

Jacob Morgan 00:00

Big Turkish. Yeah, very nice. I take chess lessons with a Turkish grandmaster. Yeah, is that right? Yeah. He plays for Turkey. Oh, alright, cool. I'll jump right in unless anything else? Nope. Okay. Make sure it's recording and you can see and hear me okay, right? Yes, perfect. Yes, everything's right. All right. Hey, everyone. Welcome to another episode of the future of work. My guest today is Sinan Erol. He is a professor. Oh my goodness. Let me read it one more time. I said, Professor. Hey, everyone, welcome to another episode of the future of work. My guest today is Sinan Erol. He is a professor of management, marketing and data science at MIT, and director of the MIT initiative on the digital economy, also the best selling author of an awesome book called The hype machine, how social media disrupts our elections, our economy and our health, and how we must adapt. Thank you so much for joining me today. Thanks for having me. I have so many questions for you. But before we dive in into the book and some of the research you did, why don't you give us just a little bit of background information about you?

Sinan Aral 01:21

Yeah, absolutely. So the way I describe it is that I am a scientist, entrepreneur and an investor in that order, which means that I'm a scientist first. So I got my PhD at MIT. I am a researcher and scientist, first and foremost. But I've also started and sold several businesses based on my scientific work. And after being an entrepreneur for about a decade, I co founded a venture capital firm called Manifest capital. So really, the best way to think about me is somebody who is a sort of a data nerd scientist, who has experience building businesses in the real world, and then stepped back from building individual businesses to thinking about sort of the forest rather than the trees to invest in multiple businesses to try to, you know, affect change in the analytics, machine learning space. So I've got some practical knowledge, some scientific training, and really think about our digital economy with all three of those hats on at various cost.

Jacob Morgan 02:38

And as we established before I pushed the record button, I was asking you where you're from? And you said, You're from Turkey, I mentioned, I take chess lessons with a Turkish grandmaster. But how did you get from Turkey to getting a PhD to being an entrepreneur? Like, what was the journey? Like to accomplish all that?

Sinan Aral 02:59

Yeah. Yeah, you know, I'm a, I'm a first generation immigrant to the United States. Not that it was really my doing so my parents brought me to the US when I was quite young, four or five years old, and I grew up in Atlanta, Georgia. And after college, I sort of bounced around from one gig to another. I was the first mate on a sailboat in the Mediterranean. I was a bartender I was I was the assistant to the director of DG one be in the European Commission, which was external relations to the southern Mediterranean and North Africa and the Middle East. And then I decided I needed to get serious about my life. My parents, were none too pleased about the bartending and the sailing exploits. So I went to graduate school, I was always extremely interested in technology, and its effects on society. That's really what's driven me intellectually for, you know, the last three decades, I would say. And so yeah, I got a master's degrees, and I got my PhD at MIT. And I was extremely enamored with the idea of

scientific research, pushing the boundaries of human knowledge. So really, everything that a scientist does that is peer reviewed, and published, has to be something that humanity did not know before that and that, for me is a really interesting concept.

Jacob Morgan 04:40

What is it about data and analytics and research that is particularly appealing to you?

Sinan Aral 04:47

Well, I mean, I think it really gives us a vision on to the world that we can't get from anecdote, you know, so it's, I respect the idea of interviewing People are conducting ethnography is to really see how people go through the process of working and so on. But it's just a different lens to be able to analyze, as we do in our studies, 1020 30 50 million people at a time interacting not just monthly or weekly, but daily, hourly, minute by minute, second by second. And then examining how that affects various outcomes, whether it's the rise and spread of COVID, or GDP, productivity, whether it's the spread of misinformation, which we've done a lot of research on online. And so I just think it gives us a different view on to the world at a very macro level, that can be extremely helpful, both for businesses and for policymakers.

Jacob Morgan 05:51

So obviously, the the title of your book is called the hype machine. What made you decide to write this book?

Sinan Aral 06:00

Yeah, you know, I've been studying social media for about the last 20 years. And when I got into studying social media we

Jacob Morgan 06:09

have 20 years ago, I'm trying to even remember, like, what was

06:13

we literally pine terminals and email?

Jacob Morgan 06:16

When was Facebook? When did that emerge? Was that like, 2000?

06:20

So I think Facebook was founded, I believe it was in 2006, if I'm not mistaken,

Jacob Morgan 06:27

MySpace was before that, I believe,

06:31

couple of years before that. So really, we're talking early 2000s. So when Facebook was founded, I was I was researching my PhD thesis at MIT. And I was studying online social networks through email data.

So I had I collected massive amounts of email data, to try and understand sort of the structure of these networks and how information was flowing through them, and what the structure meant for how information moved from person to person. And as that information moved from person to person, how did it affects their productivity? So if somebody had better access to information that was a function of where they sat in the network? Were they more productive? Could I measure that? Could I sort of measure that in a rigorous way? And you know, that really was all about large scale statistical analysis of information diffusion and its implications, right? So if people have differential access to information, maybe they can be more productive. But fast forward to today. And that same analysis applies to well, how does false news move through Twitter? You know, how can we think about whether or not COVID vaccines are going to be accepted in a particular region of the world or not based on the information that people have about COVID, and vaccines and vaccinations, so it can really be applied to human decision making writ large, and

Jacob Morgan 07:59

it's funny, I social network analysis is even a very big theme inside of companies, right? Where they try to determine, you know, are you more productive and engaged if you are like the hub? And everybody comes to you? Or who are those hubs of information that everybody goes to learn from? So it's, it's a fascinating field, and I know, it's one that's still very much practiced and studied. Now. A turn I remember, like the days of MySpace. I don't I mean, I wasn't really in doing what I was doing now. But I'm trying to remember, was this a topic? During the days of MySpace? Did anybody talk about things like fake news or influencing people or the spread of misinformation during the MySpace days?

Sinan Aral 08:41

No, I mean, I would say that we've been through a couple of iterations of how we think about the social economy. The first iteration you could sort of think of as techno utopianism, I think you could probably think back to the time when everybody was like, Oh, wow, you know, like, Facebook is gonna connect the world, and we're gonna solve all these problems. And then we went through. Yeah, exactly. And that's how they sort of touted it. I mean, I think we can think back to the, the first decade of Facebook, as you know, people thinking very positively about the concept of connecting the world digitally, and how that was going to really raise people out of poverty and solve inequality and address all sorts of social ills with information so that people can make better decisions and so on. And then we went through a decade of techno dystopianism, you know, where it was kind of like, Facebook creates all of these problems with the world. And not just Facebook, obviously, Twitter and all the rest of them. But I don't think either of these is really the accurate view. I think there's promise there. And there's also peril there. And what the book is about is what causes the peril. And how do we achieve the promise and avoid the peril. And it really has to do with how we adopt and use the technology and how we regulate it. You

Jacob Morgan 10:07

know, it's a very hot topic these days. So if you already just think like big picture and somebody said, you know, what is the state of social media? Now? I know, super broad, broad question. But how would you answer that? What is the state of social media today?

Sinan Aral 10:24

Well, I mean, is the moment that we're having this conversation today, I would say that the state of social media is at a crossroads. And it's at a really important crossroads, because we're also right on the verge of talking about this next iteration of the internet, which is web three, and the metaverse. And what we do now with regard to social media is really going to determine the internet of the future. So I'll give you just like a couple of examples. When we think about the web two and the social economy of today, it's extremely concentrated in the hands of a few big tech companies. So we've got a lot of debate right now about how do we handle the competition problem in social media? How do we handle the monopolization of this economy? Do we break up Facebook? Do we pass laws that force interoperability do we sort of think about data and social network portability, all these concepts that I talked about in my book, but if you kind of just pure around the corner, and you note that we are also at the very beginning of building, web three, and the metaverse and you see Facebook now meta, pushing all their chips into the metaverse, you see Microsoft acquiring Activision for the largest ever sale of a company in the history of sales to companies. I think it was a \$69 billion sale. Right? So so the decisions we make, for instance, about how do we regulate monopolies in this space? How do we think about mergers and acquisitions? How do we think about fake news and manipulation? That's all going to bleed right into the metaverse and it's all going to affect the internet that we have for tomorrow. So I think that the the topics are extremely relevant. And I would say we're at a crossroads. What we do now is really going to have a big effect in the years to come. When you say Metaverse

Jacob Morgan 12:27

for people who are not familiar with the term or what that means or what what 3.0 was all about. Can you give give a little bit of context around what what that is?

Sinan Aral 12:38

Absolutely. So the metaverse is sort of this augmented and virtual reality. Virtual reality, you can think of Oculus you put on these headsets and you experience a reality that is completely simulated in Avatar form. And really, the way to think about it is that the headsets that we have are clunky today. And the graphics that we have when you think about games that are played online today are amazing, but a far cry from what we'll have 510 years from now. So you can imagine a much more seamless headset and a much more realistic reality, simulated reality that is not just games, but it's working environments, it's interaction environments, it is socialization, it is all of those things. That is the sort of vision of the metaverse whether we'll get there or not, is another question, actually the topic of my next book, which I'm writing now. But augmented reality is the layering of information on top of our actual reality. So imagine, so Ray Ban just came out with a set of glasses, that will be augmented reality glasses that will layer data on top of the real world. So you you wear these glasses, you see the real world. And as you look at different things that might show you data about those different things, what building you're standing in front of, you know whether you should turn right or left if you're getting navigation from your glasses. Google Glass. Google Glass. Yeah, that was that was a An early attempt. I actually thought it was pretty good for the year in which it came out. But it wasn't a commercial success for a variety of reasons. But you can imagine you know that these glasses are also going to become much more just like normal glasses. Apple is said to be coming with a pair of augmented reality glasses snap as a pair already. So these are going to be data layers on top of the real world that's augmented and virtual reality. And then finally web three is the agglomeration of blockchain cryptocurrencies, non fungible tokens are NF T's and smart contracts. And that's really a decentralized financial system, which, you

know, we could talk about for hours and hours. There's a big debate about the viability and how it's likely to evolve whether whether and how it should be regulated and so on. That is a that are all hot topics currently reminds

Jacob Morgan 15:27

me of. I don't know if you're a fan of the book in the movie Ready Player One? No, yeah. You say that's absolutely fair depiction of the metaverse.

Sinan Aral 15:38

I mean, I think it is a good imagination of the of the metaverse I think that there are a lot of and so one anecdote that I have for you is when I was growing up, I read a lot of science. So I read you know, I read a lot of Neil Stevenson write Snow Crash crypto Nomicon. And I've read Snow Crash three times now I reread it just recently because of my interest in you know, cryptocurrencies, Metaverse, blockchain and so on. And as I read it, I was thinking myself, Wow, this is so you know. This was premonition, writing. It foretold the future really predicted the future. And then I realized, no, it wasn't predicting the future. It was actually inspiring the future because all of the coders that are coding up the metaverse today, grew up on that. So their vision of what a Metaverse looks like, was written in those pages in 1992. You can think of okay, player one that way as well, in that it is setting in our minds an example of what the metaverse might look like. And then we code to that reality. You know, because that's what we have as a as a role model for what the metaverse might look like.

Jacob Morgan 17:01

So when you think of like, where all this is going, you know, what, what sort of a world do you imagine one day that all of this is going to lead to? So you know, am I going to like wake up in the morning and put on my augmented glasses? Am I going to be strapping in at home into some sort of a chair that beams me into a virtual environment with coworkers? Like what where is all of this heading? In what is all of this going to ideally lead to?

Sinan Aral 17:35

I mean, that's a trillion dollar question. It's not clear. I think that a lot of it depends on what we do now. So the decisions that we make, are actually, you know, we have agency here, we have an ability to define how this evolves, there is no sort of path dependence that this is the future, this is the way it's going to be. But I think that there are some trends that are worth noting, I do believe that augmented reality is going to be sort of adopted more widely and first, because it isn't so intrusive, as virtual reality. So the idea that you're gonna strap this headset to your to your face all day long, makes it really hard to imagine that this is sustainable for long periods of time. Augmented reality, on the other hand, when we think about the cell phone, okay, do you remember those cell phones where it was like a briefcase with a cord to a phone, and maybe have it in your your car or whatever. And people were like, Oh, my God, you know, this is never going to be widely adopted, who's going to carry this thing around, it's so clunky. And now we all have supercomputers in our pockets, because technology evolved. So I think that there is a chance that things like that will happen with virtual reality. And I can imagine that there is an experience in the virtual world that we do take time out of our real world to experience that we do sort of go into that environment. And you know, whether it is to attend a meeting or to play a game, or to do other things. I think there will be a place for that. I think that augmented reality will become much

more seamless both through the lens that we would hold up with our phone and through glasses that we might wear. You can imagine phones that are completely transparent. I believe actually, that the way that Mark Zuckerberg thinks about it is that we are going to build both AR and VR into contact lenses, and that it will be so seamless that we won't have to wear anything except for these contact lenses that you will forget that you're even wearing. Once all of that and then you've got this separate set of developments in the in the blockchain chain, NF T's crypto space that are going to really potentially reshape the way organizations are structured and interact. You know, there's this concept of the decentralized organization. There's this concept of evolving property rights.

Jacob Morgan 20:21

Are people familiar with it?

Sinan Aral 20:23

Yeah. So yeah. So a Dao is sort of like a vision to a future, where a an organization is really a massive collective of individuals that don't necessarily have any specific affiliation other than membership in this organization through perhaps like the ownership of a token, or access to some sort of, you know, contractual right or obligation in an NFT, or a smart contract that allows them sort of voting rights in the decision making of this collective call it an organization. And, you know, you can see sort of movements towards that in the gig economy, where you've got individuals working for themselves, you've got a collective of individuals that sharing data in order to make that more possible. Through currently centralized systems like Airbnb helps hosts, find customers, you know, Uber drivers and Uber riders. Well, you might imagine a decentralized system, providing all those information coordination benefits, without the need for a centralized organization. I think that we are miles and miles away from any of this right now. But you can see sort of the possibilities of it in new technologies like blockchain, and like tokens, whether they're fungible or non fungible tokens, smart contracts, and so on.

Jacob Morgan 22:01

Yeah. Well, one of the things I actually did want to ask you about is the implications that all of this has on on work and how work gets done, because we talked about the implications in our personal life. Do you see work disrupting as a result of all of this? Does web 3.0 have the potential to change the way that we lead the way that we work the way that we communicate with each other?

Sinan Aral 22:22

Yeah, I mean, I think that we are in a period of extreme disruption for work right now. And I don't think it's just blockchain or virtual worlds that are that are causing that I think that you're seeing this idea of remote and distributed work being embedded in the workforce, you're seeing this idea of the gig economy and spot work, rather than employment contract, extended period, employment contracts, becoming more and more popular, you're seeing this idea of work from anywhere work, whenever you want to work out rather than nine to five, you know, it's affecting certain sectors of the labor force first, some labor is less likely to be disrupted, or it's harder to disrupt things that need to happen face to face, like services that are conducted face to face, if you're going to a restaurant, your waiters probably needs to be working physically there instead of remotely. You know, same with the with the chef. But other types of work, obviously, are encountering lots of disruption in terms of remote work and variable schedule work and so on. I think that yes, all of these new forms of organization, payment, contractual

coordination, are very likely to continue to disrupt the future of work a great deal. I mean, I would say that the next 20 years of work is going to experience significantly more disruption than the last 20 years, right, because we're also on the on the beginnings of that rise of AI of automation. That's creating skill biased technical change in the labor force. So it's automating certain jobs. It's creating new jobs, but humans have to reskill to be skilled enough to do those new jobs. So it's sending shockwaves through the organization of work and through the labor market.

Jacob Morgan 24:31

Let's talk a little bit about your book, because I also think there a lot of implications there into the workplace as well. And you did some pretty interesting studies in there. Can you talk about what some of the research was that you did for the book? And what some of the findings were that I found completely terrifying?

Sinan Aral 24:48

Sure, yeah. Like I said, I've been studying social media and the digital economy for over 20 years now. And, you know, we've done some of the Original research on how social media affects our elections, our economy or public health. And all of that is detailed in the book. And the book really tries to give a multifaceted perspective on social media. What do I mean by that? So I've got a chapter in the book called your brain on social media, which highlights all of the neuroscience evidence about what happens in our brains. And in our kids brains. As they use social media, this was one of the most fascinating chapters to research. And, really, it's it's incredibly informative, both to me as a parent and thinking about how to regulate social media use at home with my soon to be nine year old, as well as, as a citizen and as a researcher in terms of how it's affecting decision making, why we fall for fake news, why we seem unable to put down social media, why it's a deal with all of that.

Jacob Morgan 26:05

Sure, a lot of people heard you say that they're like, wait, I want to know.

Sinan Aral 26:10

Yeah, so basically, as I described in the book, the social media economy is based on an engagement economy. So the profit incentive of the social media platforms is to keep you engaged. And so the way it works is that it creates a it provides dopamine hits in the likes, comments and shares on your content, because it's social validation. So every time we get likes, comments and shares, it actually triggers a dopamine response in the brain, which provides us sort of like endorphins, a positive shock to our mental state. But that dopamine response sort of is an impulse up, and then it sort of wanes down. And as it wanes down, we go through a bit of a withdrawal. And we want more of that. And so that is what keeps us coming back. For more. When you combine that with what's known as a variable reinforcement schedule, where the pings on our phone, or the lights lighting up on our phone can come at any moment. Now, we are always thinking about our phone thinking, When is the next like, going to come? When is the next comment going to come? And now you've really got us hooked on this. And when Sean Parker gave an interview to Mike Allen in 19, in 2017, he said, Yeah, that's how we designed Facebook, we designed Facebook to give you little hits of dopamine, to keep you coming back for more as a psychological trick to keep you engaged with the platform. The other really interesting thing about the neuroscience of social media is that there's something in the in the cognitive

anthropology literature called the social brain hypothesis, which aims to answer the question, Why are human brains so big, relative to our body weight compared to other species, and there are a lot of competing theories, but one of the leading theories is that our brains evolved to be so large, in part to process social signals. We're obviously the most complex social species on the planet. And there's a lot of science to support the idea that brain development follows from social development, the more complex the social order, and the more complex deciphering the social order through social signals is, the more our brain has to develop. So we developed over millions of years to process very complex social information, how a person looks at us, who knows whom, who knows whom, who knows whom. So, human beings are said to be fifth order intentional, which means that, like, if I know that Joe is African, that means I'm first order first order intentional, if I know that Sally knows that Jim knows that Bill knows that Joe is African that's fifth order intentional to think that many hops deep in the social network is a complex social process. Our brains evolved to process these complex social signals, then we invented a technology that scaled these social signals into the trillions, overnight, almost in evolutionary terms. So in that sense, the meteoric rise of social media is no surprise because it's like throwing a lit match into a pool of gasoline. We were ready for this evolutionarily. And then we invented this technology that stimulates our dopamine and also is what we evolved to process. So that that's how we got the meteoric rise of social media.

Jacob Morgan 29:59

Same. No, no, go ahead. Go ahead.

Sinan Aral 30:03

I was gonna say and that's just one slice, right? So I do a chapter on the on the neuroscience. But I've also gotten a chapter on the economics, I've also got a chapter on the sociology, the business implications, and so on. So it sort of goes through each of these as a new different lens for how to understand social

Jacob Morgan 30:20

media. This also applies to social media inside of companies. Because similarly to Facebook, we also have things like Slack, we have these internal tools that we're using, where we also get likes and comments and shares, but it's from coworkers and from peers instead of from our just broader network. So does this what's the impact of work?

Sinan Aral 30:39

100%. So that's actually where I started, you said, oh, you know, when was Facebook founded? And how could you have been studying this in 2000? I began by studying social networks inside of organizations, and how that was related to the productivity of individualism. Looking. Yeah, exactly. Exactly. And so what we found was very clear, you know, predictive results about where someone is positioned in the social network. What does that mean for their access to information? What does that mean for their productivity, people who have privileged access to information by being in a certain part of the social network, are more productive, they are able to accomplish more, they get promoted faster, they get raises faster. And all of that is, is also detailed.

Jacob Morgan 31:32

It's interesting, because a lot of people say I don't use social media. And they say, Well, do you have slack at work? Or do you know, do you have one of these platforms? They say, Yeah, and I'm like, Well, I mean, it's pretty much the same thing. It's just, you know, a different different network that you're working with. Because I would imagine, as an employee, you're also addicted to seeing likes from your peers, you want to see your leaders commenting, like you want to see that same stuff happening. So do you find that same dopamine hit that same addiction, even if you don't have a facebook or twitter account can be through workplace platforms, too?

Sinan Aral 32:08

Yeah, absolutely. I mean, I think that any type of social response, whether it's validation, or reply, etc, is going to trigger very similar dopamine responses, maybe there's some variability from platform to platform, we think differently when we're on one platform or another, you know, but there's still going to be that inherent sort of social response in our brain, we're just finishing up a very major, very large scale study on LinkedIn, which is, you know, also a social media platform, where we're looking at the effect of social media on job creation, and job mobility, how does your use of LinkedIn affect your likelihood to get a new job to get a better job and so on? You know, this today is an extremely important source of jobs of job mobility, of professional networking. It is the largest professional social network in the world.

Jacob Morgan 33:13

Well, let's talk a little bit more about your book. Because I think we went off on a tangent you were talking about some of the research that you did, and some of the things that you found about how information spreads. So let's get back to that and some of the things that that you found there?

Sinan Aral 33:29

Yeah, yeah. So we did a study, the one thing that sort of shocked me the most as we were doing this research was the study we did with Twitter that we published in 2018, on the spread of misinformation online, and we published this on the cover of science. We studied all of Twitter, from 2006 to 2017 10 years of data. We had, we had the blessing of Twitter, and Jack Dorsey in fact, endorsed the project, I have to give a big kudos to Twitter for being so open and transparent in sharing this data and allowing us to publish it. The social media platforms today get a lot of derision for being very closed, not sharing data. Twitter was extremely open in sharing this data and allowing us to publish it without any sort of oversight with regard to you can't say this, or you can't say that they didn't do any of that. So we studied 10 years of Twitter's historical data 2006 to 2017, we had access to the entire historical archive of Twitter. And what we studied was the spread of true versus false information

Jacob Morgan 34:46

on Twitter and get into that how do you even like I'm just trying to imagine how many billions of messages that is and how you even trillion Oh trillion. Oh, yeah. How do you even begin to live Yeah, I'm just fascinated by the logistics of building a team and actually studying it and the computing power that's required. I mean that that must have been nuts.

Sinan Aral 35:13

Yeah, you know, when I was hired to join MIT as a faculty member in 2013, they actually gave me a, we have a computing cluster at the business school that supports all business school faculty and student research. And when I joined MIT, they gave me a sequestered set of my own nodes on that cluster that nobody else could use. Because the data processing of my research was so far exceeding the almost the entirety of the rest of the school, that we sort of siphoned this off and said, Okay, this part of the network is sin ons network, and he's gonna do his research over here, and other people don't use this part of it. And so yeah, the research is extremely large scale. And like I said, at the beginning, this gives us a really macro view of a lot of things that you can't study, unless you study them at this scale. And so what we did that the way that we the logistics of constructing the spread of the true and false news is interesting, too, we went to six independent fact checking organizations and looked at all of the things that they labeled as true or false news stories out there in the world. Over those 10 years, then we found the we found mentions of those stories inside Twitter. And then we worked backwards to the very first mention of that story in the history of Twitter. And then we looked at every time that story was mentioned or retweeted from that initial first instance, to the present day. And so what we recreated what are known as these Twitter cascades, where here's the first instance of this true or false story. Here's the first retweet the second retweet, then another thread retweeting, and then it creates these tree like structures of retweets, which is the information cascade of this true or false story over time in the Twitter network. And we did this for all of the true and false stories that were fact checked by six independent fact checking organizations. So we have this bucket of true stories, and this bucket of false stories, and the Twitter cascades of all of those true and false stories. Each of those cascades can be categorized mathematically, you can say, well, how fast did it diffuse? How many people did it diffuse to? How long did it take for this story to get to 100,000 people? You know, how many people retweeted it at every stage of its diffusion and so on. And these are ways to sort of describe how fast it's moving, how far it's moving, how deep in the network gets moving, and so on. And then we just compare, how does the true stuff compare in speed, depth and breadth to the false stuff. And what we found was extremely shocking. We found that false news diffused Farther, Faster, deeper and more broadly than the truth in every category of information that we studied. And that false false political news was the most viral by far.

Jacob Morgan 38:27

Why, I guess is the next question, right? Yeah,

Sinan Aral 38:31

that that was really interesting, right? That was the very first question on our mind when we found this result. First, we found this result and we said, Okay, we got to double check this triple check this and quadruple check this because if this is true, this is big. And when it was published, it was actually the second most influential scientific paper of 2018 in any discipline. And because it is shocking to hear that, and then the next natural question after quadruple, checking the results was why why is this happening? And the first thought in our mind was, well, maybe people who spread false news have more followers, or maybe they follow more people, or maybe they tweet more often. Or maybe they're more often verified users, so they have more credibility. So maybe they've been on Twitter longer. We checked all of these in turn. And in every case, the opposite was true false news spreaders, were tweeting less often less often verified, less often, you know, on Twitter for longer, and so on. So none of those explained the result. And in fact, falseness was spreading farther, faster and deeper, more

broadly than the truth, despite these characteristics, not because of them. So we had to ask, like, what could it be? So we came up with what we call the novelty hypothesis, which is that human when you read the cognitive science literature, you find that human attention is drawn to novelty new things in the environment. And when you read the sociality literature you find that we gain in status when we share novel information because it looks like we're quote unquote, in the know, or we have access to insider information that our friends don't have. So we thought, Maybe this novelty is what's drawing our attention to it, and maybe this desire to sort of like, raise your hand and say, Hey, this is really interesting. Like, nobody knows this, makes us retweet it. And we analyze the novelty of the true and false news. And we found that indeed, false news was way more novel than the truth, and that this was attracting people's attention and causing people to retweet the information. So false news was retweeted, it was 70% more likely to be retweeted than the truth. In part, because of this, what we call this novelty hypothesis. It's shocking. It's shocking, or it shocks us. And, and we're surprised and that makes us want to

Jacob Morgan 40:58

read it. Interesting. So I'm assuming when the people are doing it, they don't know that it's fake, right? I mean, they think that they're sharing something legitimate. I mean, could it just be as simple as when the creators of fake news put that out there, they're just better at making click baby headlines and titles, versus traditional media outlets, very conservative, and they're just kind of like, you know, so and so address the capitol today, versus, you know, some other headline that you could click,

41:28

you know, big, big problem, riots or whatever, you know, that you're gonna click on that? Yeah.

Sinan Aral 41:34

Absolutely. So there is definitely an element of that. Frequently, the false news has elements of clickbait on it, you know, all caps letters are like exclamation points, and really catchy phrases, and so on. But one thing you mentioned is really interesting, which is that this idea of do that, do people know it's true or false? Would they would they really retweeted if they were sure that it was false. And so we actually have this third bucket of information known as mixed, partially true and partially false stories. And the story that opens the book is the story of mixed news, which is that the annexation of Crimea in 2014, saw the greatest spike in mixed news in the history of Twitter, four times larger than any spike in mixed news in the history of Twitter. And it rose and fell as quickly as it rose, right during the annexation of Crimea. And when we look into that spike of mixed news, we find that the top stories are essentially mixed Russian propaganda aimed at changing the international perception of what was going on in Ukraine, and the National perception of what was going on in Crimea inside Ukraine, in order to facilitate this information war that went along with their annexation. And that's really the story of that, if you think about it, that is the first time that European boundaries have been redefined by force since the Second World War. And a huge part of how it happened. And how it was allowed to happen was the information campaign that accompanied the tanks and boots on the ground. And that story of that information campaign is the story that opens that's

Jacob Morgan 43:42

crazy. And we didn't even get into talking about like the content farms and the bot farms. You know, they've been so many documentaries and things that have shown like, literally warehouses of just phones and computers, and everything's automated and it just looks like people are liking stuff and retweeting and sharing stuff. I mean, I'm assuming you looked at that, and,

Sinan Aral 44:04

yeah, yeah, so I just did a just did a, I did one of the final episodes of black market with Michael K. Williams on vice TV before he died. And it was, it was an hour long episode on exactly that topic. The illegal black market for bots, in pumping fake streams on Spotify, in getting concert tickets before everybody else and reselling them in getting the new Yeezy steaks. Sneaker before everybody else and reselling it for 1,000% markup. What of this is legal, what of it is illegal? How does the bot economy work and so on? It was a whole hour long episode devoted to that fascinating on vice that actually aired January 24 of 2022. Okay, so it just came up came out recently. Yeah. And I was honored To be able to work with Michael K. Williams, before he died, he was quite special. Why is

Jacob Morgan 45:05

this? And I know we only have a couple minutes left. But why is this such a hard problem for organizations to figure out because we know that they're bot farms, we know that their content farms out there, we know that there's fake information out there yet. It seems like the more and more we study it and talk about it and share that that's what's going on, the less it feels like anything is getting done. Is it just impossible, just with all the technology?

Sinan Aral 45:27

Well, I mean, I think I think, yeah, I think there's two answers to that. The first brings us back to an earlier part of the conversation about how the future of the Internet is about what the choices we make. Now what we do now, when it comes to bots, there's only one piece of federal legislation called the bots act of 20. I think it was 2012, maybe, oh, no 2006 it only covers concert ticket purchases. So there is no federal legislation making false streaming, illegal. There's no legislation that covers using bots to buy sneakers, and then marking them up for a higher price. That is all in a legal gray zone. And so there's a lot of regulation that needs to be thought through well, whether it's, you know, monopoly regulation and market concentration of the social media and big tech platforms, whether it's bots legislation, what we're gonna do about free speech versus harmful speech on the internet, you know, false news, etc. What, you know, what we do now is going to have a big impact on that. The second answer to your question is that it's hard. It's hard to ferret out, you know, streaming, fake streaming use of bots, you know, It's an Arms Race, that's difficult to win conclusively, ever, because those who are trying to get around, you're sort of, you know, defensive tactics just build better.

Jacob Morgan 47:10

They're very good at it. They're very, they're very sneaky. Alright, one final question for you before we wrap up, and that is, what do we do? So individuals out there, you know, most of us have regular jobs, working for organizations, we have lives, we have kids. And we know that all this kind of stuff is going out there that the hype machine is in full swing, is there anything that that we can do as individuals, either at work and in our lives to? I don't know, just not get sucked into that hype machine?

Sinan Aral 47:45

Well, I mean, I think that a better way to think about it in my mind is that this can be an incredibly useful tool. There's a lot of positive benefits to social technologies, meaningful human connection, access to life saving health information, productivity tools that help us get better information, find new jobs, you know, ability, people run their entire business off of Facebook, right. And in some parts of the world, Facebook is the internet in the Philippines, Facebook is the internet in parts of Africa, Facebook is the internet, people run their entire medium sized business on Facebook. And so there's a lot of potential to do a lot of good. We have projects in Africa, for instance, that promote HIV testing that promote vaccinations that promote donations to crisis relief, that promote, you know, finding organ donors, and so on. There's a lot of different good, the World Health Organization used WhatsApp to very effectively disseminate information about COVID During the COVID pandemic. So there's a lot of good that could come of it, the real challenge is to achieve the promise of social media and avoid the peril. So we have to be able to be aware of and to, you know, tamp down the psychological effects of social media. So we need to be aware of taking breaks this idea of the very variable reinforcement schedule can be short circuited by turning off notifications, and blocking times where you use social media and not paying attention to it when you're not using social media. We can there are tips and tricks in the book about how to spot fake news, and how to make sure you don't fall for fake news or share fake news. We can build better platforms to deal with some of these problems as well. And so the book really tries to detail both what organizations can do, but also what individuals can do to harness the power of this technology for themselves, while avoiding some of the traps that it sets for them.

Jacob Morgan 49:58

Like my family is definitely one of the One of the groups out there that falls victim to fake news. You know, my 84 year old grandmother, sometimes she forwards me some stuff that she finds online and she's like, Oh, look what's going on. I'm like, What? What the hell is this? Like, where did you eat? And I look at the doors, you get there, and it's some like random website, some random YouTube channel, and it says, like, the Science Channel or something like that. I'm like, alright, you gotta, you gotta stop with this stuff. But it's Yeah.

Sinan Aral 50:25

You know, what? One thing when you mentioned families, some a topic that I cover in detail in the book is polarization, right? This idea that these algorithms and this flow of information can really like, pull us apart as a society. You see this happening in families all the time, we just, you know, went through the the sort of part of the year where we have Thanksgiving and Christmas here in the United States. And we have this whole conversation of all these families coming together, and really not being in sync when it comes to politics. And the big question on everybody's mind is, to what extent is social media really sort of like these algorithms tearing us apart? And so I dive deeply into social media's role in terms of political polarization as well, fascinating

Jacob Morgan 51:13

topic. Well, why don't you let people know where they can go to get more information about you, your book, anything that you want to mention for people to check out?

Sinan Aral 51:23

Sure, absolutely. So it's just at Sinan? Erol on Twitter, at Professor sin on on Instagram, and you can find me on the web at sin on erol.ai. Oh,

Jacob Morgan 51:34

cool. Thank you so much for taking time out of your day to share your insights with me. I really appreciate it. Thanks for having me. And for tuning in my guest again sin on Iran. Make sure to check out his book hype machine, you can find it pretty much everywhere. A little terrifying but also fascinating at the same time. I'll see all of you next week. All right, let me push stop recording