

# AI and You

Transcript

Guest: Handel Jones, part 2

Episode 131

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Hello, and welcome to episode 131! Today we will conclude the interview with Handel Jones, a Silicon Valley consultant with over 50 years of experience in electronics, running International Business Strategies for over 30 years, analyzing technology and predicting corporate and government strategy and market trends. His new book is [When AI Rules the World: China, the US, and the Race to Control a Smart Planet](#). I'm sure you don't need me to tell you how topical and important the matter of US-China relations around high technology and artificial intelligence is.

Last week we talked about Handel's background in technology in China, Chinese attitudes towards privacy and surveillance, their education strategy for AI, the impact of the recent sanctions on both their plans for Taiwan and the economic outlook in the West, and differences in patterns of innovation between the West and China. We've got a lot of really important things left to discuss, so get ready to take notes as we get back into the interview with Handel Jones.

You've been correcting a number of misconceptions here about China, I wonder what else would you say are myths that we have in the West about China that that need to be corrected, that aren't true.

Well, I think the concept of China being backward and stealing technology, I mean, they have stolen technology and frankly, many companies in Silicon Valley have some technology, that's not to condone it, that's really bad. So, I think we have to increase IP protection and they have to respect that. But I think in terms of myths, I think they're very innovative people. If you look at the history of China, a lot of innovation, you know. So, they're highly entrepreneurial also. Go to some of these markets, where they're selling goods, everyone in a line having the same goods and basically what they sell is based on how aggressive they are. So they're highly entrepreneurial, basically, the value of education very highly. The family unit is weakening, some women are increasing in power, 50% of graduates are women. But they do also have problems. Xi Jinping is going to have major challenges. Under his predecessor, GDP grew almost 10% a year, under him what was it, 5% and we forward is going to be much more difficult than his predecessor, they could get a lot of money from selling land. Now, there's not much land they can sell. So, the local governments now are going to have to find different ways. So, they do spend a lot of money on technology, on infrastructure, on trying to increase control over people. You know, we spend money, a lot of money, on social issues; their social spending is relatively low. So, their budget is quite differently spent compared to ours. So, they subsidize companies. We also do it to a certain extent, but they do it to a much greater extent, is that good or bad? Basically it's really a different method of doing business and it's a different method of government spending money. But I think that we have to give them credit for growing industries. LEDs, almost exclusively from China, solar cells, almost exclusively from China. The big

problem in future is going to be electric vehicles, because they've got leadership in terms of battery technology, and battery supply chains: lithium, cobalt, nickel, and they're doing solid-state batteries. The latest vehicle that I saw, has 1000-kilometer range. And it sells for 70,000 US dollars. So we're up to 1000 kilometers, of course, it's a big battery, 150, whatever it is, for an SUV and of course, they're developing solid state batteries. They basically driving robot taxis, which gives them the base for L5 autonomous driving, and then by 2035, autonomous driving vehicles and that's a very ambitious goal is going to create huge unemployment. Because a lot of people in China drive: drivers.

We've heard that a lot of the forecast capability or the hope for capability in autonomous vehicles won't be realized in many of the current driving environments because they're just too complicated. But that China is building out new cities and retooling existing roads to be more friendly towards AVs, so that they *can* negotiate them. What's your perspective on how much they're actually doing in creating environments where AVs can operate safely?

Again, it depends on safety. Tesla claims that with their technology, the number of accidents is 10% of those of competition. So, if you reduce if you reduce accident rates, and you don't have punitive litigation issues, you can tolerate some accidents, but relaying out a city like Shanghai, Beijing, huge task. So, what they have to do is they have to literally significantly separate people and cars and so on. And of course you can't have stops You're going to eliminate stops, so you're going to have to do bridges and so on. So, it's 2035, the new cities, again, those are innovative. So, this is a huge undertaking, but it's a plan by the government. It's a goal by the government, funded by the government and it's going to create a new era, in terms of transportation. So, the thing that we do we give credit to China for is they plan ahead, where they have water shortages, they're digging tunnels, and so on. Is it the right thing to do, I don't know. But they're planning ahead. The Gobi Desert now is going to be the location for large energy sources, basically, solar, and wind, and nuclear. And, of course, for nuclear, basically, they're doing building two nuclear stations a year. But nuclear, you don't really want them near cities, but put in the Gobi Desert, and then having high voltage transmission lines. So, you've got to give, we have to credit for this advanced planning, where they're coming from a very primitive state.

And I want to get back to that, but just to pick up on one minor thing, you said that you can't have stops, ypu said, referring to what.

Basically, you kind of stop signs, people crossing, because that really inhibits flow of traffic. So, basically, what you have to have, and what I saw in Chengdu underground is, they basically have managed it so the cars don't stop when they come to a stop sign, they slow down or the car coming so they can manage intersections without anybody stopping. Basically AI, but people because number one people cannot be predicted. Because if you go to China, you see you can go they have penalties right now for crossing a red light, it doesn't work.

I know from my experience, my Tesla, which has got the full self-drive beta that it will make turns, but a significant fraction of the time, it is so tentative about them that I have to disengage it because otherwise the people behind me will just be outraged at how long it's taking to do that. You were talking about planning ahead, and you had said in the book that your forecasts that they would be likely dominant in many areas of AI by 2040, if I read that right. My understanding that their next generation report said that they aim to be dominant in most of those areas by 2025 and in all of them by 2030. Are you more pessimistic than they are? Or did I get something wrong there?

Way more pessimistic than they are I mean 2025 is three years away and so any chip that's being developed today, for 2025, we've good visibility into today. So, while we high silicon were very innovative in terms of weight what they developed, but in terms of the other companies, they are significantly behind what you have in Nvidia and AMD and Intel and Broadcom and Qualcomm and so on. So, I think 2025 I don't think you'll see a huge difference in the next three years. 2030, yeah and I think 2031 year that we would we in the book we cover, but we also think is going to be important is digital health. The health system in China is actually very poor and in the rural areas very bad. But AI can give you an effective digital health system and the COVID testing they're doing right now, they're actually learning how to do it. So, basically, you have different sensors. Smartwatches today are really very ineffective for most things. But in future I think you'll have sensors that will test your blood sugar content. Oxygen, of course, can be done now, with many other markers. So, again, I think that's an area that you'll see them. But I think 2035 for fully autonomous driving people and transportation and goods, I think is too ambitious, especially in the big cities. But if it's 2040 and you do get the high-speed roads, you also have the solid-state batteries, the other types of technologies, where you have long distance, I think you'll see those areas being highly automated. The other area that I said we see highly automated is the defense manufactories. Where you have no people. That creates a huge unemployment issue in China. So, you have to find jobs, Smart Agriculture is coming in. So, I think in 2030, 2035, you will see a number of areas where there's significant advances, but I think 2030, 2035 military probably will be an area where we will see big differences.

Another area where China seems to be playing the long game is in space with plans for Space Station and lunar base. And this seems to be flying under the radar a lot in that the idea of China getting a Moon base before the West puts one up there, is likely to be a Sputnik moment for the West, the moment that occurs, and yet it doesn't get mainstream press at the moment. How do you see their space program in relation to their overall strategy for the next ten fifteen years?

We think the space program is part of the military. They've landed on the other side of the moon, they went to Mars. The new rocket they've developed I forgotten the name of it right now is really quite powerful. And the space station is fairly small compared to the International Space Station, but again, it shows dramatic improvements over the last few years. So, space is going to be a key area for digital warfare. And we probably can't do any significant mining on the Moon. So, there's really no significant financial benefits. Mining on Mars is you know, fifty, 100 years away, but it's really part of space. So, they have the sea, they have the space and land. And

communications obviously is a key part of space, what they're doing, which is also going under the radar, is quantum communication and they've had testing and quantum communication for maybe five years. Quantum computing is high profile. quantum communication is basically you can't block it. So, if you have a station on the Moon, and you do quantum communication, because you need reasonable amount of power, then basically sunlight might be a challenge, that can give you very good communication capability, which cannot be blocked. So, to us it's really part of, well, two or three things involving China. One is the practical side, which is basically building these things that can help you in a war situation. The other one's the image. Basically, the change of image from being lagging, to basically being leaders and then Xi Jinping needs to solidify his system of dominance by saying, "look how well we're doing," and then these are physical indicators. Look, we're going into space, we're controlling with COVID. Basically, this is really good propaganda also. So, it's multiple facets. But again, what you have to look at China, if you look at the leaders, they're really very smart and they've also gone through significant training in different places, maybe you know, it's controlling COVID in Shanghai or running Shanghai or basically running Guangzhou and so on. These are smart people and I think we fully underestimate the fact that they are well-educated, many scientists - in the first book that I did, actually, I did a background of the leaders, and many, many were trained in engineering and so on. And so I think we're dealing with a group of people who are very focused, very smart, very united, but they will not tolerate new ideas, which is actually a big, negative.

New ideas like what? And from who?

As things change, as the world changes, I mean, I think as new data comes in, we have to change how we do things. So, the danger in China right now is that they have plans, and they will stick to those plans and basically, they will not adapt to the new environments. So, if you look at the young people in China, because they're very innovative, if you look at the middle-aged people, they kind of very narrow, really, and the older people they're very narrow. So, I think we have this age stratification, which solidifies ideas. But I think going back, getting away from collective leadership did result in a huge amount of corruption. I mean, I agree with that. But then the centralized leadership that also basically power abuses, and we've seen in the past, we've seen it in many areas, but the key part of it is blocking out of new concepts, new ways of thinking, more rational approaches to new ideas.

When you're describing their advances in space and other areas, the land and the sea, and these are taking strategic positions, using unbreakable digital communications; that's military language, it sounds like on that scale, you don't need that just to maintain the domestic peace. Do they have long term designs to have the world's biggest military, to expand their empire?

Yeah, as I said, it's in three parts. One is the military part, then the domestic side, basically, you have to provide jobs, and you have to basically keep the people happy. And if you read the Chinese press, any disturbance in the US, like the street fights in San Francisco, I liked it, basically constant. So, you have video also to provide jobs and the most important thing in terms of domestic side is by jobs. Without jobs, without employment, the middle class on the educated, we will ballistic and they also have the communication channels to communicate with each

other. So, the providing of jobs, this is really tied into AI. The automobile industry is a big generator of jobs. So, the commitment I said to electric vehicles, to autonomous driving and then exports. So, target initially is Europe, and also the US. So, we think that the global automobile industry will go through major changes in the next 5 to 10 years. So, automobile industry is one, the communication, the smartphone industry is another. There's been a big drop in the number of smartphones sold in China, this year, compared to last year, last year was about 30 million a month this year is 20 million a month. And part of it is because there's no real innovation, and also because of COVID restrictions. So the communication industry, the smartphone industry is another area to emphasize. But a whole range of new things will come in because of AI. So, when you lose jobs in factories, you can gain jobs in building robots. When you lose jobs in restaurants, you can gain jobs by making robots for those restaurants. But the robots will be 10% of the jobs you lose. So, you have to create new industry. So, they're actually now focusing more on agriculture in rural areas. So the people that used to migrate to factories in Shenzhen, now they don't want to (a) they don't want to go because they want to have the kids and so on. So, in other increasing produce that needs manual labor, like fruit, and so on, maybe one day there'll be automated but peaches and apples and so on, basically they're using manual labor. In the cities, basically, right now there are big job employments for delivering food, delivering goods, for testing for COVID; those jobs will go away. So, they have to create new jobs. So, they have to create new industry, new applications. So, the one we think that will be big, as I said, is going to be digital health.

And what's coming to me as I'm listening to that they take this long-term view, they plan ahead for the future, but especially with respect to artificial intelligence, so many plans just are foiled by new developments. I mean, some of the things that AI is doing now, have happened in the last year, with advances in large language models, they're doing things that I just didn't predict, and many people didn't predict were possible. We now have an entire new (small) job category of people who craft the prompts for large language models to create digital images that meet the needs of people who are looking for some kind of art that would otherwise cost them much more to get an artist to do; now you can get that done in seconds if you know the right words to give one of these models like DALL-E-2 or Stable Diffusion. So, that's that to speak, that speaks to how AI can upset the ways of planning that we might have. Is China able to react to changes, unexpected changes in direction of the technology to leverage those as well as the West?

That's a very interesting question and there are two or three parts to AI again, one is you need advanced semiconductors and so when we look for example, Nvidia is highly innovative in terms of what they're doing with AI, the transformer concept that they just came out with in terms of data learning from data. Again, it's at the early stages, but very innovative. When you look at the companies inside China, Tencent, in terms of WeChat, in terms of WeChat Pay, some of the gaming stuff, is quite innovative. So, at the corporate level, at the people level, I think you do have quite a bit of innovation and again, if you look in Silicon Valley, basically high percentage are Asian, and right now, the contribution by the way of Indians in Silicon Valley is amazing, very, very positive. But I think, in terms of in terms of the companies in China, I think they can

be quite innovative. I've seen some of the stuff coming out of some of the companies, some of them are still in the early stages. The problem they have though, is they need semiconductors, and they need advanced semiconductors and BIS is blocking that and without semiconductors, the whole AI ecosystem in China will collapse. The electronics industry in China will collapse. It's going to be chaos. So, the issue is what will China do about that? But no, I think the innovation builds on innovation and the environment - I mean, Google has been incredibly innovative in the past, Google is becoming a little bit more Wall Street oriented. And some of the moonshots or whatever they call them, some of those activities are being reduced. So as companies mature, we do see some slowing innovation, because of the emphasis on the financial benefits. But I'll tell you, though, I'm concerned about Silicon Valley. Basically, house prices still are very high, California as a state is not really pro-business at all. The limitations being put on companies, including my company, on an annual basis is really becoming prohibitive. So, again, the Silicon Valley is a jewel, in terms of the US, but it's not being regarded that way right now, by the politicians in California, it's a source of money. So, again, we've gone through these stages in Silicon Valley, where semiconductors, manufacturing, was big and different things and now we're in new phase, I think it's a really good phase we're in this many smart people here, really creative. It's a great to live here among these people. But the taxes are going up; all sorts of fees going up. The schools, public schools are really becoming terrible; the private schools are still very good. But again, we have our own challenges and what we see with China, they do have problems, in many cases they recognize them and then they have long term plans.

While speaking about those long-term plans, though, in the West, the general sort of impression of the way things work is that the private businesses drive the innovation, the strategy, the market determines these directions, and that if you paid no attention at all to what the US government was saying or doing about that, you wouldn't be missing anything terribly important. In China, is the role of the government in planning and shaping strategy for technology development, is that more significant and how?

Yeah, it's a lot more significant, and it's good and bad. I mean, installing communist members as part of your management team has negatives. But if you look at the Stock Exchange in Shanghai, that has really made a lot of money for venture capitalists, even the government, but also for individuals. So, that was created by the government to create wealth, and creating wealth allows money to be invested in new companies and so on. If you look, for example, at the support given to for solar cells, LEDs, and of course, the plan was to do the same thing for semiconductor manufacturing, and those have provided good benefits for China in terms of exports. What it's done, though, is destroyed companies in other countries, and so by having the combination of government funding, and corporations it destroys competition. So, the Chips Act is an attempt to counter that and the Chips Act potentially is 54 billion and twenty-nine billion for manufacturing. But then Congress still has to allocate the funding and you know, we have election coming up in the next few days, if the election changes the composition of Congress but the funding is going to be highly political, because Congress, people in their states, want that money and again, it's the same thing happens in general, I mean, again, is to see your same kind of pattern with political leaders. But the amount of money the Chinese government allocates to industry is at least ten times, maybe twenty times, or fifty times what happened in the US. So,

why do you have manufacturing in China? Why is TSMC so strong? Well, it's so strong, because number one, Morris Chang, brilliant guy, he worked in the US. Why did he go to Taiwan to do the FAB, instead of the US? With technology from Philips, by the way, Phillips owned 20% of, of TSMC, at one time, because costs were lower in Taiwan, and he did get some funding support, not a lot. But also it really helped him with technology and sources of people and then he was able to bring people back from the US. But the reason we don't have manufacturing in the US is because it costs too much. So, California, basically, you have a huge tax on assets. So, you can't put a factory in California. Texas has been better. Arizona has been better. But the reason is, you get lower costs. TSMC and Samsung both tell me how many factories in the US costs 30% more than in Taiwan and in South Korea, and this is public knowledge they don't only tells me. So okay, how can you compensate for that 30% will companies pay your high prices? Can the government subsidize it? No, not really. Because if you're running, if you're if you're basically investing 30 billion in the factory, and you get 10 billion upfront, you still have the operating costs, the electricity, the labor, so it's going to be very difficult to close that gap.

So, I'd like to look at the concept of the digital twin that you raised in the book, with respect, particularly to how we might have differing attitudes towards what we want out of AI, in the West and in China, AI researchers in the West, harbor, at the core, a goal of making something that thinks like a human that they can have a conversation with, that's the holy grail of AI is to create something that is human-like, and although we're a long way off from that you can see people working as hard as they kept on doing that, and a lot of conversation and a lot of research in the areas where they can make progress in that. In, for instance, emotional AI. In China, do they have that same kind of relationship to AI that they think of it as being perhaps, an eventual human companion in some way? Or is it strictly, as you mentioned repeatedly, data, let's use this as a tool that has no human-like qualities, nor do we want it to have any?

Well, I'm slightly biased in the fact that I don't think the emphasis should be on emulating the brain. The brain is so complex, and the brain has - you can't emulate emotion. And there are memories in the brain that are basically very difficult to reciprocate and so on. But, you know, we didn't have the car as a replacement for a horse with many legs; we had wheels. So, I think with AI, it's going to be a different way of analyzing data. I think we will need a different way of communicating with a virtual digital twin. Basically, a keyboard is too slow. I believe, frankly, there will be kind of a telepathic way of communicating but that's maybe five years away, 10 years away. Elon Musk, of course, is working on that right now. Other people are working on it. But in China, what we see is AI as a tool to manage data and data, basically, is what's around you. So, data involves the environment, the data can involve agriculture, data can involve medicine, data can involve many, many things if you have the proper sensors. So, spending time on replicating the brain, I think is the wrong thing to do. Spending time on having the brain communicate with a virtual digital twin with high bandwidth is the right thing to do. The other problem, by the way, also with a virtual digital twin is if you have one, and somebody controls it, and it actually affects your brain, in a way it can affect your mood by the data feeds you that becomes a powerful controlling tool also. So, I think the key issue, and I think Musk has got this right, is how the brain communicates with a virtual twin in a way which is far greater in terms of

amount of data than you have on your keyboard or even when you speak. Where your eyes have thousands and thousands more time of information than your voice. So, how to how to improve that communication and I think the people that will have good communication with their digital twin will actually have competitive advantages. Today people who communicate with other people have competitive advantages, but those now who can communicate with the twin can also competitively advantages. But corporations can use them in terms of how people operate, how people make decisions, because the more data you can have in how you make a decision, the more likely the decision will be right. So, the people that make the right decisions, so you can see how this can evolve over time. With the communication between the human visual twin, now, of course it can outlive you. It can be when you die, your thoughts and your ideas as long as the digital twin will outlive you. And of course you can have multiple inputs, you can going to have one digital twin for yourself and for your family. So, the family inputs which would be in there. So, again, this thing has unlimited potential, almost, if you look at what can happen. So, you need semiconductors, that's the foundation; you need algorithms and you need the brain for people to actually initiate those algorithms and create ideas over the algorithms.

Wow this, again, speaks to how much is changing in a world where already so much has changed so recently, that has not all been for the good: political, economic and military turmoil around, it suggests that we're entering a more fully an era of great challenge. What would be your advice to Western businesses on how to gird their loins for this era?

To be successful, you have to be a leader and there are some industries where maybe it's too late to be a leader, and maybe it doesn't matter. But AI is a brand-new arena, in many respects, you know, we have the concept of muscle power, and brain power. Muscle power is electricity, and so on and it took 20 to 200 years to get from where we started to where we are today. AI is a brand-new arena, is going to create new industries and it's happened to happen the next twenty years. So, the some of the innovations, some of the new concepts you talked about, create new industries create new opportunities based on AI. And what we have in the US right now, are some really smart people, so we have to leverage them. So, I'm positive that we can be successful, provided we have a focus, and then support from government agencies and so on to let us implement. So, I think innovation is the one area; by the way, we do think there's also good opportunities in Europe. We've actually been involved with some activities in France, and really smart people. We've been also talking to the UK, again, we don't see much response there. But again, some very smart people. So, we have smart people; we have to use them. But AI is a brand-new arena. I think we have to think about how to educate the students in universities, in high school, even going back to kindergarten. You know in China right now, a lot of kids are programming at five. So, again, well some of the kids are doing it. So, this is going to be a new era, a new world. And the opportunities are going to be excellent. So, we're going to have bumps in the road. I think the next few years because of inflation, potential recession, we're going to have problems, but again, innovate, and drive, and succeed.

Wow, that was a fantastic answer there. Handel Jones, how should people get your book? We'll put a link to it in the show notes, of course; what else would you like them to know in terms of how to find out more about you and what you're doing?

[The book](#) is on Amazon and Barnes & Noble and basically, if anybody has any questions, they can contact us and by the way, it's been a pleasure interfacing with you.

That's the end of the interview.

In today's news ripped from the headlines about AI, a German moviemaker and technologist is producing a film using AI-generated footage, sound effects, and voices, to get a result inspired by 1970s science fiction sci-fi movies, which means it looks post-apocalyptic. Fabian Stelzer has been using large language models like Midjourney and Stable Diffusion to generate the imagery for the movie called Salt, which looks like it's composed of still images with digital effects and zooms like the Ken Burns effect. So, no computer-generated moving imagery yet – I've seen some samples of the state of the art on that and it's not quite there yet – but the filmmaker says under the Twitter handle SALT\_VERSE that "SALT is a fully AI-generated filmverse, where community choices drive a multi-plot story." It's an interesting experiment, demonstrating the sort of thing that avant-garde artists do when they get their hands on a new technology. It made me think of Phil D. Hall's echoborg, the performance art chatbot discussed in our interview back in episodes 48 and 49.

And here's some other news folks, it's time to move the decimal point, we have hit 100,000 downloads of AI and You! I believe that growth wasn't from people being cooped up indoors during the pandemic, but thanks to the stellar guests we've had on the show, really, people doing amazing work, with amazing thoughts, who took some of their very valuable time and gave it to you so you could understand AI better. There's a lot more people out there who would be part of this community if they knew about the show, so tell your friends, give us a like and a 5-star rating and a review, each one of those probably gets us another 10 listeners. There's your 10x multiplier effect right there. And let me know what you'd like to hear more of or what you'd like changed, or react to an episode, by emailing me at [peter@humancusp.com](mailto:peter@humancusp.com).

Next week, my guest will be futurist Tony Czarnecki, a returning guest who has a new article called "How Might Transhumans Control Superintelligence?" which really calls for discussion on what he means by transhumans, superintelligence, and control, and that's just what we'll do, next week on *AI and You*.

Until then, remember: no matter how much computers learn how to do, it's how we come together as *humans* that matters.

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