

Top Gun, HAL 9000, and Jobs of the Future

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Austin Egbert:

Greetings and welcome to Mind Matters News. Our host, Dr. Robert J. Marks has continued the press tour for his book, Non-Computable You, and we have some excerpts we'd like to share. Let's start with a chat about the movie Top Gun, with Michael Medved on his nationally syndicated talk show

Michael Medved:

A great day when there are, on the table, all kinds of questions about AI. That's artificial intelligence. Why shouldn't we be able to replace all those hotshot pilots, like the ones being trained in the movie Top Gun: Maverick, one of the most successful movies ever made, by the way, in terms of its box office receipts?

Michael Medved:

But yeah, that's showing pilots doing death-defying, astonishing jobs and guiding their airplanes. Well, can't you do it better using artificial intelligence and drones? We will get to that with a terrific guest who I'm very privileged to welcome to the show, Robert J. Marks, who is a director of a center at the Discovery Institute on human intelligence and artificial intelligence and the differences thereof.

Michael Medved:

He is the author of a very important and fascinating and timely new book called Non-Computable You: What You Do That Artificial Intelligence Never Will. Dr. Marks, it is great to speak to you. He's also a professor of electrical and computer engineering at Baylor University and a fellow of both the Institute of Electrical and Electronic Engineers and the Optical Society of America. With that introduction, welcome to show.

Robert J. Marks:

Well, thank you, Michael. It's good to talk to you again.

Michael Medved:

It's great to speak to you. First of all, I thought that your little piece on Top Gun: Maverick was particularly pertinent. Because you have to think about it. When you think about people, not just in movies, but in real life, people in Ukraine right now who are risking their lives; wouldn't it be just a tremendous blessing for us to replace all the human service people, who sacrifice their lives, with machines that could probably do every bit as effective a job?

Robert J. Marks:

Well, yeah, absolutely. I think that, with reference to the movie Top Gun, the piece I wrote said that involving humans in this was very 20th century. Which I guess the original Top Gun came out in the 20th century. But they were just trying to repeat that same old scenario. But it turns out we have the

technology now, with drones. We have drones that can be controlled by pilots remotely. And so, they can see where they're going.

Robert J. Marks:

And this was, for example, the technology that we used to take out the General Soleimani a while back. We used a drone. We fired a hellfire missile and just took him out without any danger of human life. That's the same thing that could have happened on the mission of Maverick, the Top Gun sequel. Bunch of advantages. One is the g-force. One of the big things in the movie was the g-forces would black you out.

Robert J. Marks:

Well, that's not a problem with autonomous vehicles, with drones that don't have any people on them. You can really accelerate. And as long as you don't destroy the computer, your AI is still there. Another aspect was that they thought that they needed to fly below where they could do GPS and things like that. Well, even with modern military, you don't need GPS. Some of the military radar drones have maps on the inside. They take pictures of the terrain on the outside. They compare the pictures of the terrain with the maps, and they can go ahead and they can navigate without any GPS. So, there a number of different aspects which lead one to believe that the technology that was used in Maverick: Top Gun was really ill-advised. It should have been done with the 21st century technology, with artificial intelligence, drones, and even autonomous killing weapons. It would've been more realistic, but I don't think it would've been as fun of a plot.

Michael Medved:

Well, and you certainly couldn't have featured Tom Cruise playing a drone. And that's a big part of it. And just think of the movie posters. If you do it with all machines, basically it... All the machine movies, usually, end up showing some of the limitations of machines. But one of the things that I was thinking about is, in warfare, we used to be so worried. You talk about the 20th century; about a mistake that leads to a nuclear apocalypse. And wouldn't further use of AI and machines, to actually not only fight on the battlefield but also to guide strategy and to help direct the command structure, wouldn't using AI in that reduce the risk of mistake?

Robert J. Marks:

Well, one of the things you have to be careful about, I think, is that AI is very brittle. And one of the things that has to be applied in the command field is to be able to react to situations which you've never seen before. And if you don't have those in your training data, and you are exposed to a total different scenario, that you've never seen before, you won't know how to react if you're AI. It's going to take human intelligence to do that.

Robert J. Marks:

And as far as the danger, absolutely. I think that one of the things that needs to be done in the design of artificial intelligence is to apply AI ethics. In other words, make sure that the AI that you design does exactly what it is intended to do, but does no more. And that can be done through extensive testing domain expertise. You're never going to get a hundred percent, but I think it's probably going to be like the legal system. You have to make sure that the operation is above and beyond any reasonable doubt, in the same level of certainty that you have in convicting a murderer or something. So, I think we can borrow from there and apply these standards to some of this artificial intelligence.

Austin Egbert:

Up next, Dr. Marks discusses the impact of artificial intelligence on the job market, with Mark Hahn. Mark can be heard on KSCJ in Sioux City, Iowa.

Mark Hahn:

As we talked about before we came on the air, Dr. Marks, artificial intelligence is something that many people have fantasized, whether on a science fiction level; many shows have been about that. Of course, Space Odyssey 2001. Hal took over, and that's what scared people about artificial intelligence. Are we going to be making computers that are smarter than us?

Robert J. Marks:

No. Absolutely not. And I don't know if HAL 2000... It was the HAL 2000?

Mark Hahn:

Yeah, I think that's what-

Robert J. Marks:

Yeah, I don't know if that was smarter than the people. I think it was just programmed incorrectly. It was programmed to put the mission before human life.

Mark Hahn:

Well-

Robert J. Marks:

And I think that that's where the failing was. And I don't know if it was actually took over in any sense.

Mark Hahn:

Well, there've been other books too, along the same line, where man makes a computer, he keeps improving the computer; finally, he wants to have it have a little bit of intelligence on its own, based on, of course, the information that you put into it. And that's what computers are: garbage in, garbage out. If you put good things in there and you build the formats properly for what you want to do, it stays within those parameters. It doesn't go outside, just as you just discussed.

Robert J. Marks:

Oh exactly. In fact, that's a very good illustration. The idea is that computers and artificial intelligence can take their training data and they can interpolate. They can look inside the box, but they don't have the creative ability to think outside the box. You're exactly right.

Mark Hahn:

The question I think we got out of the way, right at the beginning: are future humans doomed to be replaced by artificial intelligence? And of course you said emphatically, "No." But what will it replace? Will it replace travel agents? Right now, you certainly have online travel sites that are set up. And you can book in your own travel; you don't need an agent.

Robert J. Marks:

Well, here's the deal. And you hit the right word: algorithms. You have to ask yourself, can a certain job be described by an algorithm, meaning a step-by-step procedure for doing something? That's certainly true for travel agents. They go through step-by-step procedures. You hear other things: toll booth operators, for example. They're totally gone because they just did a simple algorithm.

Robert J. Marks:

So, if your task could be defined by an algorithm, yeah, your job, if that task is your job, is in danger of being replaced by artificial intelligence. But if your position requires sentience, if it requires creativity, if it requires understanding, you're probably in less danger of artificial intelligence taking over.

Robert J. Marks:

But what is going to happen eventually is artificial intelligence is going to be a tool. And that's all artificial intelligence is. It's a tool. But it's a tool which can be used by these different professions to enhance the profession, to do a better job. But it isn't going to replace them.

Mark Hahn:

Well, we see how computers, in robotics, have replaced human workers. Because in factory jobs, it's a repetitive thing; you're on line, whether you're on an automotive line or whatever. You're putting the nuts on these bolts, and it's car after car, car, truck. It doesn't matter. Your job is boring because it's the same thing. So, we see that a computer, running a robotics, actually does that job. That worries people that, "Am I going to be replaced by a computer?" In my business, yeah. They do. Except when it comes to adding personality to a program where, we called it here, the voice tracking, which is basically adding our voices in between songs or commercial breaks or whatever, and we can make it sound like we're live right there in the studio, not a problem.

Mark Hahn:

Computers can't do the same thing. They can't put the same emotion. They can't put the same thought into reading up on a segue or talking about a certain subject.

Robert J. Marks:

Yeah, absolutely. Absolutely. I would also say that artificial intelligence is going to introduce new jobs. Today we have all of these people that make their living on TikTok, which I don't watch, or-

Mark Hahn:

Yeah, yeah. Me neither.

Robert J. Marks:

... some of these other social media. And we have people that work for Google that do all the censoring of the content. Not a good job. But nevertheless, these are jobs which are being created by artificial intelligence and technology. So, I guess I'm a big believer in free enterprise. And I think it might be painful, but I think that we're going to adapt.

Mark Hahn:

Well, sometimes I've heard people say this expression more than once: "Computers, you can't live without them, and you can't live with them sometimes." It's a-

Robert J. Marks:

That's true. I was separated from my cell phone for a couple of days. And man, I went through withdrawal symptoms. I'm so dependent on this stupid thing for GPS. I tell people that I have all of the knowledge of the world available at my fingertips. So if I have a question, I could just type it in. Boom, there it is. Yeah. Boy, we are dependent upon it, aren't we?

Mark Hahn:

Until it crashes or you're without it, because it crashed, or you lost it. Then you know how much you really depended on this. And I'm one who is drug, kicking and screaming, into the 21st century, because I had just an old, little flip phone that... And nothing in internet search. And it was an old LG phone. It was nice. It did what I wanted it to do. I could send quick texts or a make call. I couldn't search the internet, but that's okay. It just did basic things that I wanted. But one of my brothers wound up giving me their smartphone, a Motorola smartphone. And boy, I know what you're talking about now because I do use this. And there's so many more things that I can do with this phone that I couldn't do with the other.

Robert J. Marks:

Oh yeah. You think of technology. When I was a boy and you made a long distance call, if you went to a payphone, you had to put nickels and quarters in it. And today, I can do FaceTime. And I've done this simultaneously with somebody in Sweden and another person in the country of Columbia. And it's just like we're in the same room. We're doing FaceTime. So, it is remarkable. AI does incredible things.

Robert J. Marks:

But as I mentioned in the beginning, there's certain walls that it's never going to go through. And I think some of those walls are things which are exaggerated by science fiction, like the Terminator and the Matrix. Those things are never going to happen.

Mark Hahn:

Well, that's true. Are we ever going to have campaign managers in political campaigns? Here we are, coming up to the midterms. Are they ever going to be replaced by artificial intelligence?

Robert J. Marks:

I think AI is going to be a tool in this sort of thing. But one of the things that AI doesn't have is creativity. And you can talk about not only campaign managers but, say, a commander in the field.

Mark Hahn:

Right. Military, yeah.

Robert J. Marks:

Now, campaign managers and a commander in the military field are going to face scenarios that they've never seen before. CEOs of companies do the same thing too. Now, the AI has to be trained in that scenario. And if it sees a scenario that it hasn't seen before and it's outside the box, if you will, it doesn't

know what to do. But people, campaign managers and commanders in the field in the military field are going to have to react and assess situations that they've never seen before and adapt to them. And no, I don't think artificial intelligence will ever do that. Now, AI might be used as a tool by these people that can give them forecast and suggestions of things to do. But the final decision will always lay with the human.

Mark Hahn:

Well, indeed. And it will. The cool thing about that is that you see these people in Japan. Japan technically seems to be more into AI than what we are here. Virtual girlfriends in a 3D. Have you seen that? That's just crazy stuff.

Robert J. Marks:

No. But yeah, I can imagine.

Mark Hahn:

It is. One guy even married one. I don't understand how you think about that. But then again, it's your mental state of mind, I guess.

Robert J. Marks:

I guess so.

Mark Hahn:

Dr. Robert J. Marks II. He's a professor of electrical and computer engineering at Baylor. The book is called Non-Computable You: What You Do That Artificial Intelligence Will Never Do.

Austin Egbert:

That's it for today. Thanks for listening. And until next time, be of good cheer.