George Gilder on Blockchain and Carbon Computing
(https://mindmatters.ai/podcast/ep108)

Robert J. Marks:

What's the future of carbon computing? That's the topic today on Mind Matters News.

Announcer:

Welcome to Mind Matters News, where artificial and natural intelligence meet head-on. Here's your host, Robert J. Marks.

Robert J. Marks:

Greetings. Our guest today is George Gilder. George Gilder has penned a new monograph for the Bradley Center titled Gaming Intelligence: Why AI Can't Think but Can Transform Jobs. George, welcome.

George Gilder:

Great to be here, Bob. As you know, you're an important figure in this monograph, so-

Robert J. Marks:

Yes, thank you. I am quoted in there, so I appreciate it. This is one of my few brushes with greatness. I appreciate it. There's a bunch of stuff I'd like to talk about. Some of it's a little bit disjoint. Let's talk about blockchain. Blockchain is the engine behind Bitcoin. A few years ago, blockchains were supposed to be everywhere, but I haven't heard about them much in the news. What's happened to blockchains? You talked about blockchains a lot in your book, Life After Google.

George Gilder:

Well blockchain for one thing, the Chinese government under Xi Jinping, Chinese communist government, has adopted blockchain as a core technology for the future of China.

Robert J. Marks:

Really?

George Gilder:

And has launched a blockchain platform for the entire Chinese economy, and the new digital yuan currency that's affiliated with their blockchain platform, their national blockchain network. While American congressman and senators are panicked by the idea that Facebook might launch a Libra on the blockchain and somehow undermine the venerable dollar, the Chinese are cruising onto that blockchain.

George Gilder:

I believe that we're headed towards some kind of monetary crisis, where Bitcoin will have its day, although Bitcoin has real limitations that make it difficult to become a currency. There's still room for

generating a currency that actually can expand with the global economy, rather than be kept like Bitcoin at an absolute limit of 21 million units.

Robert J. Marks:

So that's a limitation, right?

George Gilder:

That's a limitation, that renders it inherently a deflationary currency. And that's a mistake. So, Bitcoin has its flaws, but nonetheless blockchain is a crucial new distributed architecture for the internet and for the global economy. Unlike the current internet architecture, that's hacked eight billion times a year now. It's every... The more we spend on internet security, the less secure the internet becomes, it's eminently hackable.

George Gilder:

And world money is now, currency trading is 6.7 trillion dollars a day. And that's 70 times all world trade and goods and services, 70 times, and still it's up 30% in the last three years while we have a trade war and trade actually diminishes by some measures. So certainly its growth is halted. And so blockchain still has a critical role in the future of technology. It can provide the basis for distributed internet architecture rather than this porous pyramid we now have where all the data and money and power rises to the top, where it's controlled by a few leviathan social networks and search engines and whatever, and where it can be hacked. You know, where it is, you know where the important information is, it's at the top of the pyramid.

George Gilder:

Blockchain provides a model where the information is distributed across all the nodes and the network through a mathematical process called hashing. It means that unless you control the whole network, you can't change anything that's on the blockchain. It is both an answer to this hacking of internet security and the hacking of global money by central banks and politicians.

Robert J. Marks:

Do they literally hack the encryption, that's impossible, that's not possible, is it?

George Gilder:

No, the central banks don't, they just hack the currency. They just manipulate it and multiply and divide it and use it as a magic wand for political causes rather than a measuring stick for value, which is what money should be and what real money is. Money is really based on what remains scarce when everything else is abundant. And that is time, time is what money really is. Money translates time, which governs every economic transaction and enterprise. Money translates time fungibly into the economy.

George Gilder:

Blockchains are really useful for any kind of computational process or transactional process, that needs a ground state, needs a secure ground state that can't be manipulated. Blockchains are going to be very useful in the future and they actually are. Blockchain advances come almost daily and the Chinese breakthrough is just amazing. So the blockchain is real in my book, Life After Google, became for a while, a second best seller in China. And it got the award last year as the best social science book in China,

published in China. So that's why I've been in China so much over the last year, chasing Life After Google.

George Gilder:

They really adopted its message. I don't know whether they will... It'll probably be a somewhat porous blockchain with back doors for the communist potentates, but blockchain is pretty hard to manipulate. So there's going to be a struggle in China to define the limits of the blockchain and how it functions. It's going to be very interesting to watch, because it does give you identity.

George Gilder:

A lot of people think that facial recognition is a threat to identity. I want to be recognized when I go out to the airport or whatever, rather than being treated like a terrorist as the TSA has to do, treat everybody as a terrorist, if they can actually identify you as the new Clear system in a lot of the airports now do.

George Gilder:

They're trying to make advances, which use face recognition. It's great to have your Apple iPhone that can see you and recognize your face and let you in immediately, rather than have you have to recall which unmemorable password, complex number password you happen to adopt for any particular app. I like facial recognition, I just think we're making some mistakes in the understanding of new technology, that derive from our belief in a singularity.

George Gilder:

This idea that somehow technology threatens the human mind, threatens human jobs, threatens human uniqueness. That belief is really crippling our technology, because it makes people fearful and actually technology is good. It creates jobs always. Technology never destroys jobs, at least in a free economy, it generates the capital to create new work. People don't get hired because they're unproductive. AI and other such technologies make people more productive and thus more employable and provide better jobs, safer jobs and more creative jobs. My whole theme is AI is a hopeful, wonderful new amplifier of human work and employment, not a threat to a human uniqueness or capabilities.

Robert J. Marks:

I agree, yeah. If it's done right. There'll be problems, but I think those can be mitigated. I wanted to ask you about Bitcoin, back to Bitcoin. You're familiar with the Dread Pirate Roberts and his website on the dark web for selling drugs. He used Bitcoin and he escaped detection for a long time. That was one of the things about Bitcoin which was attractive is, everybody can be anonymous. I like the idea because I don't know if I want my government or anybody else knowing what transactions I make, but what's the privacy sort of issue? I also read that in South Korea that a dark web website in kiddie porn was broken and it was because of the visibility of Bitcoin. Are there new laws put into effect to make the ownership of Bitcoin more visible and more accessible to say governments?

George Gilder:

No. It's just the Bitcoin can be... It's transparent. Bitcoin is more transparent than cash is, it's as Dread Pirate Roberts discovered. Bitcoin is an immutable database and every transaction deep into the past is mathematically present and every future transaction. This is an effect of both the incredibly efficient mathematical procedures of hashes, as they're called.

George Gilder:

Where, you represent a large body of data with a 36 byte hash. Also not only the hashing, but the fantastic advancement of memory technology, which is memory and storage technology, which has allowed you to have a simulacrum of all transactions in a system on every node in the system. That's an amazing technological advance, but it means they're all there. And you have the public key and you have the private key connected to it. And ultimately you can track down any criminal who uses Bitcoin. It's just a new form of cash that actually is more transparent and traceable than cash is.

Robert J. Marks:

Well, they had a hard time getting the Dread Pirate Roberts. They got him in a sting, according to the book, I don't know how reliable the book is.

George Gilder:

I read the book. I know the family, supposedly there were... He just made a terrible mistake in dealing with these hitmen and it was really an evil blunder, and he's paying the price. His parents claim that he hardly knew about it, and that's possible. You don't know, but in any case, they got him as soon as they wanted to, for a while it was the most successful sort of database and an online market on the internet. It took a while before the police decided to crack down on it.

Robert J. Marks:

That was just a fascinating story.

George Gilder:

It is a fascinating story. One of the cops got corrupted, so he's in jail too. The cop that actually broke it, got tempted and tried to steal some Bitcoins I think. He's in jail too. It was really a carnival of police powers, but it was... It's this anarchist impulse where all forms of drugs and the illegal behaviors and everything can be concealed with this new currency, whether it's Monero or Zcash or whatever it is, but all of them ultimately can be traced and broken down.

George Gilder:

Ultimately it's the people you're going to get, and you can find them. If you find them, you can question them and you can find out what they've been doing.

Robert J. Marks:

Bitcoin works because of encryption. Let's go to the next topic, which is quantum computing, which threatens to expose and make classical encryption obsolete. What's your take on quantum computing? It seems to me that it's been a glacial progress in the technology.

George Gilder:

I think quantum computing is rather like AI, in that it moves the actual problem outside the computational process and gives the illusion that it solved the problem, but it's really just pushed the problem to IO — input/output. Quantum computing is analog computing, that's what it is. It's changing primitives of the computation to quantum elements, which are presumably the substance of all matter in the universe.

George Gilder:

I consider... But still you got to translate the symbols in the world, which in turn have to be translated from the objects in the world, into these cubits, which are quantum entities. And then from there, then you can... Once you've defined all his connections and structured the data, then the problem is essentially solved by the process of defining it and inputting it into the computer. You know a wonderful physicist at MIT named Seth Lloyd has written about this a lot. He believes the whole universe is a quantum computer, which from some point of view, you could say. And so God is really a quantum computer. And you're essentially praying when you use the quantum computer.

George Gilder:

It's sort of a new rapture of the nerds, but quantum computing again is a very special purpose machine, extremely special purpose. Because everything has to be exactly structured right for it. And so, you may be able to build it, build one that can perform one... They can break one form of encryption, but then you just change the... There are all sorts of ways to circumvent this threat, that quantum computing supposedly poses to Bitcoin and other such encryption base technologies in the Cryptocosm. If it really became robust and good, you could use it to encrypt too.

Robert J. Marks:

Yeah, that's my point. I think that once we get quantum computing and if it works well, we can also do quantum encryption, which quantum computing can't decode. So that's the next step. So yeah, that's fascinating stuff.

Robert J. Marks:

One of the things that I heard you talk about, and I know you're an early proponent of it, is carbon computing. The idea is really compelling because the computational part of human beings is definitely carbon based, but we haven't gone there, have we? We're still in silicon. What's going on in carbon computing, and what do you see as the future of it?

George Gilder:

Silicon is popular because it's simple, and because it yields these very rapid computations with binary systems, on/off codes, ones and zeros, and ones and zeros can be manipulated at fabulous speeds. That's why the whole computing revolution happened, because you could really manipulate symbols at a tremendous speed. But the cost of this, is the symbols got to be translated into objects.

George Gilder:

Well, carbon, since we're all carbon and carbon is much more complex and affords many more degrees of freedom in materials, and carbon and shapes, carbon nanotubes. We're beginning to make memories with carbon nanotubes and simulate behavior with carbon nanotubes and filter with them. They're all kinds of carbon and many of our screens now, the computer screens are carbon based now.

George Gilder:

And so carbon is gradually moving into the computational world. In order to make any real long-term advances in computation, I think rather than grasping for elusive quantum superpositions, you can actually simulate the brain of a fly in carbon. We still don't know how the fly alludes the swatter and Carver Mead always says, "understand the human brain. We don't even understand how a brain of a fly

allows it to elude the swatter." It's too light to fly. The world is more mysterious than the advocates of the singularity imagine.

Robert J. Marks:

Yes, we are fearfully and wonderfully made, as somebody said.

George Gilder:

That's right, that's right.

Robert J. Marks:

One of the stories I like to share, it's an old science fiction story about why humans by necessity must be carbon based. And that is because we breathe in oxygen and we exhale carbon dioxide. If we were made of silicon, we would breathe in oxygen and exhale silicon dioxide, which is a solid.

George Gilder:

That's good.

Robert J. Marks:

So we would probably be crushed by our own breath when we slept at night. So that's the reason that we are carbon based as opposed to a silicon base.

George Gilder:

I'm convinced, that strikes me as intelligent, in its design.

Robert J. Marks:

Oh, George Gilder, thank you. I've had a blast talking to you. Really appreciate your time and your contributions. Much appreciated.

Robert J. Marks:

We've been talking to George Gilder. Who's fascinating monograph Gaming Intelligence: Why AI Can't Think, But can Transform Jobs is available at amazon.com. I recommend it highly. It's very readable, very understandable, like a lot of George's work is profound and just chock full of meaningful ideas. Until next time on Mind Matters News, be of good cheer.

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.