[00:00:07]
LAUREN: Hello again, and welcome to this episode of the "Talks at Google" podcast, where great minds meet. I'm Lauren, bringing you this week's episode with author Yuval Harari. "Talks at Google" brings the world's most influential thinkers, creators, makers, and doers all to one place. Every episode of this podcast is taken from a video that can be seen at Youtube.com/TalksAtGoogle. Yuval Noah Harari, macro-historian, professor, best-selling author of "Sapiens" and "Homo Deus," and one of the world's most innovative and exciting thinkers discusses his newest work, "21 Lessons for the 21st Century." Described as a truly mind-expanding journey through today's most pressing issues, "21 Lessons for the 21st Century" reminds us to maintain our collective focus in the midst of dizzying and disorienting change. In conversation with Googler Wilson White, here is Yuval Noah Harari. "21 lessons for the 21st century."

[00:01:15]
YUVAL HARARI: Hello. WILSON WHITE: Thank you, Professor, for joining us. Before getting started, I have to say that when the announcement went out across Google about this talk, I got several emails from many Googlers around the world who told me that they had either read or are currently reading one or multiple of your books. So, if you are contemplating a fourth book, maybe on the afterlife, no spoilers during this conversation. I want to start with maybe some of the themes in both your current book, "21 Lessons," as well as "Homo Deus." Because I'm the father of two young kids. I have two daughters, a 5-year-old and a 3-year-old, and the future that you paint in "Homo Deus" is interesting.

[00:02:16]
So I'd like to ask you, what should I be teaching my daughters?

YUVAL HARARI: That nobody knows how the world would look like in 2050, except

that it will be very different from today. So the most important things to emphasize in education are things like emotional intelligence and mental stability because the one thing that they will need for sure is the ability to reinvent themselves repeatedly throughout their lives. It's really the first time in history that we don't really know what particular skills to teach young people because we just don't know in what kind of world they will be living. But we do know they will have to reinvent themselves. And especially if you think about something like the job market, maybe the greatest problem they will face will be psychological. Because, at least beyond a certain age, it's very, very difficult for people to reinvent themselves.

[00:03:20]
So we kind of need to build identities. I mean, if previously, if traditionally, people built identities like stone houses, with very deep foundations, now it's make more sense to build identities like tents that you can fold and move elsewhere. Because we don't know where you will have to move, but you will have to move.

WILSON WHITE: You will have to move. So I may have to go back to school now to learn these things and I can teach the next generation of humans here. In "21 Lessons for the 21st Century," you tackle several themes that even we at Google, as a company who are on the leading edge of technology and how technology is being deployed in society, we wrestle with some of the same issues. Tell me a bit about your thoughts on why democracy is in crisis. That's a theme in the current book, and I want to explore that a bit.

[00:04:20]
Why you think liberal democracy, as we knew it, is currently in crisis.

YUVAL HARARI: Well, the entire liberal democratic system is built on philosophical ideas we've inherited from

the 18th century, especially the idea of free will, which underlies the basic models of the liberal worldview. Like the voter knows best. The customer is always right. Beauty is in the eye of the beholder. Follow your heart. Do what feels good. All these liberal mottos, which are the foundation of our political and economic system, they assume that the ultimate authority is the free choices of individuals. I mean, there are of course all kinds of limitations and boundary cases and so forth, but when push comes to shove--For instance, in the economic field, then corporations will tend to retreat behind this last line of defense that this is what the customers want.

[00:05:23]
The customer is always right. If the customers want it, it can't be wrong. Who are you to tell the customers that they are wrong? Now, of course, there are many exceptions, but this is the basics of the free market. This is the first and last thing you learn. The customer is always right. So the ultimate authority in the economic field is the desires of the customers. And this is really based on a philosophical and metaphysical view about free will. The desires of the customer, they emanate. They represent the free will of human beings, which is the highest authority in the universe, and, therefore, we must abide by them. And it's the same in the political field where the voter knows best. And this was okay for the last two or three centuries, because even though free will was always a myth and not a scientific reality--

[00:06:22]
I mean, science knows of only two kinds of processes in nature. It knows about deterministic properties, and it knows about random processes. And their combination results in probabilistic processes. But randomness and probability, they are not freedom. They mean that I can't predict your actions with 100% accuracy because there is randomness. But a random robot is not free. If you connect a robot, say, to

uranium--a piece of uranium, and the decisions of the robot is determined by random processes of the disintegration of uranium atoms so you will never be able to predict exactly what this robot will do, but this is not freedom. This is just randomness. Now, this was always true from a scientific perspective. Humans, certainly they have a will, they make decisions, they make choices, but they are not free to choose their will.

[00:07:22]
Their choices are not independent. They depend on a million factors--genetic and hormonal and social and so forth, which we don't choose. Now, up till now in history, the humans were so complicated that from a practical perspective, it still made sense to believe in free will, 'cause nobody could understand you better than you understand yourself. You had this inner realm of desires and thoughts and feelings which you had privileged access to this inner realm.

WILSON WHITE: Yeah. But that hasn't changed today, right? That access still--

YUVAL HARARI: It has changed. There is no longer the privileged access now belongs to corporations like Google. They can have access to things happening, ultimately, inside my body and brain which I don't know about.

[00:08:24]
There is somebody out there--and not just one, all kinds of corporations and governments, that maybe not today, maybe in 5 years, 10 years, 20 years, they will have privileged access to what's happening inside me. More privileged than my access. They could understand what is happening in my brain better than I understand it. They will never be perfect.

WILSON WHITE: Right, but you will as a free person, right? Like, you will have delegated that access or that ability to

this corporation or this machine or this--

YUVAL HARARI: No. You don't have to give them permission. I mean, in some countries, maybe you have no choice at all, but even in a democracy like the United States, a lot of the information that enables an external entity to hack you, nobody asks you whether you want to give it away or not. Now, at present, most of the data that is being collected on humans is still from the skin outwards.

[00:09:29]
We haven't seen nothing yet. We are still just at the tip of this revolution, because at present, whether it's Google and Facebook and Amazon or whether it's the government or whatever, they are trying to understand people mainly on the basis of what I search, what I buy, where I go, who I meet. It's all external. The really big revolution, which is coming very quickly, will be when the AI revolution and machine learning and all that, the infotech revolution meets and merges with the biotech revolution and goes under the skin. When biometric sensors or even external devices--Now we are developing the ability, for example, to know the blood pressure of individuals just by looking at them. You don't need to put a sensor on a person. Just by looking at the face, you can tell what is the blood pressure of the individual.

[00:10:29]
And by analyzing tiny movements in the eyes, in the mouth, you can tell all kinds of things from the current mood of the person. Are you angry? Are you bored? To things like sexual orientation. So we are talking about a world in which humans are no longer a black box. Nobody really understands what happens inside, so we say, "Okay, free will." No, the box is open. And it's open to others, certain others, more than it is open to you. You don't understand what's happening your brain, but some corporation or government or organization could understand that.

WILSON WHITE: And that's a theme that you explore in "Homo Deus" pretty--

YUVAL HARARI: Both in "Homo Deus" and in "21 Lessons." This is like--maybe the most important thing to understand is that this is really happening, and at present, almost all the attention goes to the AI. Like, now I've been on a two weeks' tour of the U.S. for the publication of the book.

[00:11:30]
Everybody wants to speak about AI. Like, AI--The previous book, "Homo Deus," came out and nobody cared about AI. Two years later it's, like, everywhere.

WILSON WHITE: It's the new hot thing.

YUVAL HARARI: Yeah. And I try to emphasize it's not AI. The really important thing is actually the other side. It's the biotech. It's the combination. It's only with the help of biology that AI becomes really revolutionary, because just a thought experiment, let's say we have the best-- the most developed AI in the world. But humans were not animals, were not biochemical algorithms, but they were something like transcendent souls that make decisions through free will. In such a world, AI would not have mattered much because AI, in such a world, could never have replaced teachers and lawyers and doctors. You could not even build self-driving cars in such a world.

[00:12:30]
Because to put a self-driving car on the road, you need biology, not just computers. You need to understand humans. For example, if somebody is approaching the road, the car needs to tell, is this an 8-year-old, an 18-year-old, or an 80-year-old? And needs to understand the different behaviors of a human child, a human teenager, and a human adult. And this is biology. And, similarly, to have really effective self-driving taxis, you need the car to understand a lot of things about human psychology--the psychology of the passengers coming in, what they want and

so forth. So if you take the biotech out of the equation, AI by itself--

WILSON WHITE: Some of the value goes away.

YUVAL HARARI: Won't really go very far.

WILSON WHITE: So I want push you there, 'cause I think it's easy to arrive at a dystopian view of what that world would look like when bio and AI and cognitive abilities of machines when they meet, like, how that can end up, right?

[00:13:40]
And we see that in Hollywood. That dystopian view is well documented. But I want to explore with you, like, what are some of the benefits of that combination? And how can that lead to an alternative worldview than what's explored more deeply in "Homo Deus."

YUVAL HARARI: Well, it should be emphasized that there are enormous benefits, otherwise there would be no temptation. If it was only bad, nobody would do it. Google wouldn't research it. Nobody would invest in it. And it should also be emphasized that technology is never deterministic. You can build either paradise or hell with these technologies. They are not just--they don't have just one type of usage. And as a historian and as a social critic and maybe philosopher, I tend to focus more on the dangerous scenarios simply because, for obvious reasons, the entrepreneurs and corporations and the scientists and engineers who are developing these technologies, they naturally tend to focus on the positive scenarios--on all the good it can do.

[00:14:50]
But, yes, I definitely acknowledge it can do a tremendous amount of good to humanity. To take the example of the self-driving cars, so at present, about 1.25 million people are killed each year

in traffic accidents. More than 90%
of these accidents are because of human
errors. If we can replace humans with
self-driving cars, it's not that we'll
have no car accidents, that's impossible,
but we'll probably save a million lives
every year. So this is a tremendous thing.
And, similarly, the combination of being
able to understand what's happening inside
my body, this also implies that you can
provide people with the best health care
in history. You can, for example, diagnose
diseases long before the person
understands that there is something wrong.
At present, the human mind, or human
awareness, is still a very critical
junction in health care.

[00:15:53]
Like, if something happens inside my body
and I don't know about it, I won't go to
the doctor. So if something like, I don't
know, cancer is now spreading in my liver
and I still don't feel anything, I won't
to go to the doctor. I won't know about
it. Only when I start feeling pain and nausea and
all kinds of things I can't explain--
So, after some time, I go to the doctor,
he does all kinds of tests, and, finally,
they discover, oh, something is wrong. And
very often it's--by that time, it's very
expensive and painful--

WILSON WHITE: Too late.

YUVAL HARARI: Not necessarily too late,
but expensive and painful to take care of
it. If I could have an AI doctor
monitoring my body 24 hours a day with
biometric sensors and so forth, it could discover this long
before I feel anything and at a stage when
it's still very cheap and easy and
painless to cure it.

[00:16:55]
So this is wonderful.

WILSON WHITE: But in that world it's an AI
doctor and not a human doctor, and I think
one of the potential outcomes that you
warn about is AI or machines or that

combination of bio and AI replacing us--
replacing us as humans. And I'd like to
think that one thing that makes us human
is having meaning in life or having a
purpose for living. That's kind of a
unique thing that humans have. And I don't
think it's something that we would readily
want to give up, right? So as this
technology is evolving and we're
developing it, it's likely something that
will bake in, this need to have
meaning and purpose in life. You talk
about in "21 Lessons" this notion that God
is dead. Or is God back? And the role that
religion may play in how we progress as
humans.

[00:17:59]
Is there a place for that notion of God or
religion to capture and secure like this
notion of meaning in life and purpose in
life?

YUVAL HARARI: Well, it all depends on the
definitions. I mean, there are many kinds
of gods and people understand probably
different things by the word "religion."
If you think about God--So, usually
people have very--two extremely different
gods in mind when they say the word God. One God is the cosmic
mystery. We don't understand why there is
something rather than the nothing, why the
Big Bang happened. What is human
consciousness? There are many things we
don't understand about the world. And some
people choose to call these mysteries by
the name of God. God is the reason there
is something rather than nothing. God is
behind human consciousness. But the most
characteristic thing of that God is that
we know absolutely nothing about Him, Her,
It, They.

[00:19:02]
There is nothing concrete. It's a mystery.
And this is kind of the God we talk about
when late at night in the desert we sit
around the campfire and we think about the
meaning of life. That's one kind of God. I
have no problem at all with this God. I
like it very much. Then there is
another God, which is the petty lawgiver.
The chief characteristic of this God--we

know a lot of extremely
concrete things about that God. We know
what He thinks about female dress code,
what kind of dresses He likes women to
wear, we know what He thinks about
sexuality, we know what He thinks about
food, about politics--all these tiny
little things. And this is the God people
talk about when they stand around a
burning heretic.

[00:19:59]
We burn you because you did something that
this God--we know everything about this
God, and He didn't--
He doesn't like it that you do this or
that we burn you. And, you know, it's like
a magic trick that when you come and talk
about God--so how do you know that God
exists and so forth? People would say,
well, the Big Bang and human consciousness
and science can't explain this and science
can't explain that--and this is true.
And then, like a magician swapping one
card for another, they will take out the
mystery God and place the petty lawgiver,
and you end up with something strange
like, "because we don't understand the Big
Bang, women must dress with long sleeves
and men shouldn't have sex together." And
what's the connection? I mean, how do you
get from here to there. So I prefer to use
different terms here. And it's the same
with religion. People understand very
different things with this word.

[00:21:01]
I tend to separate religions from
spirituality. Spirituality is about
questions; religion is about answers.
Spirituality is when you have some big question
about life, like what is humanity?
What is the good? Who am I? These kinds of questions.

WILSON WHITE: My purpose in life. Like,
why am I here?

YUVAL HARARI: Yeah. What do I do in life?
And this is kind of--and you go on a
quest looking deeply into these questions,
and you're willing to go after these
questions wherever they take you.

WILSON WHITE: You could just Google it.

YUVAL HARARI: Maybe in the future, but so far, at least some of these questions--I think when you type, like, what is the meaning of life, you get 42. Like, there's a number one result in Google search. So you go on a spiritual quest. And religion is the exact opposite. Religion is somebody comes and telling you, "This is the answer. You must believe it.

[00:22:01]
If you don't believe this answer, then you will burn in hell after you die, or we'll burn you here even before you die. And it's really opposite things. Now, I think that at the present moment in history, spirituality is probably more important than in any previous time in history because we are now forced to confront spiritual questions whether we like it or not.

WILSON WHITE: And do you think that confrontation with those questions, that will inform how we allow technology to develop and be deployed?

YUVAL HARARI: Exactly. Throughout history, you always had a small minority of people who was very interested in the big spiritual and philosophical questions of life, and most people just ignored them and went along with their, like, fighting about who owns this land and this goat herd to whom it belongs and so forth. Now we live in a very unique time in history when engineers must tackle spiritual questions.

[00:23:05]
If you are building a self-driving car, by force, you have to deal with questions like free will. By force, you to deal with the example everybody gives, the self-driving car. Suddenly, two kids jump--running after a ball jump in front of the car. The only way to save the two kids is to swerve to

the side and fall off a cliff and kill the owner of the car who is asleep in the back seat. What should the car do? Now, philosophers have been arguing about this question for thousands of years with very little impact on human life. Now--but engineers are not like philo--They are very impatient. If you want to put the self-driving car on the road tomorrow or next year, you need to tell the algorithm what to do. Now, the amazing thing about this question now is that whatever you decide, this will actually happen.

[00:24:04]
Previously with philosophical discussions--like, you have, I don't know, Kant and Schopenhauer and Mill discussing this issue. Should I kill the two kids, or should I sacrifice my life? And even if they reach an agreement, it had very little impact on actual behavior, because even if you agree theoretically, this is the right thing to do, at a time of crisis, philosophy has little power. You react from your gut, not from your philosophical theories. But with a self-driving car, if you program the algorithm to kill the driver--not the driver, the owner of the car--and not the two kids, you have a guarantee, a mathematical guarantee, that this is exactly what the car will do. So you have to think far more carefully than ever before, "What is the right answer?" So in this sense, very old spiritual and philosophical questions are now practical questions of engineering which you cannot escape if you want, for example, to put a self-driving car on the road.

[00:25:13]
WILSON WHITE: I want to go back to this concept of religion versus spirituality and, like, the role they play. In "Sapiens," your first book, you talk about this concept of human fictions or stories we create that as humans, I guess, to get us through life and to get us through our interactions with each other. Those fictions, those stories, as you put it, they've served us well.

They've resulted in a lot of good for humankind, but have also been the source of wars and conflict and human suffering.

YUVAL HARARI: Yeah.

WILSON WHITE: How do you square that with this moment we're in where spirituality is an integral part in how we think about integrating technology in our lives?

[00:26:02]
YUVAL HARARI: Ooh, that's a big question. Well, so far in history, in order to organize humans on a large-scale, you always had to have some story, some fiction, which humans invented, but which enough humans believed, in order to agree on how to behave. It's not just religion, and this is the obvious example, that--and even religious people would agree that all religions except one are fictional stories, except, of course, my religion. If you ask a Jew, then they will tell you, "Yes, Judaism is the truth. That's for sure. But all these billions of Christians and Muslims and Hindus, they believe all these fictional stories. I mean, all these stories about Jesus rising from the dead and being the son of God, this is fake news."

WILSON WHITE: Wait, that's not true?

YUVAL HARARI: If you ask a Jew like a rabbi, even though rabbis tend to hedge their bets, so maybe not.

[00:27:02]
But then you go to the Christians, they will say, "No, no, no, no, no. This is true. But the Muslims, they believe in fake news. All these stories about Mohammed meeting the arch angel Gabriel and the Quran coming from heaven, this is all fake news." And the Muslims will tell you this about Hinduism.

So even in religion, it's very clear. The more interesting thing is that the same is true in something like the economy. Corporation--you can't have a modern economy without corporations like Google and without money like dollars. But corporations and currencies, they are also just stories we invented. Google has no physical or biological reality. It is a story created by the powerful shamans we call lawyers. Even if you ask lawyers, "What is Google?" Like, you push them, "What is it?" They will tell you it's a legal fiction.

[00:28:02]
It's not this chair. It belongs to Google, I think. It's not the money. It's not the manager. It's not the workers. It's a story created by lawyers. And, for example--I mean, if somehow it's some natural calamity destroys--like, there is an earthquake and the Googleplex collapses, Google still exists. Even if many of the workers and managers are killed, it just hires new ones. And it still has money in the bank. And even if there is no money in the bank, they can get a loan and build new buildings and hire new people, and everything is okay.

But then if you have one of the most powerful shaman, like the Supreme Court of the United States, come and says, "I don't like your story. I think you need to be broken into two different fictions," then that's the end.

WILSON WHITE: So you-- That's a lot to unpack.

[00:29:01]
So the advent that we're in now, with fake news and really--seriously questioning what veracity means and how veracity impacts these kind of foundational things that you laid out earlier in your remarks that have allowed us to work with each other, work across borders, et cetera.

With where you are on this notion of stories and fictions that we have, is this advent of fake news--is that a reality? Is that where we should be in terms of questioning what's true and what's not true?

YUVAL HARARI: On the one hand, fake news is old news. We've had them throughout history and sometimes in much worse form than what we see today.

WILSON WHITE: But is there such thing as truth?

YUVAL HARARI: Yes, there is. Absolutely. There is reality. I mean, you have all these stories people tell about reality--

WILSON WHITE: I see.

YUVAL HARARI: But ultimately there is reality.

[00:30:02]
The best test of reality that I know is the test of suffering. Suffering is the most real thing in the world. If you want to know whether a story is about a real entity or a fictional entity, you should just ask, "Can this entity actually suffer?" Now, Google cannot suffer. Even if the stock goes down, even if a judge comes and says, "This is a monopoly you have to break it up," it doesn't suffer. Humans can suffer. Like, the managers, the owners of the stocks, the employees, they can suffer.

WILSON WHITE: My girls.

YUVAL HARARI: Yeah. They can certainly suffer, but we know--we can know very easily that Google is just a story by this simple test that it cannot suffer. And it's the same of nations. It's the same of currencies.

The dollar is just a fiction we created. The dollar doesn't suffer if it loses its value.

WILSON WHITE: Let me push you on that, right? So oftentimes, like, just in the U.S. they say the kind of--

[00:31:04]
The system we set up in the U.S. is an experiment. It's often styled as an experiment. Democracy with checks and balances, et cetera. Under one view of that, you can say that that's kind of a story that we've created in America, right? We've created this kind of really nice story, but if that was broken apart, like, that entity is not suffering. But if that experiment is the thing--the proper functioning of those institutions and the things that support that story--that's the thing.

YUVAL HARARI: We know that it functions properly because it alleviates suffering. It provides health care, it provides safety, and if it doesn't, then we would say the experiment doesn't work. The experiment failed.

WILSON WHITE: So would you say that experiment is a fiction, or is that experiment reality? Is it a thing?

YUVAL HARARI: The experiment is a story that we share.

[00:32:02]
It's things that we humans have invented and created in order to serve certain needs and desires that we have. It is a created story and not an objective reality, but it is nevertheless one of the most powerful forces in the world. When I say that something is a fiction or a story, I don't mean to imply it's bad or that it's not important. No, some of the best things in the world and the most

powerful forces in the world are these shared fictions. Nations and corporations and banks and so forth, they are all stories we created, but they are the most powerful forces today in the world, far more powerful than any human being or any animal. And they can be a tremendous force for good. The key is to remember that we created them to serve us, and not that we are here in order to serve them.

[00:33:05]
The trouble really begins when people lose sight of the simple reality that we are real, they are not. And a lot of people throughout history and also today, they kind of take it upside down. They think the nation is more real than me. I am here to serve it, and not it is here to serve me and my fellow humans.

WILSON WHITE: Very interesting. So we're gonna open it up for questions from the audience in a few minutes here, but I want to try to get an easy win. So in "21 Lessons," you tackle really big challenges and questions that we're wrestling with today. Of those questions, which do you think is the easiest to solve? And what should we be doing to go about solving it?

YUVAL HARARI: Oh, what is the easiest to solve?

WILSON WHITE: Trying to get quick wins on the board for us here. So you--

[00:34:05]
YUVAL HARARI: I'll address the fake news question. Not because it's the easiest to solve, but also maybe because it's one of most relevant to what you are doing here in Google. And I would say that the current incarnation of the fake news problem has a lot to do with the model of the news and information market, that we have constructed a model which basically says, "Exciting news for free in exchange for your attention." And this is a very problematic model because it turns

human attention into the most scarce resource and you get more and more competition for human attention. With more and more exciting news that--again, and some of the smartest people in the world have learned how to excite our brain, how to make us click on the next new story, and truth gets completely pushed aside.

[00:35:07]
It's not part of the equation. The equation is excitement, attention, excitement, attention. And on the collective level, I think the solution to this problem would be to change the model of the news market to high-quality news that cost you a lot of money but don't abuse your attention. It's very strange that we are in a situation when people are willing to pay a lot of money for high-quality food and high-quality cars but not for high-quality news. And this has a lot to do with the architecture of the information market, and I think there are many things that you here in Google can do in order to help society change the model of the news market.

WILSON WHITE: I'd want to continue to explore that and whether that would create like a economic divide or exacerbate the current divide.

[00:36:08]
But I'm gonna open it up now for audience questions. We can start with you.

PERSON: Hi. Thank you so much for writing your books. They are completely wonderful, and I've had a joy reading them. So one of the things that you kind of explore here is we are facing a couple of global problems. And, historically, we have never created global organizations which are responsible for solving global problems who had any ability to enforce them. And even when we have created them, they have come after great tragedies. So how can we sort of make that happen and make somebody responsible and have the ability to have

those organizations enforce those solutions?

YUVAL HARARI: Yeah. I mean, it's not going to be easy. But I think the most important thing is to change the public conversation and focus it on the global problems.

[00:37:09]
If people focus on local problems, they don't see the need for effective global cooperation. So the first step is to tell people again and again and again, "Look, the three biggest problems that everybody on the planet is now facing are nuclear war, climate change, and technological disruption." And even if we are able to prevent nuclear war and climate change, it's still AI and biotech are going to completely disrupt the job market and even the human body, and we need to figure out how to regulate this and how to prevent the dystopian consequences and make sure the more utopian consequences materialize. And for that we need global cooperation. It should be obvious to everybody, you cannot prevent climate change on a national level, and you cannot regulate AI on a national level.

[00:38:11]
Whatever regulation the U.S. adopts, if the Chinese are not adopting it, it won't do much help. So you need cooperation here, and then it goes into practical political issues. I mean, you have an election coming up--mid-term election in the U.S.--so if you go to a town meeting with an aspiring congressman or congresswoman, so we just ask them, "What are you going--if I elect you, what will you do about the danger of climate change, about the danger of nuclear war, and about getting global regulations for AI and for biotech? What's your plan?" And if they say, "Oh, I haven't thought about it," then maybe don't vote for that person.

WILSON WHITE: Good question.

PERSON: Hi, Yuval. Thanks for coming here today. So in one of your talks you suggested that to avoid getting our hearts hacked, we need to stay ahead by knowing ourselves better.

[00:39:12]
And it seems to me that the process of knowing yourself needs a lot of intelligence, and in some ways it's a skill that needs to be developed. I mean, the intellect that we have as humans seems fairly new when compared to other properties that we got evolutionarily. So how do you suggest that we can learn to think and use our intelligence better and also do that at scale. 'Cause if only some people know themselves but millions around you or billions around you don't, then you can only go so far.

YUVAL HARARI: I don't think that knowing yourself is necessarily all about intelligence. Certainly not in the narrow sense of intelligence.
If you include emotional intelligence and so forth, then, yes. But in the more narrow sense of like IQ, I think this is not--some of the--there are many very intelligent people in the world who don't know themselves at all, which is an extremely dangerous combination.

[00:40:12]
Now, some people explore themselves through therapy. Some use meditation. Some use art. Some use sports. They, like, go on a long hike, go for a month to the Appalachian Trail and get to know themselves on the way. There are many ways to do it, which are not necessarily about intellect. It's not like reading articles about brain science. That can help in some ways. And in this sense, I think it's a very kind of democratizing ability or force to get to know yourself. After all, you--you're always with yourself. It's not like you need some special laboratory to get some very rare machines from--I don't know, cost billions of dollars. You just need yourself.

PERSON: Sure. But what
about the art of thinking?

YUVAL HARARI: What about...?

PERSON: The art of thinking.

YUVAL HARARI: The art of thinking--

[00:41:12]
PERSON: I mean, people are very
intelligent, but they don't really use
their intelligence to understand
themselves.

YUVAL HARARI: Yeah. Again,
there is no easy way to do it. If it was
easy to get to know yourself better,
everybody would do it long ago and we
would be living in a very, very different
world.

WILSON WHITE: We have folks joining us
from around the world as well, so I have a
question from the question bank.
"Compassion is the critical underpinning
of any successful society, yet I believe
that technology is reducing our capacity
for empathy. It feels that we know longer
value compassion, perhaps even seeing
compassion as weak. What are, in your
view, effective ways to motivate members of
society to develop their compassion?"

YUVAL HARARI: I don't think that
technology is inherently undermining
compassion. Yeah, it can go both ways.
Certainly, communication technology can
make you aware of the plight of people on
the other side of the world.

[00:42:14]
And without that you may, be extremely
compassionate about your immediate, like,
family members and neighbors and won't
care at all about people on the other side of the world.

So I don't think there is an inherent contradiction or collision between technology and compassion. But it is true that the way we design technology can make us less compassionate. And even the way that we design ourselves. For most of history--so you had economic and political systems trying to shape people. And in the past they did it with education and with culture, and in the present and future, we are likely to do it more and more with biotech and with brain computer interfaces. So our ability to manipulate ourselves is growing, and therefore it's extremely important to remember to take compassion into account.

[00:43:19]
Otherwise, the danger is that, you know, armies and corporations and governments in many cases--they want something like intelligence. They want more intelligent workers and soldiers. They want to more decisive workers and soldiers. Don't take a whole day to decide. I want you to decide this in half an hour. And as our ability to manipulate humans--and I mean reengineer the body and the brain--as it grows, we might engineer more decisive and intelligent humans at the price of compassion, which many corporations and armies and governments find either irrelevant or even problematic because it causes people to be hesitant and to take more time about the decisions and so on and so forth. So we need to remember the enormous importance of compassion.

[00:44:17]
And, again, it goes back also to the question about getting to know yourself, which I think is the key to developing more compassion. Not just because when you understand your own--"That this makes you miserable," then you understand, "Oh, the same thing may make other people miserable." It's even much deeper than that. When you really get to know yourself, you realize that when you ignore others and when you mistreat others, very often it harms you even before it harms them. It's a very unpleasant experience to be angry. So your anger may harm other people or maybe not. Maybe you are boiling with

anger about somebody, and you don't do anything about it because she's your boss. But you don't harm her, but your anger harms you. So the more you understand yourself, the greater incentive you have to do something about my anger, about my hatred, but my fear.

[00:45:23]
And most people discover that as they develop more compassion towards others, they also experience far more peace within themselves.

WILSON WHITE: Wow. Another live question.

PERSON: Thank you. After reading your books, it occurs to me that you most likely educated yourself both broadly and deeply to be the foundation for your ideas.

For those of us that are interested in cultivating our minds similarly, I was wondering if you could share a little bit about your reading habits and how you choose what to consume.

YUVAL HARARI: My reading habits. I read very eclectically. Like, no book is barred from entering the book list. But then I tend to be extremely impatient about the books I actually read. I would begin, like, ten books and drop nine of them after ten pages. It's not

always the wisest policy, but it's my policy that if a book didn't really teach me something new, had some interesting insight in the first ten pages, the chances--

[00:46:30]
It could be that on page 100, there will be some mind-blowing idea that I'm now missing, but there are so many--I keep thinking there are so many books out--wonderful books out there that I will

never read, so why waste time on a less optimal book? So I would try, like, a book on biology and then economics and then psychology and then fiction and whatever and just go through them quite quickly until I find something that really grabs me.

WILSON WHITE: Another live question.

PERSON: Hi, Mr. Harari. Thanks for being here. Fascinating talk, as always. I do a little bit of meditation myself, and I've heard that you do a lot of meditation--on the order of hours a day. Is that right?

YUVAL HARARI: I try to do two hours every day and I try to go every year to a long retreat of 45 or 60 days.

PERSON: So I was wondering how do you feel that has influenced your life and the ideas that you have?

[00:47:30]
YUVAL HARARI: A tremendous influence, I think both on my inner peace of mind, but also on my work as a scientist. Maybe two most important influences is that first it enabled me to have more clarity and more focus. And, certainly, when you write about such big subjects like trying to summarize all of history in 400 pages--so having a very, very focused mind is very important because the great difficulty is that everything kind of distracts you. You start writing about the Roman Empire and you say, "Well, I have to explain this and this and this and this," and you end up with 4,000 pages. So you have to be--what is really important, and what can be left outside? And the other thing is that, at least with the meditation that I practice, which is with passive meditation, it's all about really knowing the difference between the fictions and stories generated by our mind and the reality.

[00:48:35]
What is really happening right now? And when I meditate, the thing that happens is that constantly the mind is like a factory that constantly generates stories about myself, about other people, about the world that--and they are very attractive, and, like, I can identify with them. And the meditation is constantly, "Don't. It's just a story. Leave it. Just try to stay with what is really happening right now." And this is the central practice in meditation. It's also a guiding principle when I study history or when I study what's happening in the world.

PERSON: Great. Thank you.

WILSON WHITE: Let's take another question from the Dory. "With inequality rising across most nations in the last few decades, what is your perspective on how we can use technological growth to solve this problem and create a more equitable world?

[00:49:36]
Do we need a different economic paradigm to achieve this?

YUVAL HARARI: Yes. We probably need a different economic paradigm because we are entering kind of uncharted waters, especially because of the automation revolution and the growing likelihood that more and more people might be completely pushed out of the job market, not just because there won't be enough jobs, but simply because the pace of change in the job market will accelerate. So even if there are enough jobs, people don't have the psychological balance and stamina to constantly retrain, reskill, reinvent themselves.
And so I think the biggest problem in the job market is really going to be the psychological problem. And then what do you do when more and more people are left out? And there are explorations of new models like universal basic income and so forth which are worth exploring.

[00:50:37]
I don't have the answers. I would just say that anybody who thinks in terms like universal basic income should take the word "universal" very, very seriously and not settle for national basic income, because the greatest inequality we are facing will probably be inequality between countries and not within countries. Some countries are likely to become extremely wealthy due to the automation revolution, and California is certainly one of these places. Other countries might lose everything because their entire economy depends on things like manual labor, which will lose its importance, and they just don't have the resources and the educational system to kind of turn themselves into high-tech hubs. So the really crucial question is not how do we--what we do about, I don't know, Americans in Indiana who lose their jobs?

[00:51:43]
The really important question is, what we do about people in Guatemala or Bangladesh who lose their jobs? This should be, I think, at the focus of this question inequality.

WILSON WHITE: Okay.
We'll take another live question.

PERSON: Hello, Mr. Harari. Thank you for doing this Q&A. So, at Google, we have a responsibility to build products and services which not only achieve results for our shareholders, but also that actually benefit our end-users.
So in order to spend less time hacking humans and spend more time reducing suffering we need to understand what type of future we want to build. So what I want to ask you is what are your personal methodologies for making predictions about the future, and what suggestions would you give to Googlers who want to have a more versed understanding of the future?

YUVAL HARARI: Well, as I said in the very

beginning, I don't think we can predict the future, but I think we can influence it. What I try to do as a historian--and even when I talk about the future, I define myself as a historian--because I think history is not the study of the past.

[00:52:46]
History is the study of change. How human societies and political systems and economies change. And what I try to do is to map different possibilities rather than make predictions. This is what will happen in 2050. And we need to keep a very broad perspective. One of the biggest dangers is when we have a very narrow perspective, like we develop a new technology and we think, "Oh, this technology will have this outcome," and we are convinced of this prediction, and we don't take into account that the same technology might have very different outcomes. And then we don't prepare. And we don't--again, as I said at the beginning, it's especially important to take into account the worst possible outcomes in order to be aware of them.

[00:53:43]
So I would say whenever you are thinking about the future, the future impact of a technology I'm developing, create a map of different possibilities.
If you see just one possibility, you are not looking wide enough. If you see two or three, it's probably also not wide enough. You need a map of like four, five different possibilities minimum.

WILSON WHITE: Let's take another live question.

PERSON: Hey, Mr. Harari. So my question is--I'll start very broad, and then I'll narrow it down for the focus. I'm really interested in, what do you think are the components that make these fictional stories so powerful in how they guide human nature? And then if I narrow it

down, I'm specifically interested in this self-destruction behavior of humans. How can these fictional stories led by a few people convince the mass to literally kill or die for that fictional story?

[00:54:43]
YUVAL HARARI: It again goes back to hacking the brain and hacking the human animal. It's been done throughout history. Previously, just by trial and error without the deep knowledge of brain science and evolution we have today. But to give an example, like, if you want to convince people to persecute and exterminate some other group of people, what you need to do is really latch on to the disgust mechanisms in the human brain. Evolution has shaped Homo sapiens with very powerful disgust mechanisms in the brain to protect us against diseases, against all kinds of sources of potential disease. And if you look at the history of bias and prejudice and genocide, one recurring theme is that it repeatedly kind of latches on to these disgust mechanisms.

[00:55:49]
And so you would find things like women are impure, or these other people, they smell bad and they bring diseases. And very, very often disgust is at the center. So you will often find comparison between certain type of humans and rats or cockroaches or all kinds of other disgusting things.
So if you want to instigate genocide, you start by hacking the disgust mechanisms in the human brain. And this is very, very deep. And if it's done from an early age, it's extremely difficult afterwards--
People, they know intellectually that it's wrong to say that these people are disgusting, that these people, they smell bad, and they know it intellectually, but when you place them in a brain scanner, they can't help it.

[00:56:53]
If they were raised--I mean, so we can still do something about it. We can still kind of defeat this, but it's very difficult because it really goes to the core of the brain.

WILSON WHITE: So I'll end on a final question because we're at the time. When Larry and Sergey--when they founded Google, they did so with this deep belief in technology's ability to improve people's lives everywhere. So if you had a magic wand and you could give Google the next big project for us to work on, in 30 seconds or less, what would you grant us as our assignment?

YUVAL HARARI: An AI system that gets to know me in order to protect me and not in order to sell me products or make me click on advertisements and so forth.

WILSON WHITE: All right. Mission accepted. Thank you, guys.

[00:57:59]
LAUREN: Thanks for listening. If you have any feedback about this or any other episode, we'd love to hear from you. You can visit g.co/TalksAtGoogle/PodcastsFeedback to leave your comments. To discover more insightful content, you can always find us via Youtube.com/TalksAtGoogle or via our Twitter handle, @GoogleTalks. Talk soon.