Demetri Kofinas: 00:00:00 Today's episode of Hidden Forces is made possible by listeners like you. For more information about this week's episode or for easy access to related programming, visit our website @hiddenforces.io and subscribe to our free email list. If you listen to the show on your Apple Podcast app, remember, you can give us a review. Each review helps more people find the show and join our amazing community. And with that, please enjoy this week's episode.

Demetri Kofinas: 00:00:48 What's up, everybody? My guest on this episode of Hidden Forces is Sinan Aral. Sinan is the David Austin professor of management at MIT, professor of IT and marketing, and professor in the Institute for Data, Systems, and Society where he co-leads MIT's initiative on the digital economy. Sinan was the chief scientist at Social Amp. One of the first social commerce analytics companies, is currently a founding partner at Manifests Capital and has worked closely with Facebook, Twitter, Snap, Microsoft, and many other leading Fortune 500 firms to help them derive value from big data analytics, social media, and IT investments. He is here today to discuss the subject of his book, "The Hype Machine: The Promise and the Peril of Social Media."

Demetri Kofinas: 00:01:40 This episode is the latest in a series of thoughtful conversations that I've hosted on this podcast dealing with some of the more problematic issues surrounding social media and its influence on politics and society. My conversations with Shoshana Zuboff and Rana Foroohar come most immediately to mind, but my episodes with Cal Newport on digital minimalism, Hannah Fry on artificial intelligence, and John Borthwick with whom I explored a number of interesting philosophical questions related to the future of humanity and machine intelligence are also very much worth revisiting for anyone interested in further exploring the topics discussed today.

Demetri Kofinas: 00:02:23 As always Hidden Forces premium subscribers have access to not only the overtime segments where my guests and I keep the conversation going but also to the transcripts and rundowns to each and every episode which have proven to be very useful for anyone looking to dive deeper.

Demetri Kofinas: 00:02:40 I also want to mention that we now have five people subscribed to our scholar tier which gives you access to 90 minutes of my personal time every month. The scholar tier was previously capped at five, I've now added two additional spots. It's a great way to review content and material discussed on the podcast or explored in the rundowns with me, one-on-one. And I got to say, I've really enjoyed getting to know all of you who have taken advantage of this tier and it's been a great learning experience for me as well.

Demetri Kofinas: 00:03:11 So without any further ado, please enjoy this thoughtful conversation on The Promise and the Peril of Social Media with my guests Sinan Aral. Sinan Aral, welcome to Hidden Forces.

Sinan Aral: 00:03:30 Thanks for having me.

Demetri Kofinas: 00:03:31 How are you doing?

Sinan Aral: 00:03:32 I'm excellent. How about yourself?

Demetri Kofinas: 00:03:35 I'm good. Is this one of your first interviews ahead of the book's publication or?

Sinan Aral: 00:03:39 It is the beginning of a long stream of conversations that I think are just going to be a lot of fun and critically important, I think, to society as well.

Demetri Kofinas: 00:03:48 So when does the book publish?

Sinan Aral: 00:03:50 15th of September.

Demetri Kofinas: 00:03:52 15th of September. So are you excited? Are you excited to get on the tour?

Sinan Aral: 00:03:57 Listen, I mean, it's 20 years of research and four years of writing. I wish it would start tomorrow.

Demetri Kofinas: 00:04:03 So for listeners who may not be familiar with you, what's interesting is that it looks like you got a PhD in Econometrics, is that right?

Sinan Aral: 00:04:12 Yes. So I did my PhD at MIT Econometrics Statistics. Yep.

Demetri Kofinas: 00:04:17 And you also have a management background because you teach management?

Sinan Aral: 00:04:20 Yes. So I teach at the business school. The best way to think about me is that I'm a scientist, entrepreneur and investor in that order. I'm a scientist first. I'm a chair tenured professor at MIT. I teach marketing at the business school. I run a big lab and I'm the director of the Initiative on the Digital Economy which is one of the largest research centers at the business school at MIT. But I'm also an entrepreneur who's built and sold several businesses. And now I'm a founding partner of a venture capital firm called Manifest Capital. So I've kind of seen the topic of this book both from a scientist perspective but also from an entrepreneur's perspective as well as an investor's perspective.

Demetri Kofinas: 00:05:01 So I'm curious, how does someone go from studying econometrics to writing a book about social media? What was your career trajectory?

Sinan Aral: 00:05:09 Well, as I was doing my PhD at MIT, there was really a moment where I realized what I wanted to study. And that was a moment when I was taking classes in statistics or econometrics where we were learning about what are called blue models, which are the best linear, unbiased models that all assumed that there was no interdependence in the observations in our data. So there's an assumption called the IID assumption, independent and identically distributed. But then I was reading sociology papers about the complex interdependencies between people and social networks and I realized that, wow, there's this fundamental aspect of our society which is so interdependent that could probably explain a lot of the variants in these models that are assuming independence.

Sinan Aral: 00:06:01 So from that moment, I decided that I wanted to study this intersection of interdependence and what happens when we bring interdependence back into our thinking. And I was seeking a dissertation topic on technology and that led me straight to digital social networks which became social media. I actually

started studying it in the year 2000. Four years before Facebook was founded, I wrote my PhD thesis on it and I've been studying it ever since.

Demetri Kofinas: 00:06:34 That's interesting. So I wonder, how does that impact in the context of fake news, for example, the way in which information spreads across the network?

Sinan Aral: 00:06:43 Well, how information spreads online and how we influence each other interpersonally online is really my expertise. And so from a statistical perspective, my expertise is in causal inference which is trying to sort out sort of in a morass of different causes and effects what causes what and how can we know that and how confident can we be in that? And so what I started studying was these very large data sets of information diffusion in social networks online but online in general and then trying to use detailed and rigorous statistical techniques to understand how that influenced population scale behavior change.

Sinan Aral: 00:07:30 And the reason that's important is because it's highly relevant to business education because as a marketer, you want to understand how your persuasive messages change consumer behavior. But if you're a congressman or woman who is investigating Russian interference in our democracy, you also want to know how does misinformation originating from Russia or elsewhere change voter behavior. And it turns out the answers to those two questions is the same. You would go through the same rigorous scientific process to answer the question of what's my ROI on digital marketing as well as did Russian interference change the 2016 election or is it going to affect the 2020 election is the same analysis?

Demetri Kofinas: 00:08:15 Well, I know you wrote a paper on this that was published in Science Magazine back in March, 2018, right?

Sinan Aral: 00:08:21 Yes. So we did a very large longitudinal study with Twitter that looked at all of the verified true and false news stories that ever spread on Twitter from its inception in 2006 to 2017, so 10 years of data. And we collected all this information, we measured the differences in the spread of true and false news and we found that false news traveled farther, faster, deeper and more broadly than the truth in every category of information that we studied sometimes by an order of magnitude.

Demetri Kofinas: 00:08:57 Why is that? Why did you find that was the case?

Sinan Aral: 00:09:00 Well, so our initial thought and as I was thinking about it is I said, "Well, it could be that people who spread false news are just different than people who spread true news. Maybe they have more followers or maybe they follow more people or maybe they're more often verified users of Twitter or they use Twitter more often or they've been on Twitter longer." And we checked each one of these in turn and what we found across the board was that the opposite was true. So people who were spreading false news had fewer followers, followed fewer people were less often verified, less often on Twitter, had been on Twitter for a shorter period of time. So we had to seek some other explanation for why falsity was traveling so much faster and farther than the truth. And so we landed on what we called the novelty hypothesis.

Sinan Aral: 00:09:50 So if you read the cognitive science literature you know that human attention is drawn to novelty. What's new in the environment around us, both in an information sense but it probably goes back to our evolution where we were looking for the lion's head, peaking up over the bush on the horizon that we needed to be worried about. And also if you read the sociology literature, you realize that we gain in social status when we share novel information because it makes us look like we're in the know or that we have access to some sort of insider information that other people don't know. And so we tend to be drawn to novelty and to share novelty.

Sinan Aral: 00:10:32 So we checked this in our data and we measured the novelty of true and false news by looking at all of the tweets that people had seen in the 60 days prior. So in a two month window before seeing a true or false tweet, and then we looked at information theoretic measures of the true and false news compared to what had been seen in the two months before. And we found indeed that false news was significantly more novel.

Sinan Aral: 00:10:59 But that wasn't enough for us to sort of verify this hypothesis. We then looked at scale at all of the replies to the true and false tweets over a 10 year period and we looked at the emotions expressed in those replies across things like sadness, anger, joy, anticipation, trust and so on. And what we found was that replies to false news exhibited significantly more surprise, anger and disgust. So it turns out that false news is surprising and novel and just enraging. It creates emotional highs of anger and disgust and we tend to be engaged with that kind of content and to share it more. And that whole story of the hype machine, as I call it, social media industrial complex, it's business model being built on intention and engagement and therefore emotional arousal is a big part of the explanation about what we see in society as a result.

Demetri Kofinas: 00:12:10 I wonder also to what degree believability comes into play, right? Because I mean, if a story is completely out there, how does it stack up against this story that's slightly unbelievable but also partly believable because it has elements of reality in it? Did you look at that?

Sinan Aral: 00:12:26 Yeah. We looked at that specifically and the opening story of the book is about the annexation of Crimea and the use of misinformation during the annexation of Crimea to sort of shape and mold the reality that was being perceived on the ground in Crimea and Ukraine but also in the international community about what was happening in Crimea and Ukraine. And what we saw when we looked at the true and false news, there were three categories of information we looked at, we looked at true news, false news and a category called mixed, which is exactly what you're describing. It contains some true information and some false information.

Sinan Aral: 00:13:09 And when we looked across the 10 years of Twitter data, we found one spike in mixed news that was four times greater than any other spike in mixed news in the history of Twitter over those 10 years. And that spike happened during the two month window of the annexation of Crimea. And when we dug into the stories that were being spread in this batch of mixed news, we found that they parroted very closely what was being said by Sergey Lavrov, the Russian foreign

minister at the time about Crimea. And it turned out that mixed news when you kind of cloak it in a veil of truth, falsity has a more persuasive sort of bent to it.

Demetri Kofinas: 00:14:00 Yeah. For listeners who haven't read Andy Greenberg's book, "Sandworm," he chronicles this really well in the book. And it's a fascinating story because it's also maybe the best case example of a country, Russia in this case, using multiple attack fronts including cyber and misinformation and active measures to influence campaign against the country. It's a fascinating story. We also did an episode with Thomas Rid and one with David Kilcullen and the one with Kilcullen, we talked about this specifically in terms of like liminal battle space, but the one with Thomas Rid is super interesting. Again, I mentioned that for listeners because of the conversations around active measures and misinformation. And it brings a lot of important nuances because we're going to get back into that when we talk about truth as part of a larger conversation about sort of the power and responsibility these platforms wield.

Sinan Aral: 00:14:51 Well, I mean, one thing to note about that for your listeners is that as you know you've read the book, it's packed with science and data. And I've been doing that work for 20 years. What you'll read about Crimea and Russian active measures in Crimea specifically and as well in the 2016 election and in 2020 is primary research that doesn't exist anywhere else. So this is revealed in the book for the first time. It is an extension of the work that was published on the cover of science by myself and my collaborators in 2018. But this is stuff that hasn't been seen before. So I think it might add a little bit to that conversation.

Demetri Kofinas: 00:15:33 Yeah. Well, so you spent a lot of time at book chronicling and analyzing both fake news and fake news in the context of the 2020 election, I think that is an interesting thing. I mentioned to you that we have done a number of episodes on this subject and it's something that's interested me going back to... Well, I guess amateurish forever but I think the first book that I really read on this subject was Sherry Turkle, that was her name. Sherry Turkle's book alone together and then that got me into reading a lot of stuff whether it was Nicholas Car or other people dealing primary-

Sinan Aral: 00:16:06 You're bringing out all the MIT big guns.

Demetri Kofinas: 00:16:09 There you go. Yeah. And I was interested in the psychological dynamics when I first got into it. I still am but I think what I've also become much more aware of are the power dynamics and how much power these platforms have and also how different their expression of power is and the dynamics of how power influences our economy in our society in this world than let's say in the old forms of corporate concentration that we saw under the trusts and the monopolies of the late 18 and early 1900s. And we'll get into that also when we talk about antitrust and we talk about regulation, how do you regulate? What are the design elements that you can introduce? Then we get into an issue of how do you enforce the proper types of designs even if you couldn't have agreed about what are the proper ethics, what goals do you want to achieve is extremely complicated. But speaking of goals, let's actually start with your goal. What was your goal in writing this book?

Sinan Aral: 00:17:08 So we have a number of books that come from essentially a vein of techno utopianism, right? So technology is going to save the world. We've got this sort of utopian positive view of how technology is going to lead us into the future and we don't really have to do much and it's going to be great. Then we have this other line of books which is essentially techno dystopianism especially in the last several years, how the sky is falling. And we've got a number of different examples that we could talk about there whether we're talking about AI and machine learning and Elon Musk works as poetic on this and others, you got Nick Bostrom's book, you got other books like that.

Demetri Kofinas: 00:17:51 I read that book. I don't know if you... I enjoyed that book. I mean, it is obviously-

Sinan Aral: 00:17:54 Super intelligence.

Demetri Kofinas: 00:17:56 Yeah. A very interesting book.

Sinan Aral: 00:17:56 Great book. No, I mean Nick Bostrom is a very smart guy. He's a philosopher obviously. And Elon Musk, I guess, you could really think of him as the Thomas Edison of our time and these are big names. People who're-

Demetri Kofinas: 00:18:11 Interesting. I was going to call him an armchair philosophy but...

Sinan Aral: 00:18:12 Well, I don't know how much of a philosopher Thomas Edison was but you can't... I mean, the guy's entrepreneurial chops are second to none. I mean he's really a visionary when it comes to those types of things but he's also kind of, he's done and said some kind of kooky things as well. So you kind of got to take with a grain of salt the different things that have been said. But going back to your question about what's the point of this book, the point of this book is basically to say that, listen, the techno utopian or the techno dystopian perspective isn't realistic. That obviously there are some life changing values that can be brought to bear by this technology and any technology really.

Sinan Aral: 00:18:57 It has tremendous power to create positive social good in the world, economic opportunity, social connection, delivery of lifesaving health information. There are numerous examples in the book of this but it also obviously has the potential to rip our society apart. And the goal of the book is to get past the is it good or is it bad debate and really ask what can we concretely do to achieve the promise and avoid the peril? And so it's essentially a scientist perspective of how it works under the hood and an entrepreneurs and an investors and a scientist's perspective of how can we roll up our sleeves and actually fix what's going on in our society?

Demetri Kofinas: 00:19:47 Yeah, I mean, this goes back to the earliest forms of technology. I mean, Plato lamented the spread of the written word detached from the thoughts and teachings of the teacher because he felt that it lost the value of the teaching of the philosophies. And there are always things that are lost. There's no question about it. In fact, I wonder if in the end television has been a net benefit for society. I think the movie studio has been the capacity and I think this gets into the always on issue. You can see a movie and appreciate it artistically and have that experience if you go physically to a place watch it, come back. But has it

been great for America over the last 40, 50, whatever, 70 years that we've had the strong presence of television and in many instances propaganda being pushed through our sets, infiltrating the minds of our citizens and our children commercials, the use of commercials? I mean, how many parents had to deal with their kids asking for things that came entirely through the TV set?

Sinan Aral: 00:20:52 Well, I mean, I think that technology is neither good or bad, it all has to do with what we do with it that matters. And you can imagine a number of parallel universes in which the same technology television exists and yet we push different stuff through the pipes. And we think of the value that it creates or destroys differently than what we have today. What I say in my book is that there are four forces that determine how this shapes up today and in the future. And those are money, code, norms and laws.

Sinan Aral: 00:21:29 And the way we handle money, code, norms and laws will determine whether we achieve the promise or are stuck with the peril. And when I talk about the money, it's the business models and the incentives. And what you just described is a business model of advertising that we chose for television. And the consequence of that choice is what you described as the outcome is, are kids watching endless commercials on TV? If they're watching TV, it's not the same in Europe, right? So there aren't as many commercials in different parts of the world. There are different ways to monetize technology. So money is one of the four key levers that we have to steer the outcomes of this technology.

Demetri Kofinas: 00:22:13 So, I mean, let's actually... I want to talk about all four of those things. My next question will really be, what is the promise? Since you mentioned promise, let's go there. Again for listeners, one of our first episodes that we ever did was episode four with Gary Edgerton and his book, "The Columbia History of American Television" is fascinating for exactly this. You see how a new technology changed the art, but also business models and how all of those things affected and regulations. And it's fascinating. And this whole is also, of course, in the internet. So what is the promise of social media Sinan?

Sinan Aral: 00:22:46 Well, I mean, there's an entire chapter called the Social Media's Promises, also it's peril. That essentially goes through a number of different examples of promise. So a really good one is this ability to mobilize large swaths of society towards productive goals. And the reason it does that is because it provides a means to signal cooperation and to coordinate action. And so there are so many collective action problems in the world. So for instance addressing climate change requires large numbers of people and businesses to cooperate to reduce their carbon footprints even though no one individual's action will move the needle on climate change, like vibrant democracies depend on large numbers of people voting even though each person's vote is largely inconsequential and combating contagious diseases as we're in a pandemic now requires enough people to remain socially distant or to wear a mask or enough vaccines to be taken to achieve herd immunity even though each individual decision doesn't move the needle and has potential costs to a given individual.

Sinan Aral: 00:23:57 And so the collective action problem is a problem that philosophers and political scientists have been thinking about for centuries but never have we had a technology that is so vast and persuasive on population scale, but one to one

and personalized as we do social media, that it really provides one of the first real technological mechanisms to create collective action very effectively. There are many other sort of elements of promise. So another great example is the idea of economic opportunity. Having a platform that connects any individual or any small business to the world, not just on the internet but in a personal way where it is a social technology, creates the opportunity to educate, to create and distribute products and services whether you're a small business on a scale that's never been kind of seen before. And you see a lot of this happening on Facebook and in other types of platforms like this, not to mention things like the social support that we get, the ability to connect deeply with our friends and family.

Sinan Aral: 00:25:16 We are seeing that now as everyone is shut in due to the coronavirus pandemic, our need to connect with our friends and family being in large part sort of served through social media. The interesting thing... One of the kind of the story that opens the chapter is the Nepalese Earthquake in which it was an 8.1 magnitude earthquake, many, many people displaced. And the US donated a certain amount of money, Europe donated a certain amount of money and Facebook spun up a donate now button and donated more money to relief efforts in a tiny fraction of time than the United States and Europe combined.

Sinan Aral: 00:26:02 So that kind of mobilization is possible through 700,000 different giving events to create this mass mobilization. But the interesting point of that chapter is that the promise and the peril have the same origin, which means that the same pipes that you can send good content through, you can send bad content through. The same economic opportunity that's created by social media also creates inequality. The same collective action that can be used for a positive social movement to create real positive change can also be for nefarious purposes. And so that makes the hype machine, social media difficult to regulate because as we turn down the peril, we also turn down the promise, as we turn up the promise, we also turn up the peril and I'm sure we'll get into regulation, but that creates a fundamental conundrum of regulating social media.

Demetri Kofinas: 00:27:05 Yeah. I have so many thoughts and complex thoughts. One is that I don't think you could find anyone that would disagree with what you said that in the event of an earthquake, the ability to send relief aid is overwhelmingly positive. Who could argue against that? One of the thoughts that I had is so much of what Facebook offers in terms of the products that it offers advertisers and other people to target its users and so many of the design decisions that it makes on the UI side for users really have nothing to do with the capacity to mobilize a network of individuals to donate money. Would you agree with that?

Sinan Aral: 00:27:45 Well, yes and no. I think that what we're going to see is that the visionary leaders of the new social age, as I call it, will be the ones that realize that the long-term profit maximizing business models of these platforms are the ones that maximize positive social value rather than short term engagement. So you can stick with the engagement model, the one that is based on advertising, that's about selling people's attention and so on. But a short term view of that is that I'm going to maximize clicks in the moment and try to maximize short term engagement metrics. And the way I'm going to do that is I'm going to push

harmful, salacious, anger-inducing, disgusting content and that's going to keep people engaged. They're going to share it because of all the reasons that we discussed a second ago with fake news and that's going to maximize some short term engagement. But the point is that that's not long-term profit maximizing because eventually we're going to realize that and we're already seeing this, that I don't like the information ecosystem that this creates for me.

Sinan Aral: 00:29:02 And that then creates the Delete Facebook movement, the Stop Hate for Profit movement and all of the backlash that comes with the pollution that has entered the information ecosystem as a result of this short-sightedness. But if there are leaders in this space that say, "Well, you know what? If I provide an ecosystem that provides all of the good stuff, the lifesaving information, the mobilization of aid to Nepal, the economic opportunity but none of the bad stuff," that that will prevent people from turning it off entirely which is not long-term profit maximizing.

Demetri Kofinas: 00:29:42 This may just be me, but Facebook for me today is like channel surfing on television. I think the vast majority of the behavior doesn't really contribute to my life in a positive way. That's my experience. I do think that there are people obviously that can benefit from using it inordinately benefit but those people are primarily people on the commercial side. Twitter has given me tremendous benefit. Because of the nature of my work, Twitter is kind of where those conversations happen, but also Twitter is an incredibly simple product. It is basically a global broadcast SMS or text. And again, I think... And we'll get back to this but the point that I was making earlier is that for me the vast majority of the innovations that have happened on social media are not actually beneficial to the user. I think they're beneficial to anyone who seeks to exploit or manipulate or prod or alter the mindset behavior or hijack the agency of the users on the network and steer them towards their commercial ends. Very much a Zuboff interpretation but I'll give you a chance to answer that, but I want to say one thing, also throw it out there, because I want you to remark on it as well.

Demetri Kofinas: 00:30:51 When you mentioned positive social value, this brings us into a real quandary, which is that we've been debating ethics as a philosophical pursuit for millennia. We haven't got and made much progress. I mean, it's not so much that we made progress is that parts of society have come into closer agreement about what those ethics are and they formed communities and governments and societies who is to say that the Arab spring was the use of Twitter and the Arab spring was a net positive. We say, it's a net positive, let's say in the US or we did at the time, certainly elements of Egypt's ruling class did not. And similarly in China, the flowering of the democratic movements in Hong Kong, the umbrella protests, those in Hong Kong are overwhelmingly positive.

Demetri Kofinas: 00:31:44 We see them as positive because we share values with them but many in China and in mainland China do not. This is an extreme example but of course there are many, much less extreme, much murkier examples of within our own society where tech platforms make decisions about what should be censored and what should not be, what is true, what is not true, bringing us back to the issue of fake news. And I find myself very much disagreeing with decisions that executives of some of these companies have made and I don't consider myself

an illiberal or benighted individuals. So those are the kind of two things, take them as you will.

Sinan Aral: 00:32:20 Yeah. I mean, well, I think you've answered your first question with your second question. So I think-

Demetri Kofinas: 00:32:25 The channel surfing?

Sinan Aral: 00:32:27 Well, no, I mean, I think that your first question is it really geared towards the positive or is it really just about the manipulation? And then your second question is, well, it can essentially be used in many different ways and that's the answer. Technology is neutral. It's an artifact and it's not positive or negative, it's positive or negative based on how it's used. Now, what the book argues is that there are a number of very detailed suggestions in the book that essentially follow these four levers of money, code, norms and laws that will help us achieve more of the good and less of the bad but it takes us to use technology wisely and appropriately and to regulate it appropriately.

Sinan Aral: 00:33:18 And as the business leaders set up the incentives and the business models appropriately and for the designers and the engineers to write the code appropriately, to see more of the benefit and less of the harm. The argument of the book is essentially that yes, that currently what we're seeing is exactly what you described which is more the negative than the positive. But that it points out. The book does or I do in the book that there is a ton of positive potential that has shown glimmers of hope over the years that social media has been around. And that there are ways that we could see more of that and less of the negative. And that's really what the book is about.

Demetri Kofinas: 00:34:05 So this kind of makes me think about something, which is, yes, I would generally agree that technology is neutral in the most absolute sense but let's take nuclear technology, the discovery of the splitting of the atom. Yes, as a physical fact, it's neutral but in the hands of human beings, you could make the argument that it's been a negative. The benefits obviously are the capacity to generate cheap and non-pollutant forms of energy. Well, it's a pollutant but you catch my drift. But clearly there are not just material negative impacts of nuclear technology, the bombings in Hiroshima and Nagasaki and the meltdown in Chernobyl and the meltdown in Fukushima, but the long tail convexity of having nuclear technology, which is that over a longer period of time, you increase the possibility of wiping out humanity.

Demetri Kofinas: 00:35:00 Now, are those negatives worth the positives? Unless you want to argue perhaps that we can eventually control our animal impulses. And so to bring it to social media, social media technologies has currently deployed, forget the design implementations but the technology that the machine intelligence, the ubiquitous mobile, these accrue tremendous levels of power to a fairly small number of human beings. And so do we get to a point where that share some elements with nuclear technology or am I off the rails here? Do you disagree?

Sinan Aral: 00:35:38 Well, I mean, I think a couple of things. I mean, that's a great point and a great question. Nuclear technology unregulated has the potential to create a ton of harm but we have a number of treaties that regulate the use of weaponized

nuclear energy that have evolved after its use in Japan in the 1940s. And I think that that is part of one of the four levers which is the wars.

Demetri Kofinas: 00:36:07 Yeah. I mean, but experts on this will tell you that we're at greater risk of nuclear war today than we've been at any point during the cold war. And these are people like former defense secretaries. Now you can argue they're exaggerating or their job is to see threats everywhere.

Sinan Aral: 00:36:21 Well, no, I think that their concern is the falling of nuclear and other chemical technologies into the wrong hands. So it's about a dirty bomb in a city, it's about terrorists getting hold of a nuclear weapon, ideal issues.

Demetri Kofinas: 00:36:34 But protocol, I mean, some of the biggest concerns I've heard from people like Bill Paley are that their biggest concern is that there is a mistake in the protocols in the United States and Russia and some of these large nuclear countries that see each other as enemies. Not that we go to war as a result of perceived threat but actually an error. And been work obviously done. There's a great book, "Command and Control," which actually chronicles all the near misses where we almost wiped out a big part of the world.

Sinan Aral: 00:37:00 Well, I mean, I think a lot of that gets right back to the four levers in the context of social media. So take, for instance, political polarization in the United States, right? Errors are a type of code. I mean, protocols are a type of code and errors in the protocols can create outcomes that we don't want to see. If you bring this back to social media and you think about money, code, norms and laws in the context of one specific topic that I go into in great detail in the book, which is the dramatic rise of effect of polarization in society especially in the United States where one side of the political spectrum hates the other and vice versa. What is the role of social media in that? I kind of break that down by first principles and cite all the evidence and data and experiments that have been done on it.

Sinan Aral: 00:37:45 But if you think about the way that we form our networks, the vast majority of connections made on social media are driven by what are known as friend recommendation algorithms. These people you may know algorithms, they exist on Facebook, LinkedIn, Twitter and so on. And when engineers design those algorithms, they have a certain objective function. And that objective function is to give you recommendations that you're likely to take. And how do they do that? Well, they need to search through a number of different potential people to recommend to you and then choose some to recommend to you in some relevance order. But it's very difficult, for instance, on Facebook to search through the three or four billion other people on Facebook in order to recommend friends to you. So a very quick engineering shortcut through that complexity is to begin by creating a subset of your friends of friends.

Demetri Kofinas: 00:38:39 Sure.

Sinan Aral: 00:38:40 And choosing recommendations from that much smaller subset of people. But what that does is it limits the diversity of the people you're recommended, which then creates more what's known as homophily, birds of a feather flocking together. People connected to other people like themselves and then it creates

more clustering in the network. So densely connected groups of people that are similar to themselves further away from another densely connected group of people that is very different from themselves. And this evolves the human social network because much of our connections are happening online. And that's an example of by analogy to your protocols, the code that can have errors in it that create problems in our society.

Sinan Aral: 00:39:28 And my point in the book is that if we dare to examine in detail with a scientific lens and with a sort of rigorous lens, the problems that arise from mistakes made in the code, in the norms, in the laws and in the money and the business models, then we can actually do a much better job of creating the society we hope to see with this technology, rather than the one that we're stuck with now which really does emphasize the peril much more than the promise.

Demetri Kofinas: 00:40:06 Sure. So again, for listeners also because my brain is firing now, I've read so many books on this. Cathy O'Neil's book "Weapons of Math Destruction" also talks about some of what Sinan is talking about here, as well as Hannah Fry, who was on our show some years ago. So for me though, this is problematic and I'm curious how you would address it, which is that these are very fine point decisions. How do you take a government and use laws and regulations to get the objective that you want for companies to implement the types of incentives and design choices that actually move us towards the promise and not the peril?

Sinan Aral: 00:40:44 Well, I mean, I don't know if you've watched the Congressional Testimony of-

Demetri Kofinas: 00:40:49 Awful. Missed opportunities.

Sinan Aral: 00:40:50 Yeah. I mean, every time one of those comes on, I pop a huge bowl of popcorn and I sit there and watch the entire thing in slow motion. And it's appalling because the recent one on antitrust was probably the deepest one I'd seen so far, but before then it was as if we were discussing people who come on your show and they don't know where the browser is on their laptop, essentially asking questions of the tech leaders, trying to get them to explain data portability or what competition means for Facebook, really not having an understanding of the economics or the computer science of the technology or any of it. So I think that the consequences of what I call the hype machine, the social media industrial complex in society today are so great and so vast that we need to begin with things like national commissions.

Sinan Aral: 00:41:47 We need a national commission on the role of technology in our democracy, in our society. We need to bring industry experts and scientists with the expertise into the conversation with the platform providers and the regulators and lawmakers to create an agenda of multiple parallel conversations in regulation, in platform self-regulation so that that would be the money the business models, in regulation that would be the laws as well as sort of conversations about how to educate our kids for instance, about how to be civil online, how to spot fake news online, how to be critical and reflective. How do we change our educational system to adapt to a world in which we have a many to many algorithm dependent information ecosystem that didn't even exist 10 years ago. I think it's way bigger than the television, it's way bigger than the telephone, the fax machine, all of that combined, because it really is a scalable algorithm driven

information ecosystem that has spread itself over the planet in the last decade and didn't exist beforehand.

Sinan Aral: 00:43:03 And it has its hand in everything. I mean, think about it this way. Okay. Just a total tangent. The relationships created by algorithms on dating sites surpassed the relationships created by friends and family introductions of people in 2013. Now, if you just let that sink in for a minute, on most of these dating apps, you are essentially given options but not allowed to browse. So you either say yes or no, swipe left or swipe right. That creates relationships, those relationships create children. So there's no doubt that the algorithms of the hype machine are steering human evolution by changing the genetic diversity of our gene pool and yet we still think about social media as being pictures of chihuahuas that looked like blueberry muffins. No, this is fundamental.

Demetri Kofinas: 00:44:01 So actually let's stay on that tangent a little bit because I've wanted to do a show on dating apps. I've tried to get the CEOs and founders of some of the biggest dating apps and I've struggled to do that. I got really close with I think the... Was it the ... it's not Bumble. I can't remember now who it was but were you ever out there during the dating app period?

Sinan Aral: 00:44:28 I am. So I'm a single father.

Demetri Kofinas: 00:44:30 Okay. So you're dating on dating apps?

Sinan Aral: 00:44:32 I'm in the dating app currently.

Demetri Kofinas: 00:44:34 How do you like it?

Sinan Aral: 00:44:35 It's dehumanizing. It is very difficult. I mean, it is. Like, I'm a much more traditional person that likes to look in someone's eyes and meet people face to face. And I've always been a face to face kind of person. But as I said, 2013, remember it, it was seven years ago that matches created on these algorithms surpassed the traditional methods.

Demetri Kofinas: 00:45:02 I'm so glad that I'm not currently dating. I was single for a period of time during the dating app craze exactly between 2013 and 2017 or whatever. I think it's a complicated conversation. I really hated dating apps. They're absolutely dehumanizing. But at the same time, I recognize that for some people they are beneficial. And then also for other people, they give them a competitive advantage that they wouldn't have in the real world, sauce for the goose. If you're a guy, I'm speaking as a man, and you're not very good with words and you're not a smooth operator, you don't have much to say but you present well on an app in a few pictures, that's great for you. You're going to get a lot of dates. And also the thing with dating apps as well is that it constraint exactly the design choices made by the application developers, what to show, what categories to make prominent.

Demetri Kofinas: 00:46:00 You can't capture the vast majority of information that just leaks off of our bodies when we meet someone in person. So they're taking a small amount of that information and they're prioritizing some of it and deprioritizing others. So it has, as you say, a drastic impact on dating behavior and presumably mating

behavior. Anyway, we'll get off that. I thought it was interesting. I'm glad you actually brought it up. So we were talking about money, code, norms, laws. I want to bring it back though again to this point about code. I agree with you that we need to have commissions and this needs to be a very serious conversation. That raises one question which is, how do we filter out the lobbyists because we're going to get tons of lobbyists, inevitably and invariably who are going to be part of the process, but how do we minimize the role of the people who are financially invested in the success of the platforms or maybe properly, maybe a fair way to say it is fine, have those people but have an equal representation of people who are not invested.

Demetri Kofinas: 00:46:57 This is very difficult because this is how money lubricates our economy. Very big challenge, I'm curious how you would address that. And then the second point is it goes back to code. I have some experience having studied the lobbying campaigns of the large financial conglomerates that grew up after, even before the end of Glass Steagall, which obviously lobbying got the Clinton administration to pass the Gramm-Leach-Bliley Act in 1999. But certainly after that, after the banks became much bigger and much larger, lobbying money was sent into Congress and that really influenced the lack of regulation. And we've really had a sort of piss poor regulatory environment of Wall Street.

Demetri Kofinas: 00:47:37 And this is even more difficult because actually to make another point, you could also argue that a lot of the regulations that were implemented actually were counterproductive, they have counterproductive effects. That's the problem with regulation. So that was difficult on Wall Street. How on earth do you begin to do something better in a world where you're writing code? So those two questions, the code issue of regulation code and then how do you manage the process by which you investigate and draft the regulation so that it's not inordinately impacted by the lobbying dollars of the large giants that you're trying to control.

Sinan Aral: 00:48:11 Well, I mean, I think that that first point is absolutely essential that you have to have commissions that have representatives from all sides. And in a sense also to counterbalance. And the lobbying dollar of the tech platforms themselves, I think here scientists, researchers and representatives of other elements of society can play a huge role. And I think that those types of commissions have to be incredibly well balanced. I think they have to be led by science, I think they have to be led by representatives of other societal interests besides the platforms. And I think you're absolutely correct about that. When it comes to regulating code, I think that it would be a mistake to think that we should write laws to tell software engineers how to write their code. I think that-

Demetri Kofinas: 00:49:01 Agreed. I think that would be or that it seems to be that... I don't even know where to begin to think about how that would work without creating huge problems.

Sinan Aral: 00:49:09 Yeah. I mean, there are a number of... So the way that I think about regulation is that we know as economists that markets fail. We know canonical examples of how markets fail and market failure is the source of the need for regulation. I'm somebody who is not a proponent of regulation for regulation's sake, I think that there are obvious places where a free market creates negative externalities

to society and that that's when you need regulation. And I think that regulation, you can really think of it more as creating guard rails for society to not create too much negative externality. A great example is the regulation of pollution. Obviously, a profit maximizing business that has shareholders as its bottom line isn't going to care about how much pollution it puts out into the atmosphere because it doesn't internalize the costs of that pollution the society does. And so regulating pollution whether it be ground water or in the air and so on is the job of government to correct a market failure. And there are interesting and smart ways to-

Demetri Kofinas: 00:50:22 Are we dealing right now with a market failure? Is the business model of these companies a market failure?

Sinan Aral: 00:50:28 Think about it. Well, there are a number of negative externalities that are being created by these companies, right? So a great example is privacy. Another great example is sort of pollution of our information ecosystem but we have to be very careful. Okay. So I think and consider very carefully the positions that I take in the book, for instance, on the lines drawn between a harmful speech and free speech, because I consider myself a free speech advocate. I believe that free speech is a cornerstone of liberal democracy. I believe that free speech is essential to the workings of society but I also believe that free speech shouldn't just be run rough shot on everything else.

Sinan Aral: 00:51:15 I do believe that there is some speech that creates significant and sufficient enough harm on others that it contravenes so there are cases in which the first amendment contravenes the 14th amendment. And so when you have the first amendment degrading the rights or outcomes of other sufficiently, I think there can be boundaries put around what is legitimate free speech and what isn't. And so I think that the concept of regulation is nuance but the overall concept of regulation should not be to go in and tell software engineers how to code their algorithms but to provide guardrails that reduce the harm created in society in a way that doesn't reduce our freedom.

Demetri Kofinas: 00:52:00 So again, for listeners, we did an episode where we explored this in detail with Jeffrey Rosen, the President of the National Constitution Center. And he wrote a book on this, I think it was called Constitution 3.0. And if I remember correctly to the extent that this has been explored by the courts, it's mainly relied on notions of physical harm. Do you think that there is a case for non-physical harm and how would you define that? And this is obviously materially irrelevant because these large platforms like Google, Facebook, Twitter, they're making decisions about what is harmful content right now and they're censoring people. So I'm curious what your thoughts are on that.

Sinan Aral: 00:52:43 I mean, it's a very complicated issue. Certainly if you take the span of both criminal and civil law, we have cases of speech that do damage beyond physical damage that are outlawed. So a great example would be defamation or libel. And somebody can sue somebody else for financial harm created by blows to their reputation based on purveying a false information and things like that and defamation and libel cases. Certainly there are laws where there are aggravated criminal penalties for the enactment of violent crimes that also have a motive that go beyond just the violence. So a great example would be hate crimes laws.

And so there are a number of different ways to look at this if you kind of examine both the civil and the criminal law but I also think that the point you raised at the very end there is really important, which is that as much as we like to think about Facebook and Twitter and Instagram and LinkedIn as the town square, these are private companies.

Sinan Aral: 00:53:49 And so they as private companies and if I go and spend time within the kind of walled gardens of a private company even in the physical world while on the property of that company, they can set rules about what is proper behavior in their private space. And in essence, that's the situation that we have today with Facebook and Twitter and the rest of them. And you have them taking different positions, right? So you have Twitter and Jack Dorsey taking a very different position than Facebook and Mark Zuckerberg. So you have Jack Dorsey and Twitter who are much more willing to label for instance false and salacious information purveyed about somebody, whereas Mark Zuckerberg stood up at Georgetown in front of that big wooden lectern and said, "We believe in free speech. We believe everyone should essentially have the right to say whatever they want on our platform."

Sinan Aral: 00:54:49 And these are very different leaders of private companies that essentially are very large private spaces of communication that many of us think as public spaces that are setting very different rules. And so I think that examining those rules in detail and thinking about the decisions that are being made. So for instance, we regulate political speech in the United States, right? There is clear regulations around political speech in the United States. Those regulations don't really apply large to social media.

Demetri Kofinas: 00:55:22 Should they?

Sinan Aral: 00:55:24 Well, we've got the honest ads act that is sitting in Congress.

Demetri Kofinas: 00:55:27 But should these platforms be regulated as editorial platforms?

Sinan Aral: 00:55:30 Well, no. So there's two different questions there. One question is about the regulation of political speech on social media platforms. The other question is about, should they be treated as publishers? And that's about section 230 of the Communications Decency Act of 1996. So section 230 of the CDA of 96 says that essentially these platforms have a shield from civil liability for instance-

Demetri Kofinas: 00:55:57 But shouldn't they?

Sinan Aral: 00:55:57 Well, I do.

Demetri Kofinas: 00:55:59 CNN recently settled a lawsuit with Nick Sandmann, one of the Covington Catholic school kids. I don't know if the Washington post was settled but CNN is a media organization. I think, much more the Twitter platform and lots of people on Twitter who are spreading lies and misinformation that put this kid's life in danger, they were much more impactful than CNN. So how do you deal with that? The fact that Twitter, which played a much bigger role in putting in this particular case, this kid's life or reputation in danger has not been sued whereas CNN has had to settle.

Sinan Aral: 00:56:33 So I take very clear positions on all of this in the book. My feeling is that if you read the history of section 230 and its role in the internet economy, you'll quickly come to the realization that we should not repeal it because large swaths of the internet exists because of it. Large amounts of innovation have been enabled by it. And if you think about the logic of it, the idea is that Facebook, the commenting section of the New York Times, Wikipedia, review sites, if you repealed section 230, they just couldn't exist. Because there's no way that they would fold under the legal burden of civil liability for what any one of the three to four billion people on the platform could say about any other of the three to four billion people. Do the math and it turns out to be a very large number of potential lawsuits.

Sinan Aral: 00:57:27 That's not same as what CNN says because CNN and the New York Times where they actually produce the content, they have a much smaller amount of content that is created by people that they pay and that they edit. And then they put that stuff up on line whether it's in text form or in video form. But what we're talking about here is users talking to themselves over the platform and whether Facebook should be liable for that, however. So just to get to your point about it is that I don't think repealing section 230 is the answer. I think that would be disastrous for the internet economy, it'd be disastrous for freedom on the internet and so on. But I do think that there need to be limits on what can be said and done on these platforms. But I think the precursor question to where should those lines be drawn is who should draw them?

Sinan Aral: 00:58:22 So one option is that they should be drawn by five-person politically appointed commissions like the FTC or the FCC, which I think is a mistake. I think a much better place to be drawing those lines are one, in deliberative representative, legislative bodies like the Congress. And we've seen laws like the Stop Sex Trafficking Act which was nearly unanimously passed to stop speech around advertisement of sex trafficking on social media platforms and in the courts through the case law of the supreme court that defines where the boundaries of free speech should be and how that should balance harm, not in the FTC and the FCC as we have seen with proposed executive orders by this administration and the White House that would put the power of determining when section 230 applies or not in the hands of politically appointed five-person commissions.

Demetri Kofinas: 00:59:21 So Sinan, I'm going to move the second part of this conversation into the subscriber over time. I want to tease something you said and I want to ask it on the other side. I think you said CNN pays for content, is that what you said for the content they make? How did he say?

Sinan Aral: 00:59:34 Well, I mean, there is content that is produced by CNN or the New York Times by their writers or that's contributed and then edited by their editors. And then there's what anybody could write, say on the commenting section of the New York Times which is just a subscriber user rights whatever they want.

Demetri Kofinas: 00:59:50 Well, my point though is that should Google pay to index the content created by these third party publishers? Should Facebook pay to be able to have people share this? There's actually a law... And this is actually relevant, there's a new legal proposal in Australia that is trying to force Facebook and Google to pay for news content which this also brings up an issue that you raised in the book

regarding the shutdown of Googles in Spain in response to their effort to make Google pay for the content. I want to ask you that and I want to ask you a number of other things because I think we are only scratching the surface. For anyone who's new to the program, Hidden Forces is listener supported. We don't have an ad model. We're not Google or Facebook. I've chosen this model because it frees me from having to promote corporate advertisers and commercial sponsors. And it makes me answerable only to you my listeners.

Demetri Kofinas: 01:00:43 If you want to access the rest of this conversation as well as the transcript to today's episode and the rundown, which is a ... I create Rundowns for every single episode, this week's is I think, close to 20 pages long, they're elaborate show documents full of notes, interesting materials, charts, images and quotes from, in this case, Sinan's book, head over to patreon.com/hiddenforces and you can subscribe to one of those three tiers. There's also a link in the summary page for this episode with instructions on how to connect the overtime feed to your phone so that you can listen to these extra discussions just like you listen to the regular podcast. Sinan, stick around we're going to move the second half of our conversation into the overtime.

Sinan Aral: 01:01:28 Great.

Demetri Kofinas: 01:01:30 Today's episode of Hidden Forces was recorded in New York city. For more information about this week's episode or if you want easy access to related programming, visit our website @hiddenforces.io and subscribe to our free email list. If you want access to overtime segments, episode, transcripts and show rundowns full of links and detailed information related to each and every episode, check out our premium subscription available through the Hidden Forces website or through our Patreon page @patreon.com/hiddenforces. Today's episode was produced by me and edited by Stylianos Nicolaou. For more episodes, you can check out our website @hiddenforces.io. Join the conversation at Facebook, Twitter and Instagram @hiddenforcespod or send me an email at dk@hiddenforces.io. As always, thanks for listening. We'll see you next week.