

Robert J. Marks: There's One Thing Only Humans Can Do

<https://mindmatters.ai/podcast/ep144>

Austin Egbert:

Greetings. I'm Austin Egbert, director for Mind Matters News. This week, we have Robert J. Marks speaking at the launch of the Walter Bradley Center for Natural and Artificial Intelligence in Dallas, Texas. Enjoy.

Robert J. Marks:

I talked to you about some of the projects. As Steve mentioned, we want to drill down a little bit and get deeper into the fundamental philosophies. I want to quote you from chapter 13 of *East of Eden* by John Steinbeck. He writes, "Our species is the only creative species, and it only has one creative instrument, the individual mind and the spirit of man. Nothing was ever created by two men. There are no good collaborations, whether in music, in art, in poetry, in mathematics, in philosophy. Once the miracle of creation has taken place, the group can build and extend it, but the group never invents anything. The preciousness lies in the lonely mind of man."

Robert J. Marks:

I think that John Steinbeck's little excerpt there kind of encompasses some of the philosophy that we are embracing at the Bradley Center. There is clearly algorithmic capabilities computers are able to do. There's computer exceptionalism. They can crunch numbers better than I can. They can play chess and win Go better than I can. The board game, AlphaGo, which has recently defeated the champion of Go in all the world. And plus the other thing it can do better is search speed. That's the reason that IBM Watson won at Jeopardy. It can search things a lot faster than we can.

Robert J. Marks:

Yet, there are human things which are human exceptional. There's human exceptionalism above and beyond the capabilities of AI and the computer. I'm interested in the algorithmic. It turns out algorithmics are like recipes, that's what computer code is. And there's a limitation on what code can do. And some of these limitations do not apply to you and I. David Gelernter, when Deep Blue beat Kasparov, said something really great to all of the hype that was going on about AI and minds taking over. He said, "The idea that Deep Blue has a mind is absurd. How can an object that wants nothing, fears nothing, enjoys nothing, needs nothing, and cares about nothing, have a mind? It could win at chess but not because it wants to. It isn't happy when it wins or sad when it loses. To celebrate its win, is it hoping to take Deep Pink out for a night on the town? It doesn't care about chess or anything else. It plays the game for the same reason a calculator adds or a toaster toasts: because it is a machine designed for that purpose."

Robert J. Marks:

Clearly, AI has no emotions. Now in computer science, one of the first things you're taught is there are some things which are not algorithmic. The classic one is the so-called Turing halting problem where you cannot write a computer program to analyze another computer program, an arbitrary computer program, to say whether that program will run forever or stop. Very simple, analytic, proven operation that is non-analytic. You cannot write code for that.

Robert J. Marks:

Are there things about human beings that you cannot write code for? Are there non-algorithmic, non-computable things that people can do? And the answer I would say is yes. Clearly I think understanding consciousness, sentience, qualia, and I think the most interesting and probably the most testable is creativity. Computers will never be able to create. That is something that people can do that computers just don't have the ability to do. This has a long history and Bill Dembski wrote a nice article for mindmatters.ai - that's mindmatters.ai, mindmatters.ai - that express doubts about AI's creativity as far back as - It's mindmatters.ai. Thank you, George. Okay.

George:

Not .com.

Robert J. Marks:

Not .com. Yes, thank you. And some of the great practitioners at AI feel the same way. In his recent book Hit Refresh, Satya Nadella basically said that the realm of creativity lies in that of the programmer. It isn't in the AI. The AI will never be creative. It can only be creative in the sense that it's allowed to by the programmer. Unfortunately there's a lot of hype. One of the things we want to do with the Bradley Center is cut through that hype.

Robert J. Marks:

Let me give you some examples. One is something called seductive semantics. It turns out that people use terms, which you look at and you think, oh my goodness, this software can do something that is amazing, that's human-like. Bernard Widrow in the 1960s invented the first neural network. It was called ADALINE, or maybe one of the first neural networks, which was a crunching name for Adaptive Linear Neuron.

Robert J. Marks:

He actually founded a company, the first artificial neural networks company, called Memistor back in the 1960s. And because he named his technology a neural network, he got a lot of play out of it. Now his neuron, his neural network could actually do great things. Back in the sixties, it could forecast the weather, it could take spoken speech and actually translate it and type it out. And we think that these things are really great today. Widrow was doing this back in the 1960s.

Robert J. Marks:

He talked later about his wonder of what would happen if he had not named his neural network a neuron. What if he had named it an environmentally adaptive filter? Would it have gotten the play that it did back in the '60's? And we see this same sort of seductive semantics, I think a lot today on the media and it's very frustrating. Recent headlines, "AI creates a new language." No, it didn't. "AR reads minds." No, it didn't. If you drill down, you find out that indeed that isn't the case.

Robert J. Marks:

Every twice a year, I hear "new computer chip." There's a new computer chip that works exactly like the brain does. I heard this and I said - well, I know of things in the sixties where they announced new computer chips. It happened in the 1990s. It happened in the 2000s. And it happened, just lately, like

five months ago. So that's people not giving attention to the history of neural networks and artificial intelligence.

Robert J. Marks:

And besides that, there is seductive optics. Does looking like a human have anything to do with AI? You look in the news and you see a robot that kind of looks human and you think, oh my goodness, AI is doing wonderful things. But the power of AI has very little to do with its packaging. And so, again, the idea that this looks like a human being is something which is, I refer to as, seductive optics. And one of the things that we hope to do is to educate the world in ways which can be understood of the limitations established mathematically about the limitations of computers, something called basin or signal conservation of information, some results in algorithmic information theory.

Robert J. Marks:

One of the things which you've probably heard is that software will soon be writing software that's actually better than the software that originated. No, that will never happen. And in fact, there was a great paper by Roman Yampolskiy, which was just published about a month ago, which addresses this. He's a professor of computer science at the University of Louisville.

Robert J. Marks:

But all of the stuff that the Walter Bradley Center does is not going to focus on the education and just clearing up all of the mud that is the hype, but we also want to celebrate the positive possibilities in the applications of AI. One of the big successes is artificial intelligence in medicine. I looked up and in 2016, there were 278,000 papers published and listed on the site MEDLINE. That's 1800 papers a day. So it's hard to keep up with your field. Even in my area of computational intelligence, there's one or 200 papers published every day. How do you keep up with that? Well, people that do are operation surgeons that are doing operations on somebody with a specific cancer can now go to AI software that can mine those papers and point to the papers that correspond to the illness that they're treating. This is a great application of AI.

Robert J. Marks:

I mentioned before about the data analytics and the use of business intelligence in hospital facilities in Uganda. And I have a colleague at Baylor University, Greg Hamerly in the computer science department who has used deep learning neural networks to diagnose children's white eye disease. Now, what is that? I didn't know. I looked it up. It can be a symptom of retinoblastoma. I didn't know what that meant. So I looked it up. That's eye cancer. So it's a precursor to eye cancer.

Robert J. Marks:

And you know what he did? He wrote an app after he trained the neural network, and that app is downloadable for free on your phone. And you can install that app and have it look through your pictures that you've taken of your children and it will diagnose whether your children has this white eye syndrome. So these are some of the fantastic applications of AI, and we need to always keep that in mind and we want to celebrate the advances of AI which are going to be numerous. So, there's lots of exciting stuff happening in artificial intelligence and thank you for being here today to help celebrate our continuing mission.

Announcer:

This has been Mind Matters News with your host, Robert J. Marks. Explore more at mindmatters.ai. That's mindmatters.ai. Mind Matters News is directed and edited by Austin Egbert. The opinions expressed on this program are solely those of the speakers. Mind Matters News is produced and copyrighted by the Walter Bradley Center for Natural and Artificial Intelligence at Discovery Institute.