[00:00:06.450]
Welcome to the Making Sense podcast, this is Sam Harris, just a note to say that if you're hearing this, you're not currently on our subscriber feed and we'll only be hearing partial episodes of the podcast. If you'd like access to full episodes, you'll need to subscribe. And Sam Harris, Doug, there you'll find our private RSS feed to add to your favorite podcast, you along with other subscriber only content. And as always, I never want money to be the reason why someone can't listen to the podcast.

[00:00:34.950]
So if you can't afford a subscription, there's an option. And Sam Harris, Doug, to request a free account and we grant 100 percent of those requests. No questions asked. I am here with Adam Ghazali, Adam, thanks for joining me. My pleasure. Thanks for having me. So you are a neuroscientist with many diverse interests and several irons in the fire. Maybe you can summarize what you're doing now professionally. Sure.

[00:01:04.110]
So I've had a sort of strange career, fun, fun adventure. I'm trained as a M.D. and a Ph.D., my Ph.D. in neuroscience. I'm a I'm a neurologist and I'm a professor at University of California, San Francisco, where I direct efforts at a research center that I started called Zeroscape.

[00:01:22.950]
And what we do is look at these sort of interface between technologies and neuroscience and health. And then I also have started a couple of companies along the way and including a venture fund, all in the same general goal of trying to help improve the function of our brains and frequently through the use of technology. And you also wrote the book The Distracted Mind, which covers a lot of ground that I think we're going to want to revisit here, because this is such a fascinating moment where we're seeing the evidence all around us that our technology is it's always a two edged sword, but it just seems in the information space, especially so at the moment.

[00:02:07.650]
So, I mean, obviously, we would not want to give up our connectivity and our access to the the totality of human knowledge, which has been delivered by the Internet and smartphones and the rest of what we've got here. But it's so clearly fragmenting our lives and it seems rewiring our brains into just different expectations of reward, different habit patterns. I mean, we're all on a somewhere on a spectrum of pathology. And we know that there's no bright line between having a normal mind and a normal brain and having a condition like obsessive compulsive disorder or narcissism.

[00:02:49.080]
I mean, it's just these are we were talking about bell curves and gradients, not bright lines here, but it does feel like our use of technology, you know, actively and passively is pushing us in on directions. So I think we'll we'll get into this and then talk about how technology might also be a remedy for all that ails us here. Let's start with information. I mean, you point out in your book that we are information seeking creatures.

[00:03:18.210]
How do you think about our relationship to information? No. Well, yeah, you know, it's interesting, you write a book and you try to make it timely, obviously, and as you know, books take a long time until they eventually come out. And you're always in danger of it not being relevant anymore by the time it gets into people's hands. And if anything, I've seen it become more relevant, as you just referred to.

[00:03:42.860]
And I think the covid pandemic that we're experiencing now is showing a lot of the fragmentation in our minds and the stressors caused by technology. And it really comes down to information. That's a great starting point.

[00:03:58.370]
You know, we we take in information and that's what allows us to interact in this world. And we were evolutionarily sort of well suited to do this.

[00:04:07.610]
This is how we survive. We avoid threats and seek out nutrients and mates. And this is how the brain evolved to allow us to fluidly, dynamically interact with the world. And that advances our survival. And the brains that we have now are the product of that.

[00:04:26.510]
And, you know, they're quite, quite adept at dealing with complex information and helping us react both reflexively as well as through decision making.

[00:04:37.460]
But what I think is clear now, probably to many listeners, just through their own experience and certainly through data, that we don't have unlimited capacity to process information.

[00:04:50.450]
And if the system is overloaded due to all sorts of types of interference that we can talk about, there will be consequences.

[00:04:59.780]
And those consequences are really broad. And people see them, feel them in different ways, and they manifest in people's lives in quite complex manners. But that's sort of the the crux of that story. That information is key to how we survive and thrive.

[00:05:19.950]
But there's a breaking point and there's all sorts of consequences.

[00:05:23.960]
How you use this phrase at various points in the book, information, foraging, drawing an analogy between, you know, how animals will forage for food. And there's a you know, there are a few curve based on data in terms of you just have the opportunity cost and the the switching costs of exploiting an area for food and then deciding to, you know, based on instinct in the case of an animal to move to a new area looking for food.

[00:05:52.430]
And we exhibit a similar pattern in the way we self interrupt and attempt to multitask. You know, you're you're on the phone with someone and then you decide to check your email or your backchannel in the middle of that call surreptitiously not realizing that you're essentially losing 30 IQ points for the purposes of that conversation. And every time you do that and we do this everywhere, I mean, there's this way we can just talk about the limits of cognition here and the actual effects of multitasking.

[00:06:24.860]
I mean, obviously, multitasking is possible in certain cases because, you know, people can listen to a podcast or listen to an audio book and also successfully drive a car or or even do work that doesn't require the same kind of linguistic cognition. I mean, you can you can draw you could practice graphic design or something, probably without any degradation in your skills. But for so many other tasks, there is a zero sum contest between things that we attend to.

[00:06:55.850]
So how do you think about multitasking at this moment? What do we know about it scientifically? Yeah. So, you know, the term is confusing and complicates what's already a very complex landscape of the brain and behavior.

[00:07:10.460]
And the reason why is because if you think about, you know, multitasking, just doing lots of tasks at the same time, it's something that we're all familiar with and we feel like we're really pretty good at it.

[00:07:21.000]
And it's also most people feel sort of pleasure in multitasking, that it's something fun and more fun than single tasking.

[00:07:28.220]
And so we're constantly drawn to it and it feels natural. And you sort of feel that you could get better at it. And the reason, the terms complex, because it's a from a behavioral point of view, sure, we multitask all the time.

[00:07:44.210]
But what's implicit in it that creates the confusion is that sometimes we use that term to mean, like parallel processing, that you're you're, you know, borrowing from the computer terminology and signal processing literature, that you're literally parallel processing these two tasks and that they're getting equal processing power. And so you're truly multitasking in that way.

[00:08:09.710]
And when you look at the brain, we've done these studies in our in our center at UCSF where we'll have someone in a scanner we've done it with, e.g., they have more than one demand on their.

[00:08:23.340]
And we'll see that fragmentation occur not just in their performance, which is quite obvious for pretty much anyone, but we'll see it even narrowly that there's really a switching between the networks that are involved in accomplishing either of those tasks independently and that you can't really multitask in that true sense of of parallel processing to things that are demanding your attention.

[00:08:50.020]
Now, if you can offload it and it becomes reflexive and becomes a skill that doesn't require attention, then you can do more than one thing.

[00:09:00.250]
But the minute that changes, that's when the conflict and the interference occurs. So just to say just to go back to your example of listening to a podcast and driving a car.

[00:09:12.070]
Sure. That could work. And it does work most of the time because driving is often very reflexive and you're pulling in a lot of bottom up information from the environment, making reflexive decisions without your top down attention. And so that allows you to focus your attention on listening to the podcast and digesting it and understanding it. But then something happens on the road and something unexpected and something that demands your attention.

[00:09:40.540]
And that is the point of interference and conflict, because now your attention has to move from the podcast back to the road.

[00:09:50.470]
It may not get there fast enough. And then this is where you feel that that wait and suffer the you know, in this example, incredibly detrimental consequences of not being able to truly drive and listen to that podcast with all of your resources devoted to both of them.

[00:10:07.360]
Equally so, I recommend that people pull over to the side of the road if they're in danger of missing or subsequent sentences. Her, you've got to have your priorities straight. So used it to phrases there that are terms of jargon in not just neuroscience, but cognitive science and engineering generally bottom up and top down. How do you think about those? And it strikes me that there's a pretty clear asymmetry in terms of of the bandwidth in those pathways. Yeah, let's break that down a bit.

[00:10:40.560]

It's sort of core to this discussion about information processing and the brain. And those terms are used in a lot of different fields and they're not so different in the context here in cognitive neuroscience and cognitive science. And that the way I think about is from the perspective of attention. I think about most of these things. From that perspective, I find it's really useful.

[00:11:01.030]
So attention is an incredibly broad concept and a complex one that would take us an hour to tease apart all the subtleties. But one way of thinking about it is in two categories. One is bottom up attention and the other is top down attention. And bottom up attention is when your limited resources, because we have those limitations and both top down and bottom up have limitations that are limited. Mental resources are being drawn or being activated by the environmental stimuli itself.

[00:11:33.670]
So a loud sound, a flash of light, your name, something that's very important, are salient to you, is going to demand your attention and pull your resources towards it very rapidly.

[00:11:45.310]
And this is obviously a strong survival advantage. If you don't have great bottom up, you're likely to get eaten pretty fast. And so that's bottom up attention. So it's a very ancient part of our attentional system that was really critical for our survival on all animal survival. And then there's Top-Down attention.

[00:12:04.910]
And by that I mean the goal directed attention. It's when you make a decision, a conscious decision based on interpreting information from either the external environment or your internal environment about where your attention is directed.

[00:12:18.610]
And so you you can be, you know, attending to something like this podcast right now.

[00:12:26.290]
And you have every goal to absorb all this information. And your attention may get pulled away by a bottom up force.

[00:12:34.330]
And so we're constantly managing these two draws on our our overall sort of capacity of where we put our resources, both the bottom up and the top down.

[00:12:44.710]
And if you pay attention to it, you'll see it every day, all day, at every every moment is that, you know, these two attentional forces are constantly playing, playing a tug of war.

[00:12:56.500]
And so how do you think about this experience we all have of self interrupting, maybe a phrase you actually used in the book? I don't recall, but it's this experience that, you know, it's all too familiar. It's now practically unconscious all the time of you're paying attention to something. You know, you're doing work at your computer, say, and then you decide to check your. Well, obviously, the technology is playing a massive role here in terms of notification to make sure if you're receiving texts or you're receiving notifications, will then then it's being driven by the machines themselves.

[00:13:36.030]
But even without that, we just often experience this degradation in our ability to sustain attention for the task at hand. And we decided to probably reward is the right framework to think about it. And we seek this dopamine hit by switching our attention to something else. And we're almost never very aware of the switching costs there. And just how much time is lost reorienting to the thing you were doing when you do come back. What do we know about this whole process?

[00:14:11.340]
Yeah, I mean, it was you said it perfectly.

[00:14:14.070]
We can be our attention, our top down attention, our goal directed focus can be interfered with. That interference kind of can occur on many levels. It can occur from external stimulation.

[00:14:27.510]
So sort of the bottom up things we're talking about, I would say if your phone vibrates in your pocket or you hear a ping on your computer, that's like a perfect example of a bottom up source of attention. And technology companies certainly are aware of that, at least at some level that you can pull attention with that. And so, you know, that's one that we're very aware of. But, you know, you could create interference internally, too.

[00:14:51.720]
And so there may be internal distractions. Turnell bottom up information like an aching joint or your back just sort of nudges you or your stomach rumbles.

[00:15:02.390]
And so those would be like almost like physiological bottom up stimuli, the coming from your own body, but they're knocking on on your brain and saying, hey, I need some attention over here.

[00:15:12.890]
And then they could be much more complicated than that and occur not sort of in a bottom up way, but just that you have now for some reason decided and it could be subconscious or it could be conscious to divert your attention from your original goal. And that may be to something external as well. So maybe I think that I could listen to this podcast and also bang out a quick email right now, or it may be directed internally.

[00:15:43.820]
Right. So I'm going to listen to this, but also think about what I'm going to have for dinner tonight.

[00:15:49.280]
And so we're constantly fragmenting our limited, you know, attentional focus with both external and internal distractions and multiple tasks.

[00:16:01.730]
And there's a cost for this, like you said, whether that cost is something apparent to you or not, it is there.

[00:16:07.970]
It has been well documented both neurally and behaviorally. Yes, there's there's obviously a cost in terms of the time lost in having to remind yourself where you were in the original task. Right. And then people don't really keep track of that. Well, but, yeah, the research suggests that you do lose a lot of time every time you switch. But there's also it seems to me there's a kind of emotional cost to all of this. And it's it's somewhat paradoxical because I think the urge to multitask is often born of this this internal sense of time, poverty that many of us feel.

[00:16:50.570]
And there's a kind of a feeling of urgency that comes with just the sense that we don't have enough time to do everything we need to do or want to do. And so, you know, hence it seems like a brilliant idea to be doing two things or more at once. And we really want to feel that we can do that. And so I guess so there's a there's probably a reward component to it, but also just a an anxiety component.

[00:17:16.940]
And one way to break this up is these internal and external factors. Here we have the our internal states like boredom, anxiety, stress, a feeling of urgency. And this is, you know, driving us in this

direction. And then there the the external factors, which is just the technology itself that's designed to game us in a way. I mean, so, so many of these platforms that we engage their entire business model is based on maximizing the capture of our attention.

[00:17:53.480]
And, you know, that's not new, but it's really been weaponized to an unusual degree by our technology now. So maybe let's take the internal side of this first. What is this doing to our emotional lives? And how do you how do you see it as derivative of very common states of mind, like anxiety and boredom? Yeah, I mean, you summarized it absolutely perfectly.

[00:18:20.440]
That's how I think about it exactly, that there are two forces, an internal and an external force that drives us to shift our attention all the time, whether it's multitasking or just being distracted by by external or internal stimuli.

[00:18:37.510]
And, you know, just to tie this in with something, we talked about a little bit of foraging. You know, in the book, I really spent a lot of time developing this, which really is a hypothesis that we're foraging for information in the way that other animals forage for food. And there's a theory that's used actually it's a mathematical approach to help understand and actually predict quantitatively of how long an animal will forage in a particular patch like a squirrel in a tree before moving to another one.

[00:19:11.150]
And it could be actually predicted to really a high degree of accuracy. And they also have two forces that are driving them to make that decision.

[00:19:22.540]
So there's a cost benefit ratio going on of how long you stay in your patch versus how hard it is to get to another patch. Right. So if you've depleted 50 percent of the nuts in the tree, but the next tree is really far away, you're just going to keep eating those nuts. But if the next tree is full and it's right there, 50 percent may be enough for you to jump over.

[00:19:42.500]
And so that has been well described in how animals that forage and pache environments make sort of these internal decisions about remaining or leaving a patch. And you could think of information as a patch as well that we're foraging.

[00:19:56.680]
And whether it's a website or an article that you're reading or any task that you're engaged in.

[00:20:03.040]
And there are these internal and external forces that decide sort of the cost benefit ratio of you staying there or just keep switching.

[00:20:11.290]
And on the internal side, I think what's clear is that, you know, there is often a diminished return of remaining at a patch, sort of eating the nuts.

[00:20:20.530]
Right. Like you've read three quarters of the article, like you sort of have the idea already. So that that's true. And that's just part of why people switch ever. Right. And that's sort of unavoidable.

[00:20:31.450]
But then this seems to be these other aspects that you talked about that are becoming quite clear now in that this these forces that drive us out of a patch that are not related to the diminishing returns related to the information itself. They're related to these sort of internal drives that we're just intolerant to being bored. Boredom feels just something that we cannot just sit with and allow to

wash over us, even though it doesn't actually hurt us. And then there's also that anxiety that you're missing out on something else that famo that there's something going on that's deserving of your time that you're missing.

[00:21:07.870]
And then there's also the anxiety that you're not being maximally productive, that you have the capacity to get another thing done simultaneously. And so is those elements accumulate over time, along with your diminished return that you're getting from the patch you're in. There's a driving force to push you out. And in the if that next tree is really close, if it's really just a tab in your browser or your phone sitting in your pocket, then there is no resistance to switching and you just keep moving.

[00:21:40.090]
Yeah, well, the next tree, informationally speaking, is always just right there, you know, I mean, it's it's a tab away and. Yep. And there are an infinite number of trees now. I mean so in one sense boredom has almost been driven into extinction by technology because, you know, this just again, we have perpetual access to the totality of the world's information. And I still remember what it was like to walk into a blockbuster video looking for a movie to watch and spending some intolerable amount of time roaming the aisles there looking for a film I hadn't seen or wanted to see again.

[00:22:19.900]
And I remember how inefficient that was and how prone to failure it was. I mean, it got to a point where there was no guarantee I was going to come out of a video store with something to watch, right? Yep, I remember that, you know, I mean, this never happened in a bookstore. I mean, there was still functionally infinite number of books I wanted to read. But with film, I really felt like we were kind of coming up against the limitations of supply there.

[00:22:49.060]
And yet now we have access to so much information and entertainment and it's becoming so frictionless. I mean, we most of us are still juggling too many apps and too many sources. But insofar as it gets consolidated in places like Netflix, you know, it's just like boredom has almost been banished on one level, except on another level it appears to be. Growing in the sense that it feels like our our reward cycles in our engagement with media are getting shorter and there's zero downtime between them.

[00:23:28.440]
I mean, literally, the next episode begins to auto play on most of these platforms. Right. And you have to opt out of watching it rather than decide what you want to watch next. So it's just we're now part of this binge watching machine. And it's not just watching I and binge reading, binge scrolling of social media and the friction's out of the system. Our expectation of reward is coming. And it feels to me much shorter increments of time.

[00:23:57.840]
And I would I would expect that our attention span, which is to say our tolerance for boredom or just the uncertainty of what our attention is going to land on in a satisfying way is growing shorter. So on one level, I feel like boredom is almost gone. But on another level, I feel like we are being tuned to be less and less resilient to boredom than we've ever been. Yeah, I think that's that's exactly right. And it's sort of a fun area of some harmless self experimentation.

[00:24:31.170]
You know, you have these moments that throughout the day where you're forced to stop doing things like one that I love is just, you know, although things are shifting now, but because people order in. But like when you're waiting online at a grocery store and you're you sort of have only two people in front of you, it's not really going to take that long.

[00:24:52.050]
You could just pause there and think about things and just relax your mind. But I mean, I feel it just like think like most people do, this does drive to just reach into your pocket and with no actual

intention of necessarily or need to look something up.

[00:25:10.180]
But just to let that information flow start again, even at a light, you know, at a traffic light, you know, you know, it's only going to be 30 seconds.

[00:25:18.740]
And this is part of the danger that, you know, that you can feel if you just allow a little bit of introspection in time to occur on those natural pauses in our life. You can feel that onset of boredom.

[00:25:32.710]
And, you know, it's something that there is, like you said, just a very, very low tolerance for. And I would I would challenge people to get familiar with that feeling of boredom, not to be afraid of it, to realize that it's not going to hurt you. And, you know, it's sort of like a little hunger's, not necessarily the worst thing at times as well.

[00:25:52.390]
You don't need to eat every second when you get these stimuli. So being in control and being aware of your of these internal states is really critical.

[00:26:01.570]
And so I think with the intolerance of boredom, there's a lack of appreciation or recognition of it as well.

[00:26:09.010]
So what do you recommend people do? What sort of bright lines do you you think they should should look for in their their lives? And whether we think about this in terms of habit patterns or discipline or engaging with technology differently or different technologies? I think we want to talk about some of the work you're doing in digital medicine at the end, but what do you recommend people do on a day to day basis? Yeah, this is such a great question.

[00:26:40.870]
It was sort of an interesting point in my life as a scientist. And I know you have neuroscience roots as well.

[00:26:49.150]
When I started getting asked that question because I don't like fancied myself as like a self-help type of person, but but I understood the need for it.

[00:26:58.930]
You know, I've been studying distraction and multitasking from a neuroscientists perspective. And when it came to writing a book on the topic that I wanted to be more than a neuroscience primer on on this, it was a very real question that I had to ask myself, you know, how do I answer that?

[00:27:17.800]
And so how I really went about it was just describe to people what I do.

[00:27:21.940]
So, you know, this is, you know, my own desire to live a focused life of meaning. And how do I get there, knowing all of this information that I've found in my own research, what are the things that I do?

[00:27:36.340]
And so that's sort of the route that I went about this and also the grounding in the marginal value theorem, the forge optimal forging models that we talk about gave a lot of those clues, because once you see the pressures that make us switch all the time, so that's sort of what I used as a foundation to give advice to both myself and anyone else.

[00:27:57.640]
Once you understand the pressures that drive this behavior, then you sort of have the framework for reversing that and creating new habits.

[00:28:06.880]
So as we already described this, both external and internal pressures on the external side, because that's one's a little easier is just the accessibility. There's no doubt that the accessibility is driving a lot of this behavior because that tree is so close.

[00:28:21.340]
So some of the things and some people do this and go to extreme measures to do this is start limiting some accessibility just to make it a little easier.

[00:28:30.370]
So, you know, if you can't not look at your phone when you're at a traffic light, maybe you should put the phone in the trunk of your car. Maybe you should not work with all your browsers open. Or if you're really writing an article that has a time pressure on it, maybe not keep Twitter or Slack open at the same time. And so limiting accessibility is just a really simple way to start decreasing. That switching tendency a little more complicated is on the internal side.

[00:29:01.270]
How do you monitor and and manage the anxiety and the boredom and the desire for high, higher degrees of productivity that are driving you from that side of the equation?

[00:29:13.060]
And for there, what I experimented with, with myself was just practicing. Like many things in life, they don't come necessarily without effort practicing the art of sustained attention and single tasking.

[00:29:28.270]
And I started doing this, you know, a couple of years ago as a sort of now speaking about the book in that content publicly and just saying, OK, I'm going to challenge myself. I have an hour that I'm going to quit everything except this one source of my attention, this one focus. And when I started doing that at the beginning, it was really hard. It was shockingly hard because I felt this desire to, like, just go and check Facebook or just go and talk to someone, even if it wasn't a.

[00:29:58.200]
And so what I started doing and what I advise people based on my own experience is start with small periods of time that you're doing singular focus and feel what happens, understand the boredom and the anxiety, work through it and stick with it. And then take that break, make that break.

[00:30:17.670]
Not about necessarily going on social media or getting into these iterative like sinkholes. Just take you away from your goals, but rather stretch, do some light, exercise, close your eyes, meditate, look at nature either through photography or real nature. These things, I think, have a lot of support for being really healthy little breaks and then get back into that focus and see if you can extend that over time. I think it's sort of similar to someone learning how to become like a long distance runner.

[00:30:48.390]
Like you can't really just start by running for miles. And what's intolerable to you on day one? Because it's painful or maybe even boring.

[00:30:57.300]
After a while, you start enjoying that feeling.

[00:31:00.180]
And I think I've discovered it's like that with this is well, you could single task, sort of like an endurance runner where after a while it's just effortless and even fun to do that.

[00:31:12.300]
And so I think it's a process of baby stepping into longer periods of time, of building the skill sets that allow you to sustain your attention without derailing yourself.

[00:31:24.190]
I think this notion of single tasking is really important, and the fact that we even have a name for it is a sign of how far we've wandered from from from what used to be normal.

[00:31:36.060]
And when I think about how much harder it's getting to read a book and if that's happening to me and I'm kind of a canary in the coal mine for this, because, you know, I really I read a lot, you know, books have always been a major part of my life. I read both professionally and for for pleasure. But even I am finding it harder to to finish books. I mean, it's just one you know, the competition for my attention is just always at a fever pitch.

[00:32:08.310]
So I it gets diverted into other streams of information. But I am also finding it harder to just just to commit to, you know, sitting down for an hour and doing nothing but reading the book. Right. And that makes me realize that I'm almost unrecognizable to myself. The Sam Harris of 20 years ago would not have been able to imagine finding reading a book for an hour at all difficult. I mean, that there was kind of a basin of attraction there for me, which was I mean, once I once I was in it, you know, I was in it.

[00:32:46.050]
It's like forecasting that at some point you're going to find it difficult to eat ice cream. Right, like that. That makes no sense at all. It's it's something I consciously correct for. And as you know, I spent a lot of time focusing on it explicitly the topic of meditation and the importance of training attention in that way, being able to pay attention is one thing, but having an internal sense that there are many things that merit your attention right now.

[00:33:14.010]
And the best way to to play this game is to essentially have many browser windows always open. It's a kind of decision that once you make it, you're then forced to function in that fairly doomed paradigm of just splitting attention. So I do think there's a lot to be said for just making a decision around certain things like this. And so having the concept of single tasking, it's a kind of hack for what you're going to tend to do by default just because of what's happening at your desk and coming from the smartphone in your pocket.

[00:33:50.340]
Yeah, I agree. I mean, I like the way you said that. It's it's really more than one factor here that that leads to success in the way out of this. One of them is the actual cognitive skill set of being able to sustain attention.

[00:34:04.980]
And I think that that even if you want to and meditation is a great way to build that that ability.

[00:34:13.710]
I mean, you know, meditation, many forms of concentrated meditation are essentially that there are attention training practices in many ways. And so that's part of it. And then you have to make the decision to actually apply it in a consistent fashion. And that comes along with controlling your environment to put you in the best possible setting to accomplish it.

[00:34:39.990]
And then there is you know, with all of that comes the forming of new habits so that it's not a constant.

[00:34:47.830]
Control effort to do that, that that it is your reflex, your reflex is to engage in the world in this way.

[00:34:56.860]
And I think that with all those factors, it's possible to see your way through.

[00:35:01.900]
But it comes with recognition of what the cost of this type of style of interaction with technology. And your environment in general is that allows it gives you the motivation to take all these steps to just live differently.

[00:35:15.550]
So how can technology help? I mean, you have this phrase. I've heard you use digital medicine, which is part of what you're exploring as a tech entrepreneur and a scientist. You know, what is digital medicine and what else do you see on the horizon in terms of new technology that can help us?

[00:35:35.740]
Yeah, well, thanks for thanks for the opportunity to talk about both sides of this coin, because normally, like in very short formats, I'll do like an NPR interview. And I have five minutes.

[00:35:46.120]
And it's a nuanced discussion because here I am, the author of a book called The Distracted Mind.

[00:35:52.600]
We just have been talking for 40 minutes about all of the challenges of our ability to maintain attention and how technology has aggravated that. And what I spend most of my time working on, on the academic and on the industry side is using technology as a way of improving attention. And so it is complex, you know, on the surface. So I appreciate the opportunity to dive in a little bit. I think it's not dissimilar from, you know, most other things in nature is that there's a yin yang, right?

[00:36:26.380]
There's always this push and pull in. Any sword can cut both ways, a term that you used already. And that's true of technology.

[00:36:34.360]
And I, I sort of dove in deep into that pool of OK, technology has aggravated our our already fragmented attention and a lot of the ways that we've been talking about, starting with that as a foundation.

[00:36:50.370]
Can we reimagine it as a tool to actually do the reverse, to help our attention and that is a goal that was born out of just practicality that I don't believe we're put in this genie back in the bottle. I mean, it is here. It is powerful and it has a lot of really amazing assets.

[00:37:09.090]
It's all over the world. Right.

[00:37:10.800]
So it has this incredible ability not just to connect, but to reach people that don't have access to many things like doctors and teachers.

[00:37:21.300]
So it has all of these incredible strengths that really appeal to me.

[00:37:26.250]
And so I dove into, you know, now it's been 12 years since I challenged myself at thinking about technology as a source of good, not just in general, in some wishy washy way, but actually as a tool to

help fine tune attention abilities. That was my original goal. And starting 12 years ago, I came up with, you know, sort of this idea. I used the term digital medicine a lot. I think more frequently I use a term experiential medicine to encapsulate something a little larger, digital medicine being an example of that or one of of many types of experiential medicines.

[00:38:04.680]
But the the general idea behind digital medicine and the bigger category of experiential medicine is that our brains have this phenomena of plasticity, its ability to modify itself at every level in response to challenge and experience.

[00:38:20.130]
And this is then the basis of learning it exists throughout our lives. It doesn't just end after you become an adult and certainly not through older ages, as we now appreciate.

[00:38:31.570]
And so the general concept is if we can challenge the brain in a targeted way and align the mechanics of whatever that interaction is and the reward systems appropriately, we should be able to optimize these neural systems, whatever they may be.

[00:38:50.580]
And it's a very ancient practice. Meditation, mindfulness, which I know is a big part of your world is, I would say, a perfect example of an experiential medicine, and it could be delivered through a human expert or it could be delivered digitally, in which case I would say that's a digital medicine. So that's sort of, you know, the high level path that I've been on now for over a decade, both in research and in sort of product creation and entrepreneurship, is to think about how we build technologies that create interactions that help us improve the function of our brains.

[00:39:27.160]
Yeah, I want to reiterate that point you just made, which is often made, but I feel like it doesn't really land for people, or at least it. It can be one, it's counterintuitive and to it it's often hyped in a way that that is misleading. So this notion that what you do with your brain winds up physically changing your brain based on neuroplasticity. You know, this is a fascinating fact about us that the machinery that is producing our experience and cognition changes itself based on how it's used.

[00:40:03.060]
And yet, as you point out, that's that's the key to all learning and everything else about us. That leaves a trace. Right. So if someone's going to remember anything about this conversation, they'll remember it based on actual physical changes in their brains. That's what the encoding of memory requires. And yet it's often said that people kind of marvel at the claim that that there's evidence, scientific evidence that something like meditation practice can physically change the brain or the functional behavior of the brain under neuroimaging.

[00:40:37.950]
But of course, it does. Right? Literally, everything you do changes your brain. So on some level, it is a kind of a hyp claim that one hears in the meditation literature to emphasize this point because everything changes your brain. But because we have this general property of plasticity, we really should view the consequences of paying attention to specific things and specific ways as being fairly indelible until we do something else that changes us in some other way.

[00:41:13.170]
Right. So on some level, you you get more of what you pay attention to. It's almost like the algorithms that are successful a game in our attention when we know that if you're on YouTube and you keep clicking on videos of cats or Olympic sprinter finals or whatever it is, whatever you get into, you get more of the same. And on some level, you that same kind of algorithmic property is true of us. I mean, you you're making yourself based on what you're doing with your attention and the kinds of habits you're ramifying and you are quite literally sculpting your neural circuitry in the meantime.

[00:41:54.810]
And everyone experiences this in miniature psychologically. But it's another thing to to remind yourself that there's a physical basis for this kind of, you know, living sculpture that is producing this. This is something that we've been doing inadvertently, more or less every moment of our lives. And now we have the most well resourced and technologically competent companies that have ever existed, turning their their tractor beams on us and demanding our attention from every screen in sight. And what you don't take responsibility for here is going to happen to you based on other people's business models.

[00:42:39.210]
And it's it's just worth realizing that the causality here is not really in dispute. Basically, all of these moments matter and they they deliver to you your future self who will have whatever competencies or or weaknesses or a mounting dissatisfaction with the life to deal with. And if your life doesn't feel the way you want it to feel, there's a lot you have done on purpose and by accident to bring yourself to this point. And there's a lot you may yet do to feel differently.

[00:43:14.670]
Yeah, I mean, that was a beautifully set.

[00:43:16.380]
I think that that is really true. It's sort of something that's overhyped and used sometimes even as a marketing tool and yet underappreciated for its true, profound power of change that it that experiences can can induce.

[00:43:33.060]
One way that, you know, the reason I use I put the word medicine in there, although it doesn't have to necessarily be or. If you'd like to continue listening to this podcast, you'll need to subscribe at Sam Harris dog. You'll get access to all full length episodes of the Making Sense podcast and to other subscriber only content, including bonus episodes and Amma's and the conversations I've been having on the Waking Up app. The Making Sense podcast is ad free and relies entirely on listener support.

[00:44:06.880]
And you can subscribe now that Sam Harris Doug.