.

Yeah.

I'd like to take a quick break and acknowledge our sponsor inside tracker.

Inside tracker is a personalized nutrition platform that analyzes data from your blood and DNA to help you better understand your body and help you meet your health goals.

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The quick question I was going to ask before we go there is I think that one reason that I and many other people sort of reflexively assume that social media caused the demise of our faith in institutions is, well, first of all, I

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wasn't aware of this lack of correlation between the decline in faith in institutions and the rise of social media.

But secondarily, that we've seen some movements that have essentially rooted themselves in tweets, in comments, in posts that get amplified.

And those tweets and comments and posts come from everyday people.

In fact, I can't name one person who initiated a given cancellation or movement because it was the sort of dog piling or mob adding on to some person that was essentially anonymous.

So I think that for many of us, we have the bottom to use neuroscience language to sort of a bottom up perspective.

Oh, you know, someone sees something in their daily life or experiences something in their daily life and they tweet about it or they comment about it or they post about it.

And then enough people dog pile on the accused that it picks up force and then the elites feel compelled, obligated to cancel somebody.

That tends to be the narrative.

And so I think the logical conclusion is, oh, you know, social media allows for this to happen, whereas normally someone would just be standing on the corner shouting or calling lawyers that don't have faith in them.

And, you know, you've got the like the Aaron Brockovich model of, you know, you know, that turns into a movie, but that's a rare case of this lone woman who's got this idea in mind about how big institution is doing wrong or somebody is doing wrong in the world and then can leverage big institution.

Excuse me.

But the way that you describe it is that the elites are leading this shift.

So what is the role of the public in it?

I mean, just to give it a concrete example, if, for instance, no one tweeted or commented on me too, or no one tweeted or commented about some ill behavior of some, I don't know, university faculty member or business person, would the elite have come down on them anyway?

Oh, yeah.

So it was happening.

So it would, based on what I've seen over the years, is it's, there is so much astroturfing right now.

There are entire categories of people who are paid to do this.

Some of them we call journalists, some of them we call activists.

Some of them we call, you know, NGO, you know, nonprofits.

Some of them we call university professors.

Some of them we call grad students, like whatever, they're paid to do this.

You know, I don't know if you've ever looked into the misinformation industrial complex, there's this whole universe of basically these funded groups that basically do quote unquote misinformation and they're constantly mounting these kinds of attacks.

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They're constantly trying to gin up this kind of basically panic to cause somebody to get fired.

So it's not a grassroots?

No, it's the opposite of grassroots.

No, I'm almost always going to trace these things back.

It was, it was a journalist, it was an activist.

It was a, it was a public figure of some kind.

These are entrepreneurs, these are entrepreneurs in a sort of a weird way.

Like they're basically, they're paid, their job, mission, calling in law.

It's all wrapped up together.

Like they're true believers, but they're also getting paid to do it.

And there's a giant funding, I mean, there's a very large funding complex for this coming from, you know, certain high profile people who put huge amounts of money into this.

Is this well known?

Yes.

Well, so I mean, it is in my world.

So this is what the social media companies have been on the receiving end of for the last decade is this, it's, it's basic, it's basically a political media activism complex with very deep pockets behind it.

And you've got people who basically, literally people who sit all day and watch the TV network on the other side or watch the Twitter feed to the other side.

And they wait, they basically wait.

It's like every politician, this has been the case for a long time now, every, every politician who goes out and gives stump speeches, you'll see there's always somebody in the crowd or the camcorder, or now with a phone recording them and that's somebody from the other campaign who's paid somebody to just be there and like record every single thing the politician says so that, so that when a Mitt Romney says whatever the 47% thing they've got it on tape and then they clip it and they try to make it viral.

So this stuff is, and again, like, look, like these people believe what they're doing, I'm not saying it's even dishonest, like these people believe what they're doing, they think they're fighting a holy war.

They think they're protecting democracy.

They think they're protecting civilization.

They think they're protecting whatever it is they're protecting.

Um, but, but they, and then they know how to use the tools.

And so they, they know how to, they know how to try to gin up the outrage.

And then by the way, sometimes it works in social cascades.

Sometimes it works.

Sometimes it doesn't.

Sometimes they cascade.

Sometimes they don't.

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But if you follow these people on Twitter, like, this is what they do every day. They're constantly trying to like life is fire.

Right.

I assume it was really bottom up, but it sounds like it's sort of a middle level.

And then it, and then it captures the elites.

And then the thing takes on a life of its own.

By the way, it also intersects with the trust and safety groups at the social media firms, right?

Who are responsible for figuring out who gets promoted and who gets banned right across this.

And you'll notice one large social media company has recently changed hands and has implemented a different kind of set of trust and safety.

And all of a sudden a different kind of boycott movement has all of a sudden started to work that wasn't working before that.

And another kind of boycott movement is not working as well anymore.

Um, and so there's, for sure, there's an intermediation happening.

Like, look, the stuff that's happening in the world today is being intermediated through social media, because social media is the defining media of our time.

Um, but there are people who know how to do this and do this for a living.

So, so no, I very much view this as a, I view very much the like cancellation wave, like this whole thing.

It's, it's, it's, it's, it's an elite phenomenon.

Um, and when it appears to be a grassroots thing, it's, it's, it's either grassroots among the elites, which, you know, is possible.

Cause there's, you know, a fairly large number of people who are like signed up for that, you know, that particular crusade.

Um, but there's also a lot of astroturfing that's taking place inside that.

The question is, okay, at what point does the population at large get pulled into this?

And, and maybe that, maybe there are movements at certain points in time where they do get pulled in and then maybe later they get disillusioned.

And so then there's some question there.

And then there's another question of like, well, if the population at large is going to decide what these movements are, are they going to be the same movements as the elites want?

And are the elites, how are the elites going to react when the population actually like fully expresses itself?

Right.

And so there's, and like I said, there's a feedback loop between these where the more extreme the elites get, they tend to push the population to more extreme views on the other side and vice versa.

So it pink, pink box back and forth.

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And so, yeah, this is, yeah, this is our world.

Yeah, this explains a lot.

I want to make sure that I

know Matt, so that Mike, Schellenberger, Matt, Tyebe, a bunch of these guys have done a lot of work.

But just, just, if you just look into the, what's called the misinformation industrial complex, you'll find a network of money and power that is really quite amazing.

I've seen more and more Schellenberger showing up, right?

And he's just, look, he's on this stuff, he and, he and Tyebe, they're just, they're literally just like tracking money.

It's just like, it's very clear how the money flows, including like a remarkable amount of money out of the government, you know, which is of course, like in theory, very concerning.

Very interesting.

The government should not be funding programs that take away people's constitutional rights.

And yet somehow that is what's been happening.

Very interesting.

Yes.

I want to make sure that I hear your ideas about why the decline in confidence in institutions and is not necessarily problematic.

Is this going to be a total destruction burning down of the forest that will lead to new life?

Is that your view?

Yeah. Well, so this, this is the thing.

And look, there's a question if you're, there's a couple of questions in here, which is like, how, how bad is it really?

Like, how bad are they?

Right.

And I, you know, and I think they're pretty bad.

A lot of them are pretty, actually bad.

Um, and so, so, so that's one big question.

And then yeah, the other question is like, okay, if an institution has gone bad or a group of elites have gone bad, like, can, can, it's this wonderful word reform, right?

Can, can, can they be reformed and everybody always wants to reform everything and yet somehow like nothing ever, quite ever gets reformed.

Right.

And so people are trying to reform, you know, housing policy in the Bay Area for decades and you know, we're not building, we're building fewer houses than ever before.

So somehow reform movement seemed to lead to more, just, just more bad stuff.

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But anyway, yeah.

So if you have an existing institution, can it be reform?

Can it be fixed from the inside?

You know, like what's happening in universities?

Like there's a lot of, there are professors at Stanford as an example who very much think that they can fix Stanford.

Like, I don't know what you think it doesn't seem like it's going in productive directions right now.

Well, I mean, there are many things about Stanford that function extremely well.

I mean, it's a big institution.

It's certainly got its issues like any other place.

They're also my employer.

Mark's giving me some interesting looks.

He wants me to get a little more vocal here.

No, no, no, you don't have to.

Oh, no, I mean, I think that.

I didn't mean to put you on the spot.

Yeah.

I mean, one of the things about being a researcher at a big institution like Stanford is, well, first of all, it meets the criteria that you described before.

You know, you look to the left, you look to the right or anywhere above or below you and you have excellence.

Right.

I mean, I've got a Nobel Prize winner below me whose daddy also won a Nobel Prize and there is scientific offspring is likely to win.

I mean, it inspires you to do bigger things than one ordinarily would, no matter what. So there's that and that's great.

And that persists.

There's all the bureaucratic red tape about trying to get things done and how to implement decisions is very hard.

And there are a lot of reasons for that.

And then, of course, there are the things that, you know, many people are aware of.

There are public accusations about people in positions of great leadership and that's getting played out.

And the whole thing becomes kind of overwhelming and a little bit opaque when you're just trying to, like, run your lab or live your life.

And so I think one of the reasons for this lack of reform that you're referring to is because there's no position of reformer, right?

So deans are dealing with a lot of issues.

Provost are dealing with a lot of issues.

Presidents are dealing with a lot of issues and then some in some cases.

And so, you know, we don't have a dedicated role of reformer.

Someone to go in and say, listen, there's just a lot of fat on this

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and we need to trim it or we need to create this or do that.
There just isn't a system to do that.
And that's, I think, in part because universities are built on old systems.
And, you know, it's like the New York subway.
Like, it's still amazing.
It still works as well as it does.
And yet it's got a ton of problems also.
Well, so the point we could debate the university specifically,
but the point is like, look, if you do think as to your system going bad,
and then you have to make it number one,
you have to figure out if you think institutions are going bad.
The population largely does think that.
And then at the very least, the people who run institutions
ought to really think hard about what that means.
But people still strive to go to these places.
And I still hear from people who, like, for instance, did not go to college
or talking about how a university degree is useless.
They'll tell you how proud they are that their son or daughter is going to Stanford
or is going to UCLA or is going to Urbana-Champaign.
I mean, it's almost like, to me, that's always the most, you know,
shocking contradiction is like, yeah, like these institutions don't matter.
But then when people want to hold up a card that says why their kid is great,
it's not about how many push-ups they can do,
or that they started their own business most of the time.
It's, they're going to this university.
And I think, well, what's going on here?
So do you think the median voter in the United States can have their kid go to Stanford?
No.
No.
No.
And no.
Do you think a median voter in the United States could have their kid admitted to Stanford,
even with perfect SAT?
No.
No.
No.
In this day and age, the competition is so fierce that it requires more.
Yeah.
So like, so first of all, again, we're dealing here.
Yes, we're dealing with a small number of very elite institutions.
People may admire them or not.
Most people have no connectivity to them whatsoever.
In the statistics, in the polling, universities are not doing well.

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The population at law, yeah, they may have fantasies about their kid going to Stanford, but like the reality of it is they have a very, very, they say a collapsing view of these institutions. So anyway, this actually goes straight to the question of alternatives then, right? Which is like, okay, if you believe that there's collapsing faith in the institutions, if you believe that it is merit at least in some ways, if you believe that reform is effectively impossible, then you are faced with, and we could debate each of those, but like the population at large seems to believe a lot of that. Then there's a question of like, okay, like, can't it be replaced? And if so, like, are you better off replacing these things basically while the old things still exist? Or do you actually need to basically clear the field to be able to have a new thing exist? The universities are a great case study of this because of how student loans work, right? And the way student loans work is to be able to be an actual competitive university and compete, you need to have access to federal student lending, because if you don't, everybody has to pay out of pocket, and it's completely out of reach for anybody other than a certain class of either extremely rich or foreign students. So you need to access federal student loan facility. To get access to federal student loan facility, you need to be an accredited university. Guess who runs the accreditation council? I don't know. The existing universities, right? So it's a self-laundering machine. Like, they decide who the new universities are. Guess how many new universities get accredited, right, each year to be able? Zero. Zero, right? And so as long as that system is in place, and as long as they have the government wired the way that they do, and as long as they control who gets access to federal student loan funding, like, of course, there's not going to be any competition, right? Of course, there can't be a new institution that's going to be able to get to scale. Like, it's not possible. And so if you actually wanted to create a new system that was better in the, you know, I would argue dozens or hundreds of ways, it could obviously be better if you were starting it today. It probably can't be done as long as the existing institutions are actually intact. And this is my counter against Martin, which is like, yeah, we look, if we're going to tear down the old, there may be a period of disruption before we get to the new, but we're never going to get to the new if we don't tear down the old. When you say counter to Martin, you're talking about the author of *Revolt of the Masses*. Martin Gurrey, yeah. Martin Gurrey says it's like, look, he said basically, what Martin says, is as follows, the elites deserve contempt. But the only thing worse than these elites that deserve contempt would be no elites at all,

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right?

And because Andy basically says on the other side, on the other side of the destruction of the elites and the institutions is nihilism, you're basically left with nothing.

And then by the way, there is a nihilistic streak.

I mean, there's a nihilistic streak in the culture and the politics today.

There are people who basically would just say, yeah, just tear the whole system down, right?

And they're without any particular plan for what follows.

And so I think he makes a good point in that you want to be careful that you actually have a plan on the other side that you think is actually achievable.

But again, the counter argument to that is if you're not willing to actually tear down the old, you're not going to get to the new.

Now, what's interesting, of course, is this is what happens every day in business, right?

So like the entire way, like how do you know that the capitalist system works?

The way that you know is that the old companies, when they're no longer like the best at what they do, they get torn down and then they ultimately die and they get replaced by better companies.

Yeah, I haven't seen a Sears in a while.

Exactly.

And we know what's so interesting is we know in capitalism and a market economy, we know that that's the sign of health, right?

That's the sign of how the system is working properly, right?

And in fact, we get actually judged by antitrust authorities in the government on that basis, right?

It's like the best defense against antitrust charges is no, people are like coming to kill us and they're doing like a really good job of it.

Like that's how we know we're doing our job.

And in fact, in business, we are specifically, it is specifically illegal for companies in the same industry to get together and plot and conspire and plan and have things like these accreditation bureaus.

Like we would get, if I created the equivalent in my companies of the kind of accreditation bureau that the universities have, I'd get straight to federal prison and a trust violation.

Sure, I'm going to act straight to prison.

People have been sent to prison for that.

So in the business world, we know that you want everything subject to market competition.

We know that you want creative destruction.

We know that you want replacement of the old with superior new.

It's just once we get outside of business, we're like, oh, we don't want any of that.

We want, we want basically stagnation and log rolling, right?

And it's that, you know, and basically, you know, institutional, you know, incestuous, like, you know, entanglements and conflicts of interest, you know, as far as the eye can see.

And then we're surprised by the results.

So let's play it out as a bit of a thought experiment.

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So let's say that one small banding together of people who want to start a new university where free exchange of open ideas, where unless somebody has, you know, egregious behavior, violent behavior, you know, truly sexually inappropriate behavior against somebody, you know, that committing a crime, right?

They're allowed to be there.

They're allowed to be a student or a faculty member or administrator.

And let's just say this accreditation bureau allowed student loans for this one particular university, or let's say that there was an independent source of funding for that university, such that students could just apply there.

They didn't need to be part of this, you know, this elite accredited group, which sounds very mafial, like, frankly, not necessarily violent, but certainly coercive in the way that it walls people out.

Let's say that then there were 20 or 30 of those or 40 of those.

Do you think that over time that model would overtake the existing model?

Is it interesting that those don't exist?

Remember the Sherlock Holmes the dog who did in Barking?

It is interesting that those don't exist, right?

So there's two possibilities.

One is like nobody wants that, which I don't believe.

And then the other is like the system is wired in a way that will just simply not allow it.

Right.

And you did a hypothetical in which the system would allow it.

My response to that is no, of course, the system won't allow that.

Or the people that band together, you know, have enough money or get enough resources to say, look, we can, you know, we can afford to give loans to, you know, 10,000 students per year.

You know, 10,000 isn't a trivial number when thinking about the size of a university.

And, you know, most of them hopefully will graduate in four years and there'll be a turnover.

And do you think that the great future innovators would tend to orient toward that model more than they currently do toward the traditional model?

I mean, what I'm trying to get back to here is how do you think that the current model thwarts innovation, as well as maybe some ways that it still supports innovation, certainly cancellation and the risk of cancellation from the way that we framed it earlier is going to discourage risk takers of the category of risk takers that take risk in every domain that really like to fly close to the sun and sometimes into the sun.

Or are doing research that is just not politically right?

Yeah, looking into issues that, you know, right, that, you know, we can't even talk about on this podcast probably without without causing a distraction of what we're actually trying to talk about.

That gives up the whole game right there.

Right, exactly.

So the, you know, I keep a file and it's a written file because I'm afraid to put it into electronic form of all the things that I'm afraid to talk about publicly because I come from a lineage of advisors where all three died young and I figure if nothing else, I'll die and then, you know, make it into the world and, you know, when I'll say five, 10 years, 20 years and if

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not, you know, I know we're certainly going to die at some point and then we'll see where all those issues stand.

In any event, is that list getting longer over time or shorter?

Oh, it's definitely getting longer.

Isn't that interesting?

Yeah, it's getting much longer.

I mean, there are just so many issues that I would love to explore on this podcast with experts and that I can't explore just because even if I had a panel of them, because of the way that things get soundbited and segmented out and taken out of context, it's like the whole conversation is lost.

And so, fortunately, there are an immense number of equally interesting conversations that I'm excited to have, but it is a little disturbing.

Do you remember Lysenkoism?

No.

Oh, so famous in the history of the Soviet Union.

This is the famous thing.

So there was a geneticist named Lysenko.

That's why it sounds familiar, but I'm not calling to mind.

Well, he was the guy who did communist genetics.

The field of genetics, the Soviets did not approve the field of genetics because, of course, they believed in the creation of the new man and total equality.

And genetics did not support that.

And so if you were doing traditional genetics, you were at the very least fired if not killed.

And so this guy Lysenko stood up and said, oh, I've got Marxist genetics.

I've got a whole new field of genetics that basically is politically compliant.

And then they actually implemented that in the agriculture system of the Soviet Union.

And it's the origin of one of the big reasons that the Soviet Union actually fell, which was they ultimately couldn't feed themselves.

So create a new notion of biology as it relates to genetics.

Politically correct biology, right?

And so they not only created it, they taught it, they mandated it, they required it, and then they implemented it in agriculture.

So yeah, so I never understood.

There were a bunch of things in history I never understood until the last decade, and that's one of them.

Well, I censor myself at the level of deleting certain things, but I don't contort what I do talk about.

So I tend to like to play on lush open fields.

Just makes my life a lot easier.

This goes to the rot.

This goes to the rot.

I'll come back to your question,

but this goes to the rot in the existing system, which is we've,

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by the way, I'm no different.
I'm just like you, I'm not trying not to light myself on fire either.
But the rot in the existing system, and by system,
I mean the institutions and the elites.
The rot is that the set of things that are no longer allowed.
I mean, that list is obviously expanding over time.
And that's a real, historically speaking, that doesn't end in good places.
Is this group of a particular generation that we can look forward to the time
when they eventually die off?
It's third of the boomers plus the millennials.
So good news, bad news.
Gen X is weird, right?
I'm Gen X, Gen X is weird because we kind of slipped in the middle.
We were kind of the, I don't know how to describe it,
we were the kind of non-political generation kind of sandwiched
between the boomers and the millennials.
Gen Z is a very, I think open question right now, which way they go.
I could imagine them being actually like much more intense than the millennials.
On all these issues, I could also imagine them reacting to the millennials
and being far more open-minded.
We don't know which way it's going to go yet.
It's going to go.
It might be different groups of them.
I mean, I'm Gen X also.
I'm 47.
You're 50, 50 together.
Right.
So more or less the same.
So group was in John Hughes films.
And so where the jocks and the hippies and the punks were all divided
and they were all segmented.
But then it all sort of mishmashed together a few years later.
And I think that had a lot to do with, like you said,
the sort of apolitical aspect to our generation.
Like we just knew, Gen X just knew the boomers were nuts, right?
All of the great sitcoms of the era was Family Ties, right?
With the character Michael P. Keaton.
And he was just like, this guy is just like, yeah,
my boomer hippie parents are crazy.
Like I'm just going to go into business and actually do something productive.
Like there was something iconic about that character in our culture.
And people like me were like, yeah, obviously going to business,
you know, going to political activism.

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And then it's just like, man, that came whipping back around with the next generation.
So just to touch real quick on the university thing.
So look, there are people trying to do,
and I'm actually going to do a thing this afternoon with the University of Austin,
which is one of these.
And so there are people trying to do new universities.
You know, like I would say, it's certainly possible.
I hope they succeed.
I'm pulling for them.
I think it'd be great.
I think it'd be great if there were a lot more of them.
Who founded this university?
This is a whole group of people.
I don't want to freelance on that,
because I don't know originally who the idea was.
University of Austin, not UT Austin.
Yeah, so this is not UT Austin.
It's called University of Austin, or they call it, I think it's UATX.
It's a lot of very short people associated with it.
And they're going to try to, very much exactly like what you described there,
and try to do a new one.
I would just tell you, the wall of opposition that they're up against is profound,
right?
And part of it is economic, which is,
can they ever get access to federal student lending?
And I hope that they can.
But it seems nearly inconceivable the way the system is rigged today.
And then the other is just like they already have come under.
Anybody who publicly associates with them, who is in traditional academia,
immediately gets lit on fire, right?
And there's like, you know, cancellation campaigns.
Like, so they're up against a wall of social ostracism.
They're up against a wall of press attacks.
They're up against a wall of, you know, people just like doing the thing,
pousing on it any time anybody says anything.
They're going to try to like, run the place down.
This reminds me of like, Jerry Springer episodes and Geraldo Rivera episodes,
where, you know, it's like if a teen listened to, you know,
like Dan Zigg or Marilyn Manson type music or Metallica that they were
considered a devil or ship.
Now we just laugh, right?
We're like, that's crazy, right?
People listen to music with all sorts of lyrics and ideas and looks and that's crazy.

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But, you know, there were people legitimately sent to prison, I think with the West Memphis Three, right? These kids out in West Memphis that looked different, acted different, were accused of murders that eventually was made clear they clearly didn't commit. But they were imprisoned because of the music they listened to. I mean, this sounds very similar to that. And I remember seeing bumper stickers free the West Memphis Three, and I thought this was some crazy thing. You look into it and this isn't, it's a little bit niche, but I mean, these are real lives and there was a active witch hunt for people that looked different and acted different. And yet now we're sort of in this inverted world where on the one hand, we're all told that we can express ourselves however we want. But on the other hand, you can't get a bunch of people together to take classes where they learn biology and sociology and econ in Texas. Wild. Yes. Well, so the, you know, the simple explanation is this is Puritanism, right? So this is the original American Puritanism that just like works itself out through the system in different ways at different times. There's this religious phenomenon in America called the Great Awakenings. There'll be these periods in American history where there's basically religiosity fades and then there'll be this snapback effect where you'll have this basically, this frenzy basically of religion. In the old days, it would have been tent revivals and people speaking in tongues and all this stuff. And then in the modern world, it's of the form that we're living through right now. And so yeah, it's just basically these waves of sort of American religious, and you know, remember like religion in our time, religious impulses in our time don't get expressed because we live in more advanced times, right? We live in scientifically informed times. And so religious impulses in our time don't show up as overtly religious, right? They show up in a secularized form, right? Which of course conveniently is therefore not subject to the First Amendment separation church and state, right? As long as the church is secular, there's no problem, right? And so, but we're acting out these kind of religious scripts over and over again and we're in the middle of another religious frenzy. There's a phrase that I hear a lot and I don't necessarily believe it, but I want your thoughts on it, which is the pendulum always swings back. Yeah, not quite. So that's how I feel too, because you know, I'll take any number of things that we've talked about and you know, gosh, it's so crazy, you know, the way things have gone

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with institutions or it's so crazy the way things have gone with social media or it's so crazy, fill in the blank.

And people will say, well, you know, the pendulum always swings back, like it's the stock market or something, you know, after every crash, there'll be an eventual boom and vice versa.

By the way, that's not true either, right?

Right.

Most stock markets, we have of course survivorship, but it's all survivorship, everything is survivorship, it's all everything you just said is obviously survivorship by us, right?

So if you look globally, most stock markets over time crash and burn and never recover.

The American stock market hasn't always recovered.

Right, I was referring to the American stock market, right?

Globally, but the reason everybody refers to the American stock market is because it's the one that doesn't do that.

The other 200 or whatever, crash and burn and never recover.

Like let's go check in on the Argentina stock market right now, like I think it's coming back anytime soon.

Yeah, my father is Argentine and immigrated to the US in the 1960s, so he would definitely agree with that.

Yeah, like it doesn't come in.

It doesn't come, you know, like when their stocks crash, they don't come back.

So and then, you know, like Sankoism, like the Soviet Union never recovered from like Sankoism, it never came back.

It led to the end of the country.

You know, literally the things that took down the Soviet Union were oil and wheat and the wheat thing, you can trace the crisis back to like Sankoism.

And so, yeah, no, look, the pendulum swings back is true only in the cases where the pendulum swings back.

Everybody just conveniently forgets all the other circumstances where that doesn't happen.

One of the things people, you see this in business also, people have a really hard time confronting really bad news.

I don't know if you've noticed that.

I think every doctor who's listening right now is like, yeah, no shit.

But like, like there are situations, you see it in business, there are situations that you see a Star Trek, remember Star Trek, the Kobayashi Maru simulator, right?

So the big lesson to become a Star Trek captain is you had to go through the simulation called the Kobayashi Maru and the point was there's no way to, it's a no win scenario.

Right.

And then the, and then it turned out like Captain Kirk was the only person ever win the scenario and the way that he did it was he went in ahead of time and hacked the simulator.

Right.

It was the only way to actually get through.

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And then there was a debate whether to fire him or make him a captain.

So they made him a captain.

And like, you know, the problem is in real life, like we, you do get the Kobayashi Maru on a regular basis.

Like there are actual no win situations that you can't work your way out of.

And as a leader, you can't ever cop to that, right?

Cause you have to like carry things forward and you have to look for every, every possible choice you can.

But like every once in a while you do run into a situation where it's really not recoverable.

And at least I found people just like cannot cope with that.

And so, and so what happens is they basically then they basically just like exclude it from their memory that it ever happened.

I'm glad you brought up simulators because I want to make sure that we talk about the new and emerging landscape of AI, artificial intelligence.

And I could try and smooth our conversation of a moment to go with the, this one by creating some clever segue, but I'm not going to accept.

I'm going to ask, is there a possibility that AI is going to remedy some of what we're talking about?

Let's make sure that we earmark that for discussion a little bit later, but first off, because some of the listeners of this podcast might not be as familiar with AI as perhaps they should be.

We've all heard about artificial intelligence, people who are about machine learning, etc.

But it'd be great if you could define for us what AI is.

People almost immediately hear AI and think, okay, robot's taking over, I'm going to wake up and I'm going to be, you know, strapped to the bed and my organs are going to be pulled out of me, the robots are going to be in my bank account.

They're going to kill all my children and dystopia for most.

Clearly, that's not the way it's going to go.

If you believe that machines can augment human intelligence and human intelligence is a good thing.

So tell us what AI is and where you think it can take us, both good and bad.

Yeah, so there was a big debate when the computer was first invented, which was in the 1930s, 1940s.

People like Alan Turing and John von Neumann and these people.

And the big debate at the time was, because they knew they wanted to build computers, they had the basic idea.

And, you know, there had been like calculating machines before that and there had been like there had been these looms that you basically programmed with punch cards.

And so there was a prehistory to computers that had to do with building sort of increasingly complex calculating machines.

So they were kind of on a track, but they knew they were going to be able to build, they call it a general purpose computer that could basically you could program in the way

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that you program computers today.

But they had a big debate early on, which is, should the fundamental architecture of the computer be based on either a, like calculating machines, like cash registers and looms and right and other things like that, or should it be based on a model of the human brain?

And they actually had this idea of computers model on the human brain back then.

And this was this concept of so-called neural networks.

And it's actually fairly astonishing from a research standpoint.

The original paper on neural networks actually was published in 1943, right?

So they didn't have our level of neuroscience, but like they actually knew about the neuron and they actually had a theory of like neurons interconnecting and synapses and information processing in the brain even back then.

And a lot of people's time basically said, you know what, we should basically have the computer from the start with model after the human brain because like if we could, if the computer could do everything that the human brain can do, like that would be the best possible general purpose computer.

And then you could have it do jobs and you could have it, you know, create art and you could have it do all kinds of things like humans can do.

It turns out that didn't happen in our world.

What happened instead was the industry went in the other direction.

It went basically in the model of the calculating machine or the cash register.

And I think practically speaking, that kind of had to be the case because that was actually the technology that was practical at the time, but that's the path.

And so what we all have experiences with up to and including the iPhone in our pocket is computers built on that basically calculating machine model, not the human brain model.

And so what that means is computers, as we have come to understand them, they're basically like, you know, mathematical savants, you know, at best, right?

So they're like, they're really good at like, you know, doing lots of mathematical calculations.

They're really good at executing these extremely detailed computer programs.

They're hyper literal.

One of the things you learn early when you're a programmer is as a program, as the human programmer, you have to get every single instruction you give the computer correct because it will do exactly what you tell it to do.

And bugs in computer programs are always a mistake on the part of the programmer.

Interesting.

You never blame the computer.

You always blame the programmer because that's the nature of the thing that you're dealing with.

One downscore off and the whole thing.

Yeah, yeah.

And it's the programmer's fault.

And if you're talking to any programmer, they'll agree with this.

It'll be like, yeah, if there's a problem, it's my fault.

I did it.

I can't blame the computer.

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The computer has no judgment.

It has no ability to interpret, synthesize, you know, under develop an independent understanding of anything.

It's just literally just doing what I tell it to do step by step.

So for 80 years, we've had this just, you know, this very kind of hyper literal, you know, kind of kind of model computers.

Technically, these are what are called von Neumann machines, based after the mathematician John von Neumann.

They run in that way.

And they've been very successful and very important in our world, it's been shaped by them.

But there was always this other idea out there, which is, okay, how about a completely different approach, which is based much more on how the human brain operates, or at least our kind of best understanding of how the human brain operates, right, because those aren't the same thing.

It basically says, okay, what if you could have a computer instead of being hyper literal, what if you could have it actually be conceptual, right?

And creative and able to synthesize information, right, and able to draw judgments and able to, you know, behave in, you know, in ways that are not deterministic, but are rather, you know, creative, right?

And so, and the applications for this, of course, are endless.

And so, for example, the self-driving car, the only way that you can make a car, you cannot program a computer with rules to make it a self-driving car.

You have to do what Tesla and Waymo and these other companies have done now.

You have to use AI, right?

You have to use this other architecture.

And you have to basically teach them how to recognize objects in images at high speeds the same way, basically the same way the human brain does.

And so, those are so-called neural networks running inside.

So, essentially, let the machine operate based on priors.

You know, we almost clipped a boulder going up this particular drive.

And so, therefore, this shape that previously the machine didn't recognize as a boulder, it now introduces to its catalog of boulders.

Is that, is that so?

Yeah, we've got a good example.

Or at least even, maybe even, even starker for self-driving car.

There's something in the road.

Is it a small child or a plastic shopping bag being blown by the wind?

Very important difference.

If it's a shopping bag, you definitely want to go straight through it, because if you deviate, of course, you might, you know, you're going to make a fast, you know, it's the same, it's the same challenge we have when we're driving.

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Like you don't, you don't want to swerve to avoid a shopping bag, because you might hit something that you didn't see on the side. That's a small child, for sure you want to swerve, right? And so, but it's very, but like in that moment, and, you know, small children come in different light shapes and descriptions and are wearing different kinds of clothes. And they might tumble onto the road the same way a bag would tumble. Yeah, they might look like they're tumbling. And by the way, they might not be wearing a Halloween mask, right? It's the face, they might not have a recognizable human face, right? And it might, or it might be a kid with, you know, one leg, right? You definitely want to not hit those, right? Like, so they're, so you can't, this is what basically we figured out is, you can't apply the rules-based approach of a von Neumann machine to basically real life and expect the computer to be in any way understanding or resilient to change, to basically things happening in real life. And this is why there's always been such a stark divide between what the machine can do and what the human can do. And so basically what's happened is in the last decade, that second type of computer, the neural network-based computer, has started to actually work. It started to work actually first, interestingly, in vision, recognizing objects and images, which is why the self-driving car is starting to work. Face recognition. Face recognition. I mean, when I was started off in visual neuroscience, which is really my original home in neuroscience, the idea that a computer or a camera could do face recognition better than a human was like a very low probability event based on the technology we had at the time, based on the understanding of the face recognition cells and the fusiform gyrus. Now, you would be smartest to put all your money on the machine. You know, you want to find faces in airports, even with masks on and, you know, at profile versus straight on, machines can do it far better than most all people. I mean, those are the super recognizers, but even they can't match the best machines. Now, 10 years ago, what I just said was the exact reverse. Right, that's right. Yeah. All right, so faces, handwriting, right, and then voice, right, being able to understand voice. Like if you use, just as a user, if you use Google Docs, it has a built-in voice transcription. They have sort of the best industry-leading kind of voice transcription. If you use voice transcription at Google Docs, it's breathtakingly good. You just speak into it and it just, like, types what you're saying. Well, that's good, because in my phone, every once in a while, I'll say I need to go pick up a few things and they'll say I need to pick up a few thongs. And so Apple needs to get on board.

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Whatever the voice recognition is that Google's using.

Maybe it knows you better than you think.

That was not the topic I was avoiding discussing, you know.

No, so that's on the list, right?

That's on your list.

So look, there's actually, there's a reason actually why Google's so good and Apple is not right now at that kind of thing.

And it actually goes to actually the, it's actually an ideological thing of all things.

Apple does not permit pooling of data for any purpose, including training AI, whereas Google does.

And Apple's just like stake their brand on privacy and among that is sort of a pledge that they don't like pooling your data.

And so all of Apple's AI is like AI that has to happen like locally on your phone, whereas Google's AI can happen in the cloud, right?

It can happen across pool data.

Now, by the way, some people think that that's bad because they think pooling data is bad.

But that's an example of the shift that's happening in the industry right now, which is you have this separation between the people who are embracing the new way of training AI's and the people who basically, for whatever reason, are not.

Excuse me, you say that some people think it's bad because of privacy issues, or they think it's bad because of the reduced functionality of that AI.

Oh, no.

So you're definitely going to get, so there's three reasons AI has started to work.

One of them is just simply larger data sets, larger amounts of data.

So specifically, the reason why objects and images are now, the reason machines are now better than humans at recognizing objects and images or recognizing faces is because modern facial recognition AI's are trained across all photos on the internet of people, billions and billions and billions of photos, right?

A limited number of photos of people on the internet.

Attempts to train facial recognition systems 10 or 20 years ago, they'd be trained on, you know, thousands or tens of thousands of photos.

So the input data is simply much more vast.

Much larger.

This is the reason to get to the conclusion on this.

This is the reason why ChatGPT works so well as ChatGPT,

one of the reasons ChatGPT works so well is it's trained on the entire internet of text.

And the entire internet of text was not something that was available for you to train an AI on until it came to actually exist itself, which is new in the last, you know, basically decade.

So in the case of face recognition, I could see how having a much larger input data set would be beneficial if the goal is to recognize mark injuries in its face because you are looking for signal to noise against everything else, right?

But in the case of ChatGPT, when you're pooling all text on the internet

and you asked ChatGPT to say, construct a paragraph about Mark Andreessen's prediction

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of the future of human beings over the next 10 years and the likely to be most successful industries, give ChatGPT that, if it's pooling across all text, how does it know what is authentically Mark Andreessen's text?

Because in the case of face recognition, you have a, you've got a standard to work from, a verified image versus everything else.

In the case of text, you have to make sure that what you're starting with is a verified text from your mouth.

So which makes sense if it's coming from video, but then if that video is deep faked, all of a sudden what's true, your, your, your valid Mark Andreessen is of question.

And then everything ChatGPT is producing that is then of question.

Right.

So I would say there's a before and after thing here.

There's like a before, there's like a before ChatGPT and after GPT question, right?

Because the existence of GPT itself changes, changes the answer.

So before ChatGPT, so the reason, the reason, the versionary reason today is trained on data up till September, 2021.

It's what they're, they're caught up with the training set up till September, 2021.

Almost all text on the internet was written by a human being.

And then most of that was written by people under their own names.

Some of it wasn't, but a lot, but a lot of it was.

And why do you know this from me is because it was published in a magazine under my name or it's a podcast transcript and it's under my name.

And generally speaking, if you just did a search on like what are things Mark Andreessen has written and said, 90 plus percent of that would be, would be correct.

And there, look, somebody might have written a fake, you know, parody article or something like that.

But like not that many people were spending that much time writing like fake articles about like things that I said, right?

So many people can pretend to be human.

Exactly.

Right.

And so generally speak, you could, you can kind of get your arms around the idea that there's a corpus of materials associated with me or by the way, same thing with you.

There's a corpus of YouTube transcripts and other, your academic papers and talks that you've given.

You can kind of get your hands around that.

And that's, that's how these systems are trained.

They, they take all that data collectively.

They put it in there and that's why this works as well as it does.

And that's why if you ask chat GPT to speak or write like me or like you or like, you know, somebody else, it will actually generally do a really good job because it has that, it has all of our prior text in its training data.

That's it from here on out.

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This gets harder.

And of course, the reason this gets harder is because now we have AI that can create text.

We have AI that can create text at industrial scale.

Is it watermarked as AI generated text?

No, no, no.

How hard would it be to do that?

I think it's impossible.

I think it's impossible.

There are people who are trying to do that.

This is a hot topic in the classroom.

I was talking to a friend who's got like a 14 year old kid in a, in a class and there's like these recurring scandals is like every kid in the class is using chat GPT to like write their essays or to help them write their essays.

And then the, the teacher is using one of, there's a tool that you can use that it purports to be able to tell you, you know, whether something was written by chat GPT, but it's like only right like 60% of the time.

And so there was this case where the student wrote an essay where their parent sat and watched them write the essay and then they submitted it.

And this tool got the conclusion incorrect.

And then the student feels outraged because he got unfairly cheated.

But the teacher is like, well, you're all using the tool.

Then it turns out there's another tool that basically you feed in text.

And it actually is sort of, it's, it's called, they call it a summarizer, but what it really is is it's a cheating mechanism to basically just shuffle the words around enough so that it sheds whatever characteristics were associated with AI.

So there's like an arms race going on in educational settings right now around this exact question. I don't, I don't think it's possible to do, there are people working on the watermark, I don't think it's possible to do the watermarking.

And I think it's just kind of obvious why it's not possible to do that, which is you can just read the output for yourself.

It's, it's really good.

How are you actually going to tell the difference between that and something that a real person wrote? And then by the way, you can also ask chat GPT to write in different styles, right?

So you can tell it like, you know, right in the style of a 15 year old, right?

You can tell it to write in the style of, you know, a non native English speaker, right?

Or if you're a non native English speaker, you can tell it to write in the style of an English speaker, native English speaker, right? And so the tool itself will help you evade.

So I don't think that, I think there's a lot of people who are going to want to distinguish, right? Quote real versus fake. I think those days are, I think those days are over.

Genies out of the bottle.

Genies completely out of the bottle. And by the way, I actually think this is good.

This doesn't map to, this doesn't map to my worldview of how we use this technology anyway, which we can come back to. So there's that. So there's that. And then there's the

problem therefore of like the so-called deep fake problem. So then there's the problem of like deliberate basically manipulation. And that's like, you know, one of your many enemies, like mine, who basically is like, wow, I know how I'm going to get him, right?

I'm going to use it to create something that looks like a human transcript and I'm going to have him say all these bad things. Or a video.

Or a video. Or a video.

I mean, Joe Rogan and I were deep faked in a video. I don't want to flag people to it. I won't. So I won't talk about what it was about, but where it, for all the world, looked like a conversation that we were having and we never had that specific conversation.

Yeah, that's right. So that's going to happen for sure. And so there's,

there's, so what there's going to need to be is there's need to be basically registries, where basically you, you, like in your case, you will, you will submit your legitimate content into a registry under your unique cryptographic key, right? And then basically there will be a way to check against that registry to see whether that was the real thing. And I think this needs to be done for, for sure, for public figures.

It needs to be done for politicians. It needs to be done for music.

What about taking what's already out there and being able to authenticate it or not?

In the same way that many times per week, I get asked, is this your account about some, a direct message that somebody got on Instagram? And I always tell them, look,

I only have the one account, this one verified account, although now with the advent of pay-to-play verification, makes it a little less potent as a, you know, security blanket for knowing if it's not this account, you know, then it's not me. But in any case, these accounts pop up all the time pretending to be me. And I'm, I'm, you know, relatively low on the, on the scale, not, not low, but relatively low on the scale to say like a, you know, like a Beyonce or something like that, who has, you know, hundreds of millions of followers. So is there a system in mind where people could go in and verify text, you know, click yes or no, this is me, this is not me. And even there, there's the opportunity for people to fudge, to eliminate things about themselves that they don't want out there by saying, no, that's not me. It wasn't, I didn't actually say that or create that. Yeah, no, that's right. And so, yeah, so technologically, it's actually pretty straightforward. So the way to implement this technologically is with public, it's called public key cryptography, which is the basis for how cryptography information is secured in the world today. And so basically what you would do, the implementation for me, this would be, you would like, you would pick whatever is your most trusted channel, let's say, let's say it's your YouTube channel, as an example, where just everybody just knows that it's you on your YouTube

channel, because you've been doing it for 10 years or whatever. And it's just obvious. And you would just publish like in the about me page on YouTube, you would just publish your, your, your public cryptographic key that's unique to you. Right. And then anytime anybody wants to check to see whether any piece of content is actually you, they go to a registry in the cloud somewhere, and they basically submit, they basically say, okay, is this him? And then they can basically to see whether somebody with your public key, you had actually certified that this was something that you made. Now, who runs that registry is an interesting question. If that registry is run by the government, we will call that the Ministry of Truth. I think that's probably a bad idea.

If that registry is run by a company, we would, you know, call that basically the equivalent of like a credit bureau or something like that. Maybe that's how it happens. The problem with that is that company now becomes hacking target number one, right, of every bad person on earth, right? Because you can, you know, if anybody breaks into that company, you know, they can, they can, they can fake all kinds of things. Yeah, they own the truth. Right. They own the truth. Right. And by the way, inside our threat, also their employees can monkey with it. Right. So you have to really trust that company. The third way to do it is with a blockchain, right. And so this with the crypto blockchain technology, you could have a distributed system, basically distributed database in the cloud that is run through a blockchain. And then it, it implements this cryptography and the certification process. What about quantum internet? Is that another way to encrypt these things? I know most of our listeners are probably not familiar with quantum internet, but put simply, it's a way to secure communications on the internet.

Let's just leave it at that. It's sophisticated and we'll probably do a whole episode about this at some point, but maybe you have a succinct way of describing quantum internet, but that would be better. And if so, please, please offer it up. But is quantum internet going to be one way to secure these kinds of data and resources? Maybe in the future, years in the future, we don't yet have working quantum computers in practice. So it's not, it's not currently something you could do, but maybe, maybe in a decade or two. Tell me, I'm going to take a stab at defining quantum internet one sentence is a way in which if anyone were to try and peer in on a conversation on the internet, it essentially would be futile because of the way that quantum internet changes the way that the communication is happening so fast and so many times in any one conversation is essentially changing the translation or the language so fast that there's just no way to keep up with it. Is that more or less accurate?

Yeah, conceivably. Not yet, but yeah, some day.

So going back to AI, most people who hear about AI are afraid of AI.

Well, I think most who aren't informed.

This goes back to our elites versus masses thing.

Oh, interesting. Well, I heard you say that,

and this is from a really wonderful tweet thread that we will link in the show note captions that you put out not long ago and that I've read now several times

and that everyone really should take the time to read. It probably takes about

20 minutes to read it carefully and to think about each piece and it's highly recommend it.

But you said, and I'm quoting here, let's address the fifth, the one thing I actually agree with which is AI will make it easier for bad people to do bad things.

Yeah. So first of all, there is a general freak out happening around AI.

I think it's primarily, it's one of these, again, it's an elite driven freak out.

I don't think the man in the street knows cares or feels one way or the other.

I think it's just not a relevant concept. It's probably just sounds like science fiction.

So there's an elite driven freak out that's happening right now.

I think that elite driven freak out has many aspects to it that I think are incorrect, which is not surprising. I would think that given that I think the elites are incorrect about a lot of things, but I think they're very wrong about a number of things they're saying about AI.

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But that said, look, it's a, this is a very powerful new technology, right?

This is like a new general purpose like thinking technology, right?

So like what if machines could think, right? And what if you could use machines that think and what if you could have them think for you? There's obviously a lot of good that could come from that. But also people, you know, what criminals could use them to plan better, you know, crimes, you know, terrorists could use them to plan better terror attacks and so forth.

And so these are going to be tools that bad people can use to do bad things for sure.

I can think of some ways that AI could be leveraged to do fantastic things like

in the realm of medicine, an AI pathologist perhaps can scan 10,000 slides of histology and find the one microtumor cellular aberration that would turn into a full blown tumor, whereas the even mildly fatigued or well rested human pathologist as great as they come might miss that.

And perhaps the best solution is for both of them to do it. And then for the human to verify what the AI has found and vice versa. That's right. Right. And that's just one example. I mean, I can come up with thousands of examples where this would be wonderful.

I'll give you another one by the medicine. So you're talking about some analytic result, which is good and important. The other is like the machines are going to be much better bedside manner. They're going to be much better at dealing with the patient. And we already know there's already been a study. There's already been a study on that. So there was already a study done on this where there was a study team that scraped thousands of medical questions off of an internet forum. And then they had real doctors answer the questions. And then they had busy GPT-4 answer the questions. And then they had another panel of doctors score the responses. Right. So there were no patients experimented on here. This is a test contained within the medical world. But then the panel of the judges, the panel of doctors who are the judges, scored the answers in both factual accuracy and on bedside manner on empathy. And the GPT-4 was equal or better on most of the factual questions analytically already. And it's not even a specifically trained medical AI. But it was overwhelmingly better on empathy. Amazing. Right. And so, and, you know, I don't think, yeah, I don't, do you treat patients, do you treat patients directly in your work? No, I don't. Yes, I don't. We do, we run clinical trials. Right. But I don't, I don't do any direct clinical. So I, you know, I've no direct experience of this. But from the surgeons, I've from certain, like if you talk to surgeons or you talk to people who train surgeons, what they'll tell you is like surgeons need to have an emotional remove from their patients in order to do good job with the surgery, the side effect of that. And then by the way, look, it's a hell of a job to have to go in and tell somebody that they're going to die, right? Or that they have so you're not never going to recover, they're never going to walk again or whatever it is. And so there's a, there's sort of something inherent in that job where they need to keep an emotional reserve from the patient, right, to be able to do the job. And it's expected of them as professionals. The machine has no such limitation. Like the machine could be as sympathetic as you want it to be, for as long as you want it to be, it could be infinitely sympathetic, it's happy to talk to you at four in the morning, it's happy to sympathize with you. It's, and by the way, it's not just sympathizing you in the way that, oh, it's just like, you know, it's just making up words to lie to you to make you feel good. It can also sympathize with you in terms of helping you through all the things that you can actually do to improve your situation, right? And so, you know, boy, like if you'd be, you know, can you keep a patient actually on track with a physical therapy

program? Can you keep a patient on track with a nutritional program? Can you keep a patient off of drugs or alcohol, right? And if they have a machine medical companion that's with them all the time that they're talking to all the time, that's infinitely patient, infinitely wise, right, infinitely loving, right? And it's just going to be there all the time. And it's going to be encouraging. And it's going to be saying, you know, you did such a great job yesterday. I know you can do this again today. Cognitive behavioral therapy is an obvious fit here. These things are going to be great. It's at CBT. And that's that's already starting. But you can already use the chat GPT as a CBT therapist, if you want, it's actually quite good at it. And so, so there's there's a universe here that's, it goes to what you said, there's a universe here that's opening up, which is what I believe is it's partnership between man and machine, right? It's a symbiotic relationship, not an adversarial relationship. And so the doctor is going to pair with AI to do all the things that you described. But the patient is also going to pair with AI. And I think it's good. I think I think this this partnership that's going to emerge is going to lead, among other things, to actually much better health outcomes. I mean, I've relied for so much of my life on excellent mentors from a very young age and still now, in order to make best decisions possible with the information I had. And rarely were they available at four in the morning, sometimes, but not on a frequent basis. And they fatigue like anybody else. And they have their own stuff like anybody else, baggage events in their life, etc. What you're describing is a sort of AI coach or therapist of sorts, that hopefully would learn to identify our best self and encourage us to be our best self. And when I say best self, I don't mean that in any kind of pop psychology way. I mean, I could imagine AI very easily knowing, you know, how well I slept the night before, and what types of good or bad decisions I tend to make it to a clock in the afternoon, when I've only had five hours of sleep, or maybe just less REM sleep the night before. It might encourage me to take a little more time to think about something. It might give me a little tap on the wrist through a device that no one else would detect to, you know, refrain from something, you know, never going to judge you. It's never going to be resentful. It's never going to be upset that you didn't listen to it. Right. It's never going to go on vacation. It's going to be there for you. Like, I think this is the way people are going to live. It's going to start with kids, and then over time it's going to be adults. And the way people are going to live is they're going to have a exactly friend, therapist, companion, mentor, coach, teacher, right, assistant, and that, that, that, that, or by the way, maybe multiple of those. It may be that we're actually talking about six, like different personas interacting, which is a whole other possibility. But they're going to have a committee. Yeah. Yeah. Yeah. Exactly. Actually, different personas. And maybe, by the way, when there are difficult decisions to be made in your life, maybe what you want to hear is the argument among the different personas. And so you're just going to get, you're just going to grow up, you're just going to have this in your life, and you're going to always be able to talk to it and always be able to learn from it and always be able to help it make, you know, and like, it's just, it's going to, it's, it's going to be a symbiotic relationship. It's going to, I think it's going to be a much better way to live. I think people are going to get a lot out of it. What modalities will it include? So I can imagine my phone has this engine in it, this AI companion, and I'm listening in headphones as I walk into work, and it's giving me some, not just encouragement, some warnings, some thoughts that things that I might ask Mark Andreessen today that I might not have thought of, and so on. I could also imagine it having a more

human form. I could imagine it being tactile, having some haptic, so tapping to remind me so that it's not going to enter our conversation in a way that it interferes or distracts you, but I would be aware. Oh, right. You know, things of that sort. I mean, how many different modalities are we going to allow these AI coaches to approach us with? And is anyone actually thinking about the hardware piece right now? Because I'm hearing a lot about the software piece. What does the hardware piece look like? Yeah. So the entrepreneur, this is where Silicon Valley is going to kick in. So the entrepreneurial community is going to try all of those, right? And by the way, the big companies and startups are going to try all those. And so there's obviously, there's big companies that are working, you know, the big companies that have talked about a variety of these, including, you know, heads up displays, AR, VR, you know, kinds of things. There's lots of people doing voice, you know, the voice thing is, voice is a real possibility. It may just be an earpiece. There's a new startup that just unveiled a new thing where it's actually they actually project. So you'll have like a pendant you wear on like a necklace, and it actually like projects like literally like project images like on your hand, or like on the table or on the wall in front of you. So like maybe that's how it shows up. Yeah, there are people working on so called haptic or touch based kinds of things. There are people working on actually picking up nerve signals, like out of your arm, right, to be able to, to be able to do there's people, there's, you know, there's some science for being able to do basically like sub vocalization. So maybe you could pick up, you could pick up that way, go in conduction, you know. So yeah, these are all going to be tried. So that's one question is the physical form of it. And then the other question is the software version of it, which is like, okay, what's the level of abstraction that you want to deal with these things in? Like, right now, it's like a question, answer a paradigm, so called chat bot, like, ask a question, get an answer, ask a question, get an answer. But well, you want that to go for sure to more of a fluid conversation, you want it to build up more knowledge of who you are, and you don't want to have to explain yourself the second time and so forth. And then you want to be able to tell it things like, well, remind me this that or you know, be sure and tell me when X. But then maybe over time, more and more, you want it actually deciding when it's going to talk to you, right. And when it thinks it has something to say, it says it and otherwise it stays silent. And normally, at least in my head, unless I make a concerted effort to do otherwise, I don't think in complete sentences. So presumably this these AI, these machines could learn my style of fragmented internal dialogue. And I'll maybe have an earpiece and I'm walking in and I start hearing something. But it's some, you know, advice, etc. encouragement, discouragement. But at some point, those sounds that I hear in an earphone are very different than seeing something or hearing something in the room. We know this based on the neuroscience of musical perception and language perception, hearing something in your head is very different. And I could imagine at some point that the AI will cross a precipice where if it has inline wiring to actually control neural activity in specific brain areas, and I don't mean very precisely even just stimulating a little more prefrontal cortical activity, for instance, through the earpiece, you know, a little ultrasound wave now can stimulate prefrontal cortex in a noninvasive way. That's being used clinically and experimentally, that the AI could decide that I need to be a little bit more context aware, right. This is something that is very beneficial for those listening that are trying to figure

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out how to navigate through life. It's like, you know, know the context you're in and know the catalog of behaviors and words that are appropriate for that situation and not others. And, you know,

this would go along with agreeableness, perhaps, but strategic agreeableness, right.

Context is important. There's nothing diabolical about that context is important,

but I could imagine the AI recognizing, ah, we're entering a particular environment.

I'm now actually going to ramp up activity in prefrontal cortex a little bit in a certain way that allows you to be more situationally aware of yourself and others, which is great unless I can't necessarily short circuit that influence because, you know, at some point the AI is actually then controlling my brain activity and my decision making and my speech. I think that's what people fear is that once we cross that precipice, that we are giving up control to the artificial versions of our human intelligence. And look, I think we have to decide. I mean, we collectively and we as individuals, I think have to decide exactly how to do that. And this is the big thing that I believe about AI. There's just a much more, I would say, practical view of the world than a lot of the panic that you hear is just like these are machines. They're able to do things that increasingly are like the things that people can do in some circumstances, but these are machines. We build the machines. We decide how to use the machines. When we want the machines

turned on, they're turned on and we want them turned off, they're turned off. And so yeah, so I think that's absolutely the kind of thing that the individual person should always be in charge of. I mean, everyone was and I have to imagine some people are still afraid of CRISPR, of gene editing. But gene editing stands to revolutionize our treatment of all sorts of diseases. Inserting and deleting particular genes in adulthood, not having to recombine in the womb a new organism, is an immensely powerful tool. And yet the Chinese scientist who did CRISPR on humans, this has been done, actually did his postdoc at Stanford with Steve Quake, then went to China, did CRISPR on babies, mutated something. I believe it was one of the HIV receptors. I'm told it was with the intention of augmenting human memory. It had very little to do, in fact, with limiting susceptibility to HIV per se, to do with the way that that receptor is involved in human memory. The world demonized that person. We actually don't know what happened to them, whether or not they have a laboratory now or they're sitting in jail. It's unclear.

But in China and elsewhere, people are doing CRISPR on humans. We know this. It's not legal in the US and other countries, but it's happening. Do you think it's a mistake for us to fear these technologies so much that we back away from them and end up 10, 20 years behind other countries that could use it for both benevolent or malevolent reasons?

Yes. And the details matter. So it's technology by technology. But I would say there's two things. You always have to think in these questions, I think, in terms of counterfactuals and opportunity cost. So CRISPR is an interesting one. CRISPR, you manipulate the human genome. Nature manipulates the human genome in all kinds of ways.

Yeah. When you pick a spouse and you have a child with that spouse, you're doing genetic recombination. You are quite possibly, if you're Genghis Khan, you're determining the future of humanity. Nature, I mean, look, mutations. So this is the old question of basically, this is a state of nature, state of grace. Basically, is nature good and then they're far artificial? Things are bad, which is kind of shot. A lot of people have ethical views like

that. I'm always at the view that nature's a bitch and wants us dead. Nature's out to get us, man. Nature wants to kill us. Nature wants to involve all kinds of horrible viruses. Nature wants to plagues. Nature wants to do all kinds of stuff. I mean, look, the original religion was the original religion. That was the original thing people worshiped. And the reason was because nature was the thing that was out to get you before you had scientific and technological methods to be able to deal with it. So the idea of not doing these things to me is just saying, oh, we're just going to turn over the future of everything to nature. And I don't think that that, there's no reason to believe that that leads in a particularly good direction or that's not a value-neutral decision. And then the related thing that comes from that is always this question around what's called the precautionary principle, which shows up in all these conversations on things like CRISPR, which basically is this, it's this principle that basically says the inventors of a new technology should be required to prove that it will not have negative effects before they roll it out. This, of course, is a very new idea. This is actually a new idea in the 1970s. It's actually invented by the German Greens in the 1970s. Before that, people didn't think in those terms. People just invented things and rolled them out. And we got all of modern civilization by people inventing things and rolling them out. The German Greens came up with the precautionary principle for one specific purpose. I'll bet you can guess what it is. It was to prevent...

Famine?

Nuclear power. It was to shut down attempts to do civilian nuclear power. And if you fast forward 50 years later, you're like, wow, that was a big mistake, right? So what they said at the time was you have to prove that nuclear reactors are not going to melt down and cause all kinds of problems. And of course, as an engineer, can you prove that that will never happen? Like you can't, you can't rule out things that might happen in the future. And so that philosophy was used to stop nuclear power, by the way, not just in Europe, but also in the U.S. and around much of the rest of the world. If you're somebody who's concerned about carbon emissions, of course, this is the worst thing that happened in the last 50 years in terms of energy. We actually have the silver bullet answer to unlimited energy with zero carbon emissions, nuclear power. We choose not to do it. Not only would we choose not to do it, we're actually shutting down the plants that we have now in California. And we just shut down the big plant. Germany just shut down their plants. Germany is in the middle of an energy war with Russia that we are informed as existential for the future of Europe. But unless the risk of nuclear power plant meltdown has increased, and I have to imagine it's gone the other way, what is the rationale behind shutting down these plants and not expanding them? Because nuclear is bad. Nuclear is icky. Nuclear has been tagged. It just sounds bad. Nuclear. Yeah. Go nuclear.

Well, so what happened? We didn't shut down postal offices and you hear go postal.

So what happened was, so nuclear technology arrived on planet Earth as a weapon, right?

So it arrived in the form of the atomic bomb. The first thing they did was in the middle of World War II. It was the atomic bomb that dropped on Japan. And then there were all the debates that followed around nuclear weapons and disarmament. And there's a whole conversation to be had, by the way, about that, because there's different views you could have on that.

And then it was in the like 50s and 60s where they started to roll out civilian nuclear power.

And then there were accidents. There was like through Mile Island melted down,

and then Chernobyl melted down in the Soviet Union, and then even recently Fukushima melted down. And so there have been meltdowns. And so I think it was a combination of it's a weapon. It is sort of icky. It's a scientific sometimes of the ick factor, right? It's sort of, it's radioactive. It glows green. And by the way, it becomes like a mythical fictional thing. And so you have all these movies of horrible super villains powered by light and clear energy and all this stuff. Well, the intro to The Simpsons, right, is the nuclear power plant and the three-eyed fish and the, you know, all the negative implications of this nuclear power plant run by, at least in The Simpsons, idiots. And that is the dystopia where people are unaware of just how bad it is. And who owns the nuclear power plant, right? This is like evil, you know, this evil capitalist, right? Like so it's like connected to like, you know, capitalism, right? And so we're blaming Matt Groening for the demise of a particular... He certainly didn't help. No, he didn't. Right? But it's literally this amazing thing where if you're just like thinking, if you're just thinking like rationally scientifically, you're like, okay, we want to get rid of carbon. This is the obvious way to do it. So, okay, fun fact, Richard Nixon did two things that really mattered on this. So one is he defined in 1971 something called project independence, which was to create a thousand new state-of-the-art nuclear plants, civilian nuclear plants in the U.S. by 1980, and to get the U.S. completely off of oil and cut the entire U.S. energy grid over to nuclear power electricity, cut over to electric cars, the whole thing, like detached from carbon. You'll notice that didn't happen. Why did that not happen? Because he also created the EPA and the Nuclear Regulatory Commission, which then prevented that from happening, right? And the Nuclear Regulatory Commission did not authorize a new nuclear plant in the U.S. for 40 years. Why would he hamstring himself like that? You know, he got distracted by Watergate in Vietnam. Yeah, I think Ellsberg just died recently, right? The guy who released the Pentagon papers. Yeah, so it's complicated. Yeah, exactly. He left office shortly thereafter. He didn't have time to fully figure this out. I don't know whether he would have figured it out or not. Look, Ford could have figured it out. Carter could have figured it out. Reagan could have figured it out. Any of these guys could have figured it out. It's like the most obvious. Knowing what we know today, it's the most obvious thing in the world. The Russia thing is the amazing thing is like Europe is literally funding Russia's invasion of Ukraine by paying them for oil, right? And they can't shut off the oil because they won't cut over to nuclear, right? And then of course, what happens? Okay, so then here's the other kicker of what happens, right? Which is they won't do nuclear, but they want to do renewables, right? Sustainable energy. And so what they do is they do solar and wind. Solar and wind are not reliable because it sometimes gets dark out and sometimes the wind doesn't blow. And so then what happens is they fire up the coal plants, right? And so the actual consequence of the precautionary principle for the purpose it was invented is a massive spike in use of coal. That's taking us back over 100 years. Yes, correct. That is the consequence of the precautionary principle. Like that's the consequence of that mentality. And so it's a failure of a principle on its own merits for the thing it was designed for. And then, you know, there's a whole movement of people who want to apply it to every new thing. And this is the hot topic on AI right now in Washington, which is like, oh my God, these people have to prove that this can never get used for bad things. Sorry, I'm hung up on this nuclear thing. And I wonder, can it just be renamed?

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I mean, seriously, I mean, there is something about the naming of things. We know this in biology, right? I mean, you know, Lamarckian evolution and things like that. These are bad words in biology, but we had a guest on this podcast, Oded Rashavi, who's over in Israel, who's shown, you know, inherited traits. But if you talk about his Lamarckian, then it has all sorts of negative implications. But his discoveries have important implications for everything from inherited trauma to treatment of disease. I mean, there's all sorts of positives that await us if we are able to reframe our thinking around something that, yes, indeed, could be used for evil, but that has enormous potential and that is an agreement with nature, right? This fundamental truth that, at least to my knowledge, no one is revising in any significant way anytime soon.

So what if it were called something else? It could be nuclear. It's called, you know, sustainable, right? I mean, it's amazing how marketing can shift our perspective of robots, for instance. Or anyway, I'm sure you can come up with better examples than I can. But is there a good solid PR firm working from the nuclear side? Thunbergian.

It's a good Thunbergian. Thunbergian. Like if she got, if she was in favor of it, which by the way, she's not, she's dead set against it. She said that. 100%. Yeah. Based on burguan principles. The prevailing ethic in environmentalism, 50 years is that nuclear is evil. Like they won't consider it. There are, by the way, certain environmentalists who disagree with this. And so Stuart Brand is the one that's been the most public and he has impeccable credentials in the space. And he wrote this. Holler's catalog. Holler's catalog guy. Yeah. And he's written a whole bunch of really interesting book sense. And he wrote a recent book that goes through in detail. He's like, yes, obviously the correct environmental thing to do is nuclear power. And we should be, we should be implementing project independence. We should be building a thousand. We should, specifically, we should, he didn't say this, but this is what I would say, we should hire Charles Koch. We should hire Koch industries, right? And they should build us a thousand nuclear power plants, right? And then we should give them the presidential medal of freedom for saving the environment. And then we put us independent of our reliance on oil. Yeah, then we're done with oil. Like let's think about what happens. We're done with oil, zero emissions. We're done with the Middle East. We're done. We're done. We're not drilling. We're not drilling on American land anymore. We're not drilling on foreign land. Like we have no military entanglements in places where we're drilling. We're not, you know, just spoiling Alaska. We're not nothing, no offshore rigs, nothing. We're done. And you basically just, you build state-of-the-art plants engineered properly. You have them just completely contained when there's nuclear waste. You just entomb the waste, right, in concrete. And so it just sits there forever. It's this very small, you know, footprint, you know, kind of thing. And you're just done. And so this is like, to me, it's like scientifically, technologically, this is just like the most obvious thing in the world. It's a massive tell on the part of the people who claim to be pro-environment that they're not in favor of this. And if I were to say tweet that I'm pro-nuclear power because it's the more sustainable form of power, if I hypothetically did that today, what would happen to me in this? You'd be a crypto-fascist, you know.

Dirty, evil capitalist, you know, monster, how dare you, right?

I'm unlikely to run that experiment. I was just curious. That was what we call a Gadonkin experiment. You're a terrible, Andrew, you're a terrible human being.

Wow. We were looking for evidence that you're a terrible human being and now we know it.

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Right. And so this is a great example of the, I gave Andrew a book on the way in here with this, my favorite new book. The title of it is When Reason Goes on Holiday. And this is a great example of it is the people who are, the people who simultaneously say they're environmentalists and say they're anti-nuclear power, like the positions simply don't reconcile, but that doesn't bother them like at all. So be clear, I predict none of this will happen. Amazing. I need to learn more about nuclear power.

Long coal.

Long coal. Long coal, invest in coal.

Because you think we're just going to revert.

It's the energy source of the future.

Well, because it can't be solar and wind because they're not reliable. So you need something.

And if it's not nuclear, it's going to be either like oil, natural gas or coal.

And you're unwilling to say bet on nuclear because you don't think that the socio-political elitist trends that are driving against nuclear are likely to dissipate anytime soon.

No, not a chance. I can't imagine. It would be great if they did, but the powers that be are very locked in on this as a position. And look, they've been saying this for 50 years, and so they'd have to reverse themselves off of that position they've had for 50 years.

People really don't like to do that.

One thing that's good about this and other podcasts is that young people listen, and they eventually will take over.

And by the way, I will say also, there are nuclear entrepreneurs.

So there are a bunch of young entrepreneurs who are basically not taking no for an answer, and they're trying to develop.

And in particular, there's people trying to develop new very small form factor nuclear power plants with a variety of possible use cases.

So look, maybe they show up with a better mousetrap and people take a second look.

Or just rename it.

So my understanding is that you think we should go all in on AI with the constraints that we discover we need in order to rein in safety and things of that sort, not unlike social media, not unlike the internet.

Not unlike what we should have done with nuclear power.

And in terms of the near infinite number of ways that AI can be envisioned to harm us, how do you think we should cope with that psychologically?

Because I can imagine a lot of people listening to this conversation are thinking, okay, that all sounds great, but there are just too many what ifs that are terrible.

What if the machines take over?

What if all the silly example I gave earlier, but what if one day I could log into my hard earned bank account and it's all gone?

The AI version of myself ran off with someone else and with all my money.

Right? My AI coach abandoned me for somebody else after it learned all the stuff that I taught it and took off with somebody else, stranded.

And it has my bank account numbers.

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Like this kind of thing.

You could really make this scenario horrible if you kept going.

Yeah. Well, we can throw in a benevolent example as well to counter it.

But it's kind of fun to think about where the human mind goes.

So first, I say we got to separate the real problems into fake problems.

And so there's a lot of science fiction scenarios I think are just not real.

And the ones that you decided as an example, that's not what's going to happen.

And I can explain why that's not what's going to happen.

So there's a set of fake ones.

The fake ones are the ones that just aren't, I think, technologically grounded.

They're not rational.

It's the AI is going to wake up and decide to kill us all.

It's going to develop the kind of agency where it's going to steal our money and our spouse and everything else, our kids.

That's not how it works.

And then there's also all these concerns, destruction of society concerns.

And this is misinformation, hate speech, deep fakes, all that stuff, which I don't think is actually a real problem.

And then people have a bunch of economic concerns around what's going to take all the jobs and all of those kinds of things.

We could talk about that.

I don't think that's actually the thing that happens.

But then there are two actual real concerns that I actually do very much agree with.

And one of them is what you said, which is bad people doing bad things.

And there's a whole set of things to be done inside there.

The big one is we should use AI to build defenses against all the bad things.

And so for example, there's a concern AI is going to make it easier for bad people to build pathogens, design pathogens in labs, which bad scientists can do today, but this is going to make it easier to do.

Well, obviously we should have the equivalent of an operation warp speed operating in perpetuity anyway.

But then we should use AI to build much better biodefenses.

And we should be using AI today to design, for example, full spectrum vaccines against every possible form of pathogen.

And so defensive mechanism hacking, you can use AI to build better defense tools.

And so you should have a whole new kind of security suite wrapped around you, wrapped around your data, wrapped around your money, where you're having AI repel attacks, disinformation, hate speech, deep fakes, all that stuff.

You should have an AI filter when you use the internet, where you shouldn't have to figure out whether it's really me or whether it's a made up thing.

You should have an AI assistant that's doing that for you.

Oh yeah, I mean, these little banners and cloaks that you see on social media, like this has been deemed misinformation.

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If you're me, you always click, because you're like, what's behind the scrim?
And then, or this is a, I don't always look at the, this image is gruesome type things.
Sometimes I just pass on that.
But if it's something that seems debatable, of course you look.
Well, and you should have an AI assistant with you when you're on the internet.
And you should be able to tell that AI assistant what you want.
So yes, I want the full, I want the full experience to show me everything.
I want it from a particular point of view.
And I don't want to hear from these other people who I don't like.
By the way, it's going to be my eight year old is using this.
I don't want anything that's going to cause a problem.
And I want everything filtered and AI based filters like that,
that you program and control are going to work much better and be much more honest
and straightforward and clear and so forth than what we have today.
So anyway, so basically what I want people to do is think,
every time you think of like a risk of how it can be used,
just think of like, okay, we can use it to build a countermeasure.
And the great thing about the countermeasures is they can not only offset AI risks,
they can offset other risks, right?
Because we already live in a world where pathogens are a problem, right?
We ought to have better vaccines.
Anyway, right?
We already live in a world where there's cyber hacking and cyber terrorism.
They're already live in a world where there is bad content on the internet.
And we have the ability now to build much better AI power tools to deal with all those things.
I also love the idea that AI physicians,
you know, getting decent healthcare in this country is so difficult.
Even for people who have means or insurance,
I mean, the number of phone calls and waits that you have to go through to get a referral
to see a specialist, I mean, it's absurd.
Like, I mean, the process is absurd.
I mean, it makes one partially or frankly ill
just to go through the process of having to do all that.
I don't know how anyone does it.
And granted, I don't have the highest degree of patience,
but I'm pretty patient and it drives me insane to even just get a remedial care.
But so I can think of a lot of benevolent uses of AI.
And I'm grateful that you're bringing this up here
and that you've tweeted about it in that thread.
Again, we'll refer people to that and that you're thinking about this.
I have to imagine that in your role as investor nowadays,
that you're also thinking about AI quite often in terms of all these roles.
And so does that mean that there are a lot of young people who are really bullish on AI

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and are going for it?

Yeah.

Okay. This is here to stay.

Yeah.

Okay.

Yeah.

Oh, yeah.

Big time.

Okay.

Unlike CRISPR, which is sort of in this liminal place where biotech companies

aren't sure if they should invest or not in CRISPR,

because it's unclear whether or not the governing bodies are going to allow gene editing.

Just like it was unclear 15 years ago if they were going to allow gene therapy,

but now we know they do allow gene therapy and immunotherapy.

Right.

Okay.

So there is a fight.

Having said that, there is a fight.

There's a fight happening in Washington right now

over exactly what should be legal or not legal.

And there's quite a bit of risk, I think,

attached to that fight right now, because there are some people in there

that are telling a very effective story to try to get people either outlaw AI

or specifically limited to a small number of big companies,

which I think is potentially disastrous.

By the way, the EU also is like super negative.

The EU has turned super negative on basically all new technology,

so they're moving to try to outlaw AI, which if they succeed.

Outlaw AI?

Yeah.

It's like flat out don't want it.

But that's like saying you're going to outlaw the internet.

I don't see how you can stop this trend.

And frankly, they're not a big fan of the internet either.

So I think they regret, especially the EU bureaucrats,

the people who run the EU in Brussels have a very negative view on a lot of modernity.

But what I'm hearing here calls to mind things that I've heard people like David Goggins say,

which is there's so many lazy, undisciplined people out there

that nowadays it's easier and easier to become exceptional.

I've heard him say something to that extent.

It almost sounds like there's so many countries that are just backing off of

particular technologies because it just sounds bad from the PR perspective

that it's creating great low hanging fruit opportunities for people to barge forward

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and countries to barge forward if they're willing to embrace this stuff.

It is.

But number one, you have to have a country that wants to do that.

And those exist in their countries like that.

And then the other is, look, they need to be able to withstand the attack from stronger countries that don't want them to do it.

So like EU, like the EU has nominal control over whatever it is, 27 or whatever member countries.

So even if you're like whatever, the Germans get all fired up about whatever, like Brussels can still in a lot of cases just flat out basically control them and tell them not to do it.

And then the US, look, we have a lot of control over a lot of the world.

But it sounds like we sit somewhere sort of in between.

Right now, people are developing AI technologies in US companies.

So it is happening.

Yeah, today it's happening.

But like I said, there's a set of people who are very focused in Washington right now about trying to either ban it outright or trying to, as I said, limit it to a small number of big companies.

And then look, China's got a whole different kind of take on this than we do.

And so they're of course going to allow it for sure,

but they're going to allow it in the ways that their system wants it to happen, which is much more for population control and implement authoritarianism.

And then of course, they are going to spread their technology and their vision of how society should run across the world.

Right.

So we're back in a Cold War dynamic like we were with the Soviet Union, where there are two different systems that have fundamentally different views on concepts like freedom and individual choice and freedom of speech and so on.

And we know where the Chinese stand.

We're still figuring out where we stand.

So I'm having a lot of schizophrenic, I'm having specifically a lot of schizophrenic conversations with people in DC right now where if I talk to them in China, it doesn't come up.

They just like hate tech.

They hate American tech companies.

They hate AI.

They hate social media.

They hate this. They hate that. They hate crypto.

They hate everything.

And they just want to punish and ban.

And they're just very, very negative.

But then if we have a conversation half hour later,

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when we talk about China, then the conversation is totally different.
Now we need a partnership between the US government and American tech companies to defeat China.
It's like the exact opposite discussion.
Is that fear or competitiveness?
On China specifically?
In terms of the US response in Washington, when you bring up these technologies, I'll lump CRISPR in there.
Things like CRISPR, nuclear power, AI.
It all sounds very cold, very dystopian to a lot of people.
And yet there are all these benevolent uses, as we've been talking about.
And then you say you raise the issue of China,
and then it sounds like this big dark cloud emerging.
And then all of a sudden, we need to galvanize and develop these technologies to counter their effort.
So is it fear of them or is it competitiveness or both?
Well, so without them in the picture, you just have this.
And basically, there's an old Bedouin saying,
as me against my brother, me and my brother against my cousin,
me and my brother, my cousin against the world.
It's actually, it's evolution in action.
If anything would think about it, is if there's no external threat,
then the conflict turns inward.
And then at that point, there's a big fight between specifically tech
and then I was to say generally politics.
And my interpretation of that fight is it's a fight for status.
It's fundamentally a fight for status and for power,
which is like if you're in politics, you like the status quo
of how power and status work in our society.
You don't want these new technologies to show up and change things
because change is bad, right?
Change threatens your position.
It threatens the respect that people have for you
and your control over things.
And so I think it's primarily a status fight,
which we could talk about.
But the China thing is just like a straight up geopolitical us versus them.
Like I said, it's like a Cold War scenario.
And look, 20 years ago, the prevailing view in Washington
was we need to be friends with China, right?
And we're going to be trading partners with China.
And yes, they're a totalitarian dictatorship,
but like if we trade with them over time, they'll become more democratic.

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In the last five to 10 years, it's become more and more clear that that's just not true.

And now there's a lot of people in both political parties in DC who very much regret that and want to change too much more of a sort of a Cold War footing.

Are you willing to comment on TikTok and technologies that emerge from China that are in widespread use within the US? Like how much you trust them or don't trust them?

I can go on record myself by saying that early on, when TikTok was released, we were told as Stanford faculty that we should not and could not have TikTok accounts, nor WeChat accounts.

So there are a lot of really bright Chinese tech entrepreneurs and engineers who are trying to do good things. I'm totally positive about that.

So I think that many of the people mean very well. But the Chinese have a specific system. And the system is very clear and unambiguous. And the system is everything in China is owned by the party. It's not even owned by the state. It's owned by the party. It's owned by the Chinese Communist Party. So the Chinese Communist Party owns everything and they control everything.

By the way, it's actually illegal to this day. It's illegal for a foreign investor to buy equity in a Chinese company. There's all these like basically legal machinations that people do to try to do something that's like economically equivalent to that, but it's actually still illegal to do that.

The Chinese have no intention. The Chinese Communist Party has no intention of letting foreigners own any of China. Like zero intention of that.

And they regularly move to make sure that that doesn't happen. So they own everything. They control everything.

So it was sorry to interrupt you, but people in China can invest in American companies essentially all the time.

Well, they can subject to US government constraints. There is a US government system that attempts to mediate that called SIFIUS.

And there are more and more limitations being put on that.

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But if you can get through that approval process,
then legally you can do that.
Whereas the same is not true with respect to China.
And so they just have a system.
And so if you're the CEO of a Chinese company,
it's not optional.
If you're the CEO of Byte Dancer or CEO of Tencent,
it's not optional.
Your relationship with the Chinese Communist Party is not optional.
It's required.
And what's required is you are a unit of the party
and you and your company do what the party says.
And when the party says we get full access to all user data in America,
you say yes.
When the party says you change the algorithm
to optimize to a certain social result, you say yes.
Right?
So it's just, it's whatever, it's whatever,
it's whatever Xi Jinping and his party cadres decide.
And that's what gets implemented.
If you're the CEO of a Chinese tech company,
there is a political officer assigned to you
who has an office down the hall.
And at any given time, he can come down the hall,
he can grab you out of your staff meeting or board meeting,
and he can take you down the hall,
and he can make you sit for hours and study Marxism
and Xi Jinping thought and quiz you on it and test you on it.
And you'd better pass the test.
Right?
So it's like a straight political control thing.
And then by the way, if you get crosswise with them, like, you know.
So when we see tech founders getting called up to Congress for,
you know, what looks like interrogation,
but it's probably pretty light interrogation
compared to what happens in other countries.
Yeah, it's state power.
They just have this view of top down state power
and they view it's that their system
and they view that it's necessary for lots of historical and moral reasons
that they've defined and that's how they run.
And then they've got a view that says how they want to propagate
that vision outside the country.

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And they have these programs like Belt and Road, right, that basically are intended to propagate kind of their vision worldwide. And so they are who they are. Like I will say that they don't lie about it, right? They're very straightforward. They give speeches, they write books, you can buy Xi Jinping speeches, he goes through the whole thing. They have their Tech 2025 plan, you know, it's like 10 years ago, it's their whole AI agenda, it's all in there. And is there a goal that, you know, in 200 years, 300 years that China is the superpower controlling everything? Well, yeah, or 20 years, 30 years, or two years, three years, yeah. Well, they got a shorter horizon. I mean, look, they're, yeah, they're, I mean, if you're, if you're, you know, and I don't know, everybody's a little bit like this, I guess, but yeah, if you're, they want to win. Well, the CRISPR in humans example that I gave earlier was interesting to me because first of all, I'm a neuroscientist and they could have edited any genes, but they chose to edit the genes involved in the attempt to create super memory babies. Which presumably would grow into super memory adults. And whether or not they succeeded in that isn't clear. Those babies are alive and presumably by now walking, talking as far as I know, whether or not they have super memories isn't clear, but China is clearly unafraid to augment biology in that way. And I believe that that's inevitable, that's going to happen elsewhere. Probably first for the treatment of disease, but at some point, I'm assuming people are going to augment biology to make smarter kids. I mean, people not always, but often will select mates based on the traits they would like their children to inherit. So this happens far more frequently than could be deemed bad because either that or people are bad because people do this all the time, selecting mates that have physical and psychological and cognitive traits that you would like your offspring to have.

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CRISPR is a more targeted approach, of course.

The reason I'm kind of giving this example and examples like it is that I feel like so much of the way that governments and the public react to technologies

is to just take that first glimpse and it just feels scary.

You think about the old Apple ad of the 1984 ad.

I mean, there was one very scary version of the personal computer and computers and robots taking over and everyone like automatons.

And then there was the Apple version

where it's all about creativity, love and peace.

And it had the pseudo psychedelic California thing going for it.

Again, great marketing seems to convert people's thinking about technology such that what was once viewed as very scary and dangerous and dystopian is like an oasis of opportunity.

So why are people so afraid of new technologies?

So this is the thing I've tried to understand for a long time because the history is so clear.

And the history basically is every new technology is greeted by what's called a moral panic.

And so it's basically this historical freakout

of some kind that causes people to basically predict the end of the world.

And you go back in time and actually this historical effect,

it happens even in things now where you just go back and it's ludicrous.

And so you mentioned earlier the satanic panic of the 80s

and the concern around heavy metal music.

Before that, there was a freakout around comic books in the 50s.

There was a freakout around jazz music in the 20s and 30s.

It's devil music.

There was a freakout.

The arrival of bicycles caused a moral panic in the 1860s.

Bicycles.

Bicycles.

Yeah.

So there was this thing at the time.

So bicycles were the first very easy to use personal transportation

thing that basically let kids travel between towns quickly without any overhead.

You have to take care of a horse, just jump the bike and go.

And so there was a historical panic specifically around at the time,

young women who for the first time were able to venture outside the confines of the town to maybe go have a boyfriend in another town.

And so the magazines at the time ran all these stories on this phenomenon, medical phenomenon called bicycle face.

And the idea of bicycle face was the exertion caused by pedaling a bicycle would cause your face,

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your face would grimace.

And then if you were on the bicycle for too long, your face would lock into place.

Sorry, I'm just kidding.

Right.

And then you would be unattractive and therefore, of course, unable to then get married.

Cars.

There was a moral panic around red flag laws.

There are all these laws that created the automobile free people out.

So there are all these laws in the early days of the automobile.

In a lot of places you had to, you would take a ride in automobile.

And automobiles, they broke down all the time.

So it would be only rich people had automobiles.

So it'd be you and your mechanic in the car, right?

From when it broke down.

And then you had to hire another guy to walk 200 yards in front of the car with a red flag.

And he had to wave the red flag.

And so you could only drive as fast as he could walk,

as the red flag was to warn people that the car was coming.

And then I think it was Pennsylvania.

They had the most draconian version, which was,

they were very worried about the car scaring the horses.

And so there was a law that said, if you saw a horse coming, you need to stop the car.

You had to disassemble the car.

And you had to hide the pieces of the car behind the nearest hay bale.

Wait for the horse to go by.

And then you could put your car back together.

So anyways, this example is electric lighting.

There was a panic around like whether it was going to come like completely ruined.

This is going to completely ruin the romance of the dark.

And it was going to cause a whole new kind of terrible civilization where everything is always brightly lit.

So there's just all these examples.

And so it's like, OK, what on earth is happening that this is always what happens?

And so I finally found this book that I think has a good model for it.

The book is called Men, Machines, and Modern Times.

And it's written by this MIT professor 60 years ago.

So it predates the internet.

But it uses a lot of historical examples.

And what he says basically is he says there's actually a three-stage response.

There's a three-stage societal response to new technologies.

It's very predictable.

He said stage one is basically just denial, just ignore.

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Like we just don't pay attention to this.
Nobody takes it seriously.
We just like there's just a blackout on the whole topic.
He says stage one, stage two is rational counterargument.
So stage two is where you line up all the different reasons why this can't possibly work.
It can't possibly ever get cheap or this, that, not fast enough or whatever the thing is.
And then he says stage three, he says is when the name calling begins.
So he says stage three is like when, right?
So when they've failed to ignore it and they've failed to argue society out of it, they move to the name calling.
And what's the name calling?
The name calling is this is moral panic.
This is evil.
This is terrible.
This is awful.
This is going to destroy everything.
Like don't you understand?
Like all this is just like this is horrifying.
And you, the person working on it are being reckless and evil and all this stuff.
And you must be stopped.
And he said the reason for that is because basically fundamentally what these things are is they're a war over status.
It's a war over status and therefore a war over power.
And then of course ultimately money, but the status, human status is the thing.
And so, and because what he says is what is the societal impact of a new technology?
The societal impact of a new technology is at reorder status in the society.
So the people who are specialists in that technology become high status.
And the people who are specialists in the previous way of doing things become low status.
And generally people don't adapt, right?
Generally, if you're the kind of person who has high status because you're an evolved adaptation to an existing technology, you're probably not the kind of person that's going to enthusiastically try to replant yourself onto a new technology.
And so this is like every politician who's just like in a complete state of panic about social media.
Like why are they so freaked out about social medias?
Because they all know that the whole nature of modern politics has changed.
The entire battery of techniques that you use to get elected before social media are now obsolete.
Obviously the best new politicians of the future are going to be 100% creations of social media.
And podcasts.
And podcasts.
And we're seeing this now as we head towards the next presidential election that podcasts

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clearly are going to be featured very heavily in that next election.
Because long form content is a whole different landscape.
So this is exactly, this is so funny.
So Rogan, your Rogan's had like what?
Like he's had like Bernie, he's had like Tulsi.
He's had like a whole series of things.
RSK most recently.
And that's created a lot of controversy.
A lot of controversy.
But also my understanding, I'm sure he's invited everybody.
I'm sure he, I'm sure he'd love to have Biden on.
I'm sure he'd love to have Trump on.
I'm sure he'd love to ask him.
I mean, I think that, you know, every podcaster has their own ethos around who they invite on and why and how.
So I certainly can't speak for him.
But, but I have to imagine that any opportunity to have true long form discourse that would allow people to really understand people's positions on things.
I have to imagine that he would be in favor of that sort of thing.
Yeah.
Or somebody else would.
Right.
You know, some, some other top podcaster and totally would.
Right.
And so there's a, if my point, exactly, I totally agree with you.
But my point is, if you're a politician, if you're, if you're a, let's say a legacy politician, right, you have the option of embracing the new technology.
You can do it anytime you want, right?
But you don't.
They're not.
They won't.
Like they won't do it.
And why won't they do it?
Well, okay.
It's first of all, they want to ignore it.
Right.
They want to pretend that things aren't changing.
You know, second is they want like to have rational counterarguments for like why the existing campaign system works the way that it does in this and that and the existing media networks.
And like, here's how you'd like to do things.
And here's how you give speeches.
And here's the clothes you wear in the tie and the thing in the pocket square.
And like you've got your whole system.

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It's how you succeeded was coming up to that system.
So you've got all your arguments as to why that won't work anymore.
And then, and then we've now proceeded to the, the, the name calling phase,
which is now it's evil, right?
Now it's evil for somebody to show up in, you know, on a, on a, on a stream,
God forbid for three hours and actually say what they think, right?
It's going to destroy society, right?
So it's exactly right.
It's like, it's, it's a, it's a classic example of this pattern.
And anyway, so Morrison says in the book, basically, this is the forever pattern.
Like this will never change.
This will, this is one of those things where you can learn about it and still nothing.
The entire world could learn about this and still nothing changes because at the end of the day,
it's not, it has, it's not the tech.
That's the question.
It's the, it's the reordering of status.
I have a lot of thoughts about the podcast component.
I'll just say this because I want to get back to the topic of innovation of technology.
But on a long form podcast, there's no safe zone.
You know, the person can get up and walk out, but if the person interviewing them and
certainly Joe is the best of the very best, if not the most skilled podcaster in the entire universe
at continuing to press people on specific topics when they're, you know,
trying to bob and weave and wriggle, wriggle out.
He'll just keep, you know, either drilling or alter the question somewhat in a way that
forces them to finally come up with an answer of some sort.
And I think that probably puts certain people's cortisol levels through the roof,
such that they just would never go on there.
I think there's another deeper question also or another question along with that,
which is how many people actually have something to say?
Real substance.
Right.
Like how many people can actually talk in a way that's actually interesting
to anybody else for any length of time?
Like how much substance is there really?
And like a lot of historical politics was to be able to manufacture a facade where you
honestly, as far as like, you can't tell like how deep the thoughts are.
Like even if they have deep thoughts, like it's kept away from you,
they would certainly never cop to it.
That's going to be an interesting next.
What is it about, you know, 20 months or so?
Yeah, yeah, yeah, yeah.
To the next lecture.
Panic in the name calling.

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I've already started.

So yeah, it's going to be.

Yeah, I was going to say this list of three things, denial, you know, the counterargument and name calling.

It seems like with AI, it's already just jumped to numbers two and three.

Yes, correct.

We're already at two and three and it's kind of leaning three.

Yes.

Yeah.

Yeah, that's correct.

Well, so it is unusual just because it had, so new technologies that take off, they almost always have a prehistory.

They almost always have a 30 or 40 year history where people tried and failed to get them to work before they took off.

AI has an 80 year prehistory, so it has a very long one.

And then it just, it all of a sudden started to work dramatically well, like seemingly overnight.

And so it went from basically it, as far as most people were concerned, it went from it doesn't work at all to it works incredibly well in one step.

And that almost never happens.

And so I actually think that's exactly what's happening.

I think it's actually speedrunning this progression just because if you use mid-journey or you use GPT or any of these things for five minutes, you're just like, wow.

But obviously this thing is going to be like, obviously in my life, this is going to be the best thing ever.

Like this is amazing.

There's all these ways that I can use it.

And then it, and then therefore immediately you're like, oh my God, this is going to transform everything.

Therefore, step three.

Right, straight to the name calling.

In the face of all this, there are innovators out there.

Maybe they are aware they are innovators.

Maybe they are already starting companies or maybe they are just some young or older person who has these five traits in abundance or doesn't, but knows somebody who does and is partnering with them in some sort of idea.

And you have an amazing track record at identifying these people,

I think in part because you have those same traits yourself.

I've heard you say the following.

The world is a very malleable place.

If you know what you want and you go for it with maximum energy and drive and passion, the world will often reconfigure itself around you much more quickly and easily than you would think.

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That's a remarkable quote because it says at least two things to me.
One is that you have a very clear understanding of the inner workings of these great innovators.
We talked a little bit about that earlier, these five traits, etc.
But that also you have an intense understanding of the world landscape
and the way that we've been talking about it for the last hour or so
is that it is a really intense and kind of oppressive landscape.
You've got countries and organizations and the elites and journalists that are trying to
not necessarily trying but are suppressing the innovation process.
I mean that's sort of the picture that I'm getting.
So it's like we're trying to innovate inside of a vice that's getting progressively tighter.
And yet this quote argues that it is the person, the boy or girl, man or woman who says,
well, you know what, that all might be true.
But my view of the world is the way the world's going to bend.
Or I'm going to create a dent in that vice that allows me to exist the way that I want.
Or you know what, I'm actually going to uncurl the vice the other direction.
And so I'm at once picking up a sort of pessimistic glass half empty view of the world
as well as a glass half full view.
And so tell me about that.
And if you could tell us about that from the perspective of someone listening who is thinking,
you know, I've got an idea and I know it's a really good one because I just know.
I might not have the confidence of extrinsic reward yet, but I just know.
There's a seed of something.
What does it take to foster that?
And how do we foster real innovation in the landscape that we're talking about?
Yeah, so part is I think you just one of the ways to square it is I think you as the innovator
need to be signed up to fight the fight.
Right.
So and again, this is where like the fictional portrayals of startups, I think,
take people off course or even scientists or whatever.
Because when those great success stories, they get kind of prettified after the fact.
And they get made to be like cute and fun.
And it's like, yeah, no, like if you talk to anybody who actually did any of these things
like no, there was like these things are always just like brutal exercises and just like sheer
willpower and fighting, you know, fighting fighting forces that are trying to get you.
So so so part of it is you just you have to be signed up for the fight.
And this kind of goes to the conscientiousness thing we're talking about.
We also my partner Ben uses the term courage a lot, right,
which is some combination of like just stubbornness, but coupled with like a willingness to take pain
and not stop and, you know, have people think very bad things of you for a long time
until it turns out, you know, you hopefully prove yourself prove yourself correct.
And so you have to want to do that.
Like it's like it's a kind of these are it's a it's a context sport.
Like it's these aren't easy roads, right?

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It's a context sport.

So you have to be signed up for the fight.

The advantage that you have as an innovator is that at the end of the day, the truth actually matters.

And all the arguments in the world, the classic Victor Hugo quote is there's nothing more powerful in the world than an idea whose time has come, right?

Like if it's real, right?

And this is just pure substance.

If the thing is real, if the idea is real, like if it's a legitimately good scientific discovery, you know, about how the nature works, if it's a new invention, if it's a new work of art, and if it's real, you know, then you do at the end of the day, you have that on your side.

And all of the people who are fighting you and arguing with you and telling you, no, they don't have that on their side, right?

They're showing up with some other thing, and they're like, my thing is better than your thing.

Like that's not the main problem, right?

The main problem is like, I have a thing.

I'm convinced everybody else is telling me it's stupid, wrong.

It should be illegal, whatever the thing is.

But at the end of the day, I still have the thing, right?

And so at the end of the day, like, yeah, the truth really matters.

The substance really matters.

If it's real, it's really, I'll give you an example.

It's really hard historically to find an example of a new technology that came into the world that was then pulled back.

And we could, you know, nuclear is maybe an example of that.

But even still, there are still nuclear plants like running today.

That still exists.

You know, I would say the same thing as scientific.

At least I've made you this.

I don't know any scientific discovery that was made.

And then people like, I know there are areas of science that are not politically correct to talk about today.

But every scientist knows the truth.

The truth is still the truth.

I mean, even the geneticists in the Soviet Union who were forced to buy in Lysenkoism like knew the whole time that it was wrong.

Like that I'm completely convinced of.

Yeah, they couldn't delude themselves, especially because the basic training that one gets in any field establishes some core truths upon which even the crazy ideas have to rest.

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And if they don't, as you pointed out, things fall to pieces.

I would say that even the technologies that did not pan out, and in some cases were disastrous, but that were great ideas at the beginning are starting to pan out.

So the example I'll give is that most people are aware of the Elizabeth Holmes Theranos debacle to put it lightly, analyzing what's in a single drop of blood as a way to analyze hormones and diseases and antibodies, et cetera.

I mean, that's a great idea.

It's a terrific idea, as opposed to having a flimbotomist come to your house or you have to go in and get tapped and then pulling vials and the whole thing.

There's now a company born out of Stanford that is doing exactly what she sought to do, except that at least the courts ruled that she fudged the thing, and that's why she's in jail right now.

But the idea of getting a wide array of markers from a single drop of blood is an absolutely spectacular idea.

The biggest challenge that company is going to confront is the idea that it's just the next Theranos.

But if they've got the thing and they're not fudging it, as it apparently Theranos was, I think everything will work out.

I'll have Victor Hugo.

Yeah, exactly.

Yeah.

Yeah, because who wants to go back?

Like, if they get to the work, if it's real, it's going to be, this is the thing.

The opponents, the opponents, they're not bringing their own ideas.

They're not bringing their, oh, my idea is better than yours.

Like, that's not what's happening.

They're bringing the silence or counter-argument or name-calling.

Well, this is why I think people who need to be loved probably stand a reduced chance of success.

And maybe that's also why having people close to you that do love you and allowing that to be sufficient can be very beneficial.

This gets back to the idea of partnership and family around innovators.

Because if you feel filled up by those people local to you in your home, then you don't need people on the internet saying nice things about you or your ideas because you're good and you can forge forward.

Another question about innovation is the teams that you assemble around you.

And you've talked before about a sort of small squadron model, sort of David and Goliath examples as well, where a small group of individuals can create a technology that frankly outdoes what a giant like Facebook might be doing or what any other large company might be doing.

There are a lot of theories as to why that would happen, but I know you have some unique theories.

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Why do you think small groups can defeat large organizations?
So the conventional explanation is, I think, correct.
And it's just that large organizations have a lot of advantages,
but they just have a very hard time actually executing anything because of all the overhead.
So large organizations have combinatorial communication overhead.
The number of people who have to be consulted, who have to agree on things,
gets to be staggering.
The amount of time it takes to schedule the meeting gets to be staggering.
You get these really big companies and they have some issue they're dealing with.
And it takes like a month to schedule the pre-meeting to plan for the meeting,
which is going to happen two months later,
which is then going to result in a post-meeting,
which will then result in a board presentation,
which will then result in a planning offsite.
I thought academia was bad, but what you're describing is giving me highs.
Kafka was a documentary.
Yeah, like this is, yeah.
So it's just like these are, I mean, look, you'd have these organizations,
at 100,000 people are more like you're more of a nation-state than a company.
And you've got all these competing internal,
you know, it's the Bedouin thing I was saying before,
you've got all these internal, like at most big companies,
your internal enemies are like way more dangerous to you than anybody on the outside.
Can you elaborate on that?
Oh, yeah, yeah.
You're a big company, the big competition is for the next promotion, right?
And the enemy for the next promotion is the next executive over.
In your company, like that's your enemy.
The other, the competitor on the outside is like an abstraction,
like maybe they'll matter someday, whatever.
I got to beat that guy inside my own company, right?
And so the internal warfare is at least as intense as the external warfare.
And so, yeah, so it's just, I mean, this is just all the, you know,
it's iron law of all these big bureaucracies and how they function.
So if a big bureaucracy ever does anything productive,
I think it's like a miracle, like it's like a miracle to the point
where there should be like a celebration.
There should be parties, there should be like ticker tape parades
for like big large organizations that actually do things.
Like that's great because it's like so rare, it doesn't happen very often.
So anyway, so that's the conventional explanation,
whereas small companies, small teams, you know, there's a lot that they can't do
because they can't, you know, they're not operating at scale

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and they don't have global coverage and all these kind of, you know, they don't have the resources and so forth.

But at least they can move quickly, right?

They can organize fast, they can have, you know, if there's an issue today, they can have a meeting today, they can solve the issue today, right?

And everybody they need to solve the issue is in the room today.

And so they can just move a lot faster.

I think that's part of it, but I think there's another deeper thing underneath that that people really don't like to talk about

that takes us back full circle to where we started,

which is just the sheer number of people in the world

who are capable of doing new things is just a very small set of people.

And so you're not going to have 100 of them in a company

or a thousand or 10,000, you're going to have three, eight or 10, maybe.

And some of them are flying too close to the sun.

Some of them are blowing themselves up, right?

Some of them are.

So I actually first learned this, so my first actual job was at IBM when it was, and when IBM was still on top of the world right before it caved in in the early 90s.

And so when I was there, it was 440,000 employees,

which, and again, if you inflation adjust like today for that same size of business, inflation adjusted, market size adjusted, it would be,

it's equivalent today of like a two or three million person organization.

It was like a, it was a nation state.

There were 6,000 people in my division, you know,

we were next door to another building that had another 6,000 people in another division.

So you just, you could work there for years and never meet anybody who didn't work for IBM.

The first half of every meeting was just IBMers introducing themselves to each other.

Like it was just mind boggling and the level of complexity.

But they were so powerful that they had at four years before I got there in 1985,

they were 80% of the market capitalization of the entire tech industry, right?

So they were at a level of dominance that even, you know,

Google or Apple today is not even close to right at the time.

So that's how powerful they were.

And so they had a system and it worked really well for like 50 years.

They had a system which was, most of the employees in the company were expected to basically rigid follow rules.

So they dressed the same, they acted the same,

they did everything out of the playbook, you know, they were trained very specifically.

But they had this category of people they called Wild Ducks.

And this was an idea that the founder Thomas Watson came up with, Wild Ducks.

And the Wild Ducks were, they often had the formal title of an IBM Fellow

and they were the people who could make new things.

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And there were eight of them.
And they got to break all the rules and they got to invent new products.
They got to go off and work on something new.
They didn't have to report back.
They got to pull people off of other projects to work with them.
They got, you know, budget when they needed it.
They reported directly to the CEO.
They got whenever they needed, he supported them in doing it.
And they were glass breakers and, you know, they showed,
the one in Austin at the time was this guy Andy Heller
and he would show up and, you know, jeans and cowboy boots.
And, you know, amongst an ocean of men in, you know, blue suits, white shirts, red ties,
and put his cowboy boots up on the table.
And it was fine for Andy Heller to do that.
And it was not fine for you to do that, right?
And so they very specifically identified.
We have an, we have an, we have like a, like,
almost like an aristocratic class within our company
that gets to play by different rules.
Now, the expectation is they deliver, right?
They, their job is to invent the next breakthrough product.
But we, IBM management, know that the 6,000 person division
is not going to invent the next product.
We know it's going to be crazy Andy Heller and his, in his cowboy boots.
And so I was always like very impressed.
Like, and again, like ultimately IBM had its issues,
but like that model worked for 50 years, right?
Like worked incredibly well.
And I think that's basically the model that works.
And so, but it's a paradox, right?
Which is like, how do you have a large bureaucratic regimented organization,
whether it's academia or government or business or anything,
that has all these rural followers in it
and all these people who are jealous of their status
and don't want things to change,
but then still have that spark of creativity.
I would say mostly it's impossible.
Mostly it just doesn't happen.
Those people get driven out, right?
And in tech, what happens is those people get driven out
because we will fund them.
These are the people we fund, right?
As you say, I, I, these are the funds.

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I gather that you are in the business of finding and funding the Wild Ducks.

The Wild Ducks, that's exactly right.

And actually, this is actually a close the, close the loop.

This is actually, I think the simplest explanation

for why IBM ultimately caved in and then HP sort of in the 80s also.

Okay. You know, these, IBM and HP kind of were monolith, there were these incredible monolithic, incredible companies for 40 or 50 years.

And then they kind of both caved in in the 80s and 90s.

And I actually think it was the emergence of venture capital.

It was the emergence of a parallel funding system

where the Wild Ducks or in HP's case,

their, their super start technical people

could actually leave and start their own companies.

And again, it goes back to the university discussion we're having is like, this is what doesn't exist at the university level.

This certainly does not exist at the government level.

And until recently in media, it didn't exist

until there's this thing that we call podcast.

Exactly. Right. Exactly. Right.

We clearly have picked up some, some momentum

and I would hope that these other Wild Duck models

who will, will move quickly.

Yeah. But the one thing you know, right?

And you know this, like the one thing you know

is the people on the other side are going to be mad as hell.

Yeah. They're going to, well, I think they're past denial.

The counter arguments continue.

The name calling is prolific.

The name calling is fully underway.

Yeah. Yes.

Well, Mark, we've covered a lot of topics, but as with every time I talk to you, I learn, oh, so very much.

So I'm so grateful for you taking the time out of your schedule to talk about all of these topics in depth with us.

You know, I'd be remiss if I didn't say that it is clear to me now that you are hyper realistic about the landscape.

But you were also intensely optimistic about the existence of Wild Ducks.

And those around them that support them and that are necessary for the implementation of their ideas at some point.

And that also you have a real rebel inside you.

So that is oh, so welcome on this podcast.

And it's oh, so needed in these times and every time.

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So on behalf of myself and the rest of us here at the podcast and especially the listeners, thank you so much.

Thanks for having me.

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Again, it's Huberman Lab on all social media platforms.

Thank you once again for joining me for today's discussion with Mark Andreessen.

And last but certainly not least, thank you for your interest in science.