

AI and The Future of Being Human By Kai-Lu Lee
End Well Symposium, December 6, 2018

Start of Transcript

[Crowd Laughing]

Thank you very much. I've been working on artificial intelligence for 36 years. Ever since I was two. [Chuckles]

[Crowd Laughing]

Actually I remembered that vividly because here I have the application I had for my PhD at Carnegie Mellon to work on artificial intelligence because I thought that was going to be the technology that would make a difference, change the world and that I could devote my life to. And once I got into Carnegie Mellon, I began the life of a workaholic. I love to work, I wanted to make that difference, I felt that I'm in the world so in order to make the biggest impact, I can, so I measured everything by it. Efficiency was important and on the right side you see that clock. And that clock actually was inside me **[00:01:00]** because I was using old computers at the time, 36 years ago and I have to check my computer from experimental results every 2 or 3 hours so I forced myself without setting the alarm clock to wake up at 2 AM and 5 AM everyday so I could keep my experiments going.

And my next experiment based on the previous experiment result, and this had been continued til' I was working at Microsoft and Google China, I woke up at 2 AM and 5 AM to respond to all the emails my Californian and Washington bosses were sending me. So they felt I was working hard and responsive and so that my employees also called me Ironman for being instantly replying to all the email during the day and within 2 hours at night. And I was so proud of that and they felt they had to work hard, too. And as long as I was waking up at 2 AM and 5 AM **[00:02:00]** while running to the den for the computer. On the left-hand side you saw a little rack that I had people build for me. I could just wake up and answer the email with keyboard and mouse right on my stomach. [People Laughing] So that was the life that I had and then it got worse when I moved to China. Because this headline from the New York Times talks about Silicon Valley people who supposedly work hard and they went to China and they summarise crazy work hours. As Silicon Valley goes to China, and I became a ventured capitalist and I was surrounded by and I funded people who work incredible hours.

One of the companies that we funded wanted to — I persuaded them there needs to be a little work-life balance. So they have a slogan "Come work for us. We are only 9-9-6. That meant 9 AM to 9 PM, 6 days a week **[00:03:00]**. Unfortunately they got killed by other companies 9-5-7.

So I worked as hard as my entrepreneurs, lots of progress was made and I was very proud from my Apple days, Microsoft days, Google days, and today it's Sinovation Ventures. We were the five founder of artificial intelligence billion dollar unicorns. That's something I felt like my accomplishments were achieved and that AI is now mature and working. In fact, I won't go into details about AI but think about this as one single domain, huge amount of data, and it can make superhuman decisions. As we saw in AlphaGo, as we saw in IBM Watson, and as we read every week in new applications *Bank Loans, Amazon, Facebook, Google*. It's AI that's driving this single applications making huge amounts of money **[00:04:00]** and making a huge amount of difference in these applications. Except I ended up with a new pondering which is that as long as AI was so good, as these single jobs, then what about the people who were doing these jobs? What about the loan officers? What about the customer service reps,

telemarketing people, people picking fruits fertilizing plants? People — assembly lines, people washing dishes? These jobs would all be displaced. So I face that pondering.

And one time, at the same time, I felt proud. This was making a huge difference at the same time I was worried that what we're doing is destroying jobs. And what was worse than the loss of jobs and income is the loss of meaning. Because industrial revolution has brainwashed all of us that are many of us **[00:05:00]** that our meaning of life was work. And because at the time, industrial revolution began, craftsman jobs in making one car were displaced and changed. Displaced by many people who work on the assembly lines. Though it was sensible for the catalyst to make the assembly line workers felt that their lives can become satisfying if they just got to work.

If you look thousands of years ago, our job, meaning of life wasn't so dominated by just working. And it became more so during the industrial revolution. So if the displacement of the jobs happen after routine work, this loss of meaning would be disastrous. And if you remember the earlier stories I've told, I was a willing victim of this brainwashing as I became so maniacally focused on getting results and working at having such bad habits with stress and sleep **[00:06:00]** and I was a maniacal workaholic. And that obsession of workaholism ended abruptly about five years ago when I was diagnosed with 4th stage glaucoma.

This is the PET scan. As you can see, the 20 or so tumours right here jumping out like fireballs, melting away my confidence and my pride in my work. And also making me rethink about the meaning of my life. Of course I went through the stages of denial, anger, negotiation, bargaining, and depression... and eventually acceptance of the disease that I had. And went forward to take a chemotherapy but finally when I reached the stage of acceptance, I also reflected on my life and I realised **[00:07:00]** that my priorities were completely out of order. I had in my pursuit of excellence in my work, I had neglected my family, my father had passed away and I never had a chance to tell him how much I loved him. My mother had dementia and no longer recognised me and my children had grown up. And in reflection, I felt my priorities at workaholism was really a big error and in my illness I read this wonderful book by Bronnie Ware which relates very much to this audience about end-of-life care. She was a nurse who watched 2000 people passed away and summarised their biggest regrets. And there it was. 1.) Not spending enough time, more time with loved ones. And then 4.) working too hard. Almost exactly talking to me about the errors of my **[00:08:00]** ways.

Fortunately my chemotherapy worked well, so I could be here with you at End-Well and that my life has not ended and I am well. [Chuckles]

[Crowd Clapping and Giggling]

In my illness, one of the biggest wakeup moments was with a famous Buddhist monk in Taiwan named Hsing Yun and he asked me, "Why did you live your life the way you did?"

And I said, "To make a difference. I measure everything by how much difference I make."

And he said to me, "Changing the world means making a difference are probably disclosed of excuses that are hiding humanity. You are just trying to make yourself famous. We humans cannot resist the temptation for greed, fame, and vanity, and if you really want to change the world, think not how to make yourself great, how to change **[00:09:00]** the world, but rather, can you give out a little bit more love? At least give love to the people who have loved you. And if you can do better, give love unconditionally."

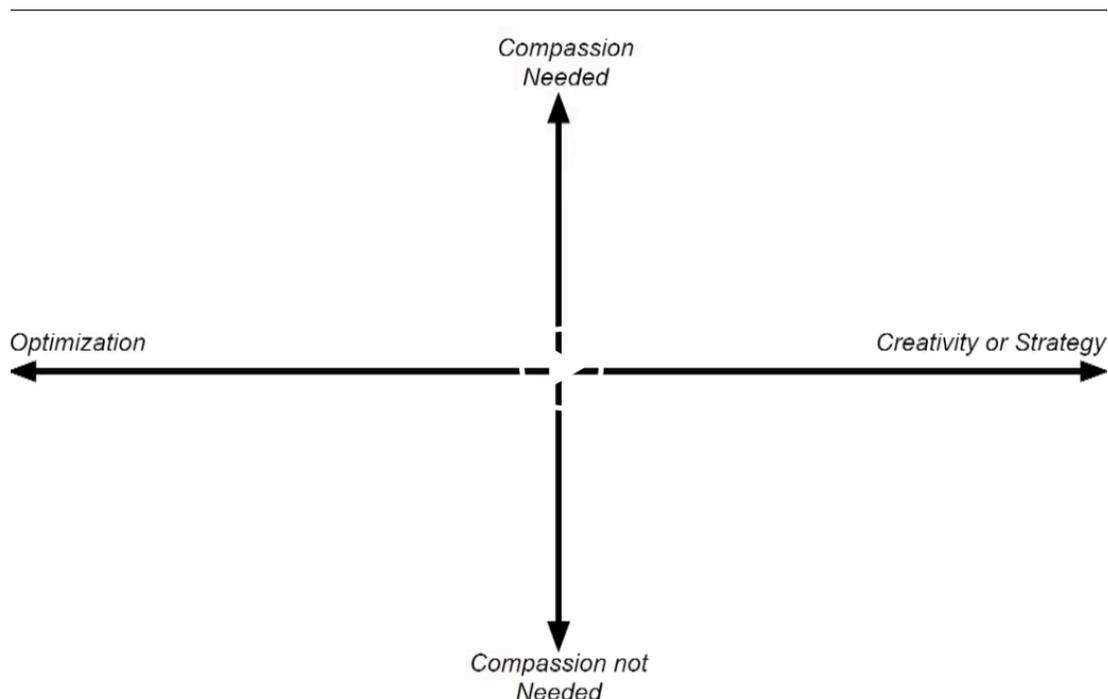
And that has become the way that I have now chosen to live. And in retrospect, in my facing the fact that there may only be months in my life, it was my family that gave me comfort. I think their love for me was as important and effective as chemotherapy. And in retrospect, I think their love for me was not just when I was ill, but it was throughout my life. But I really did not give them the attention that I should have. And I have changed my ways. I moved back to stay close to my mother and wherever I go, my wife travels with me and I take my vacations so my kids have time, not when I have time. And I felt this has made a big difference. But it not only **[00:10:00]** made a big difference in my life, but it made a difference on my outlook about artificial intelligence.

Was it good or was it bad? What was the outcome? What if we displaced all the jobs? Well, the answer is we won't displace all the jobs, there are things that artificial intelligence cannot do, one is obviously AI cannot be creative. We give them goals and then they optimize. And the other much bigger thing is that AI cannot love. Despite what science fiction or the movie *Her* might you have you think... [Chuckles]

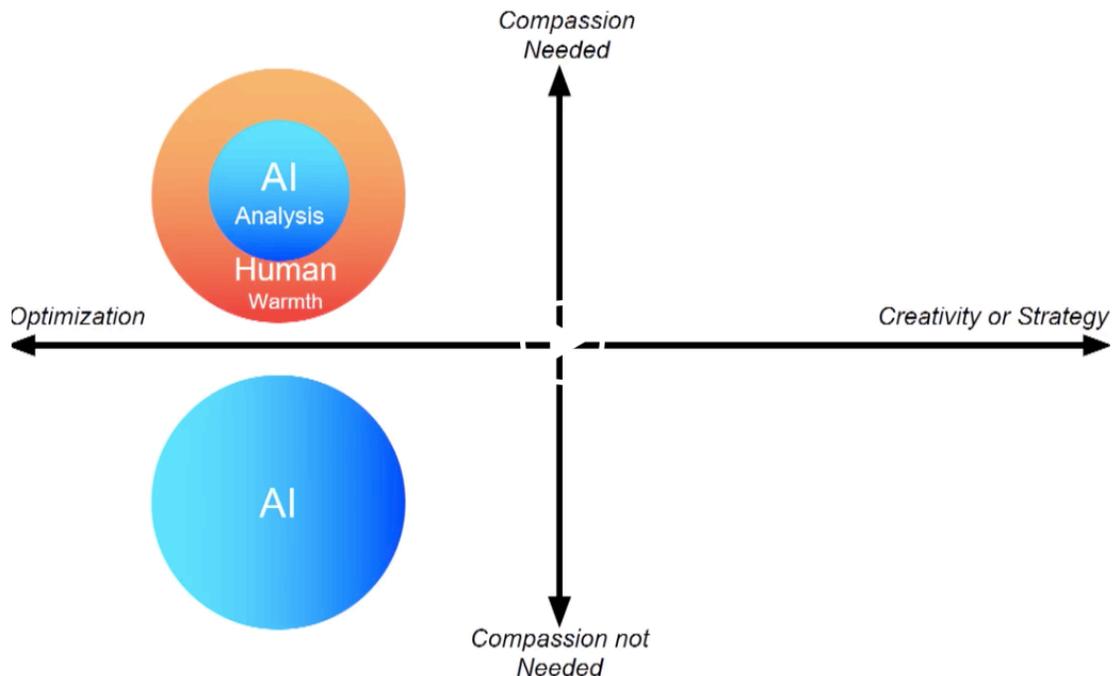
[Crowd Laughing]

...it was really Scarlett Johansson's voice that made you think AI could love! And that have to take my word that AI has no sense of love, compassion, empathy. When *AlphaGo* beat Ke Jie, we saw Ke Jie cry because he loved the game but *AlphaGo* had no emotion, no feeling of joy or happiness, no desire to hug a loved one **[00:11:00]**. Completely different.

And therein lies the answer to what happens to all the jobs, because if we look at the things that AI cannot do, they are a one-dimension on the X-axis, they cannot be creative; on the Y-axis, they have no compassion or empathy, human touch, and trust.

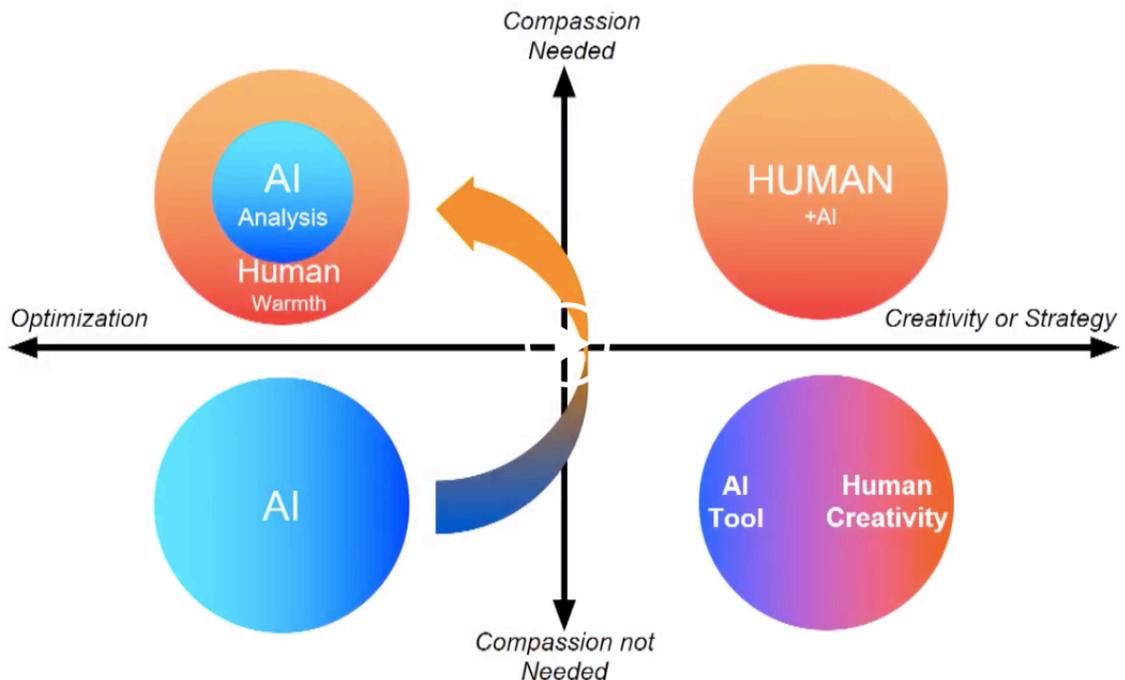


What that means is the lower left corner are jobs that will be taken by AI — and a lot of jobs, over time. But also wonderful things we can do with AI. For example, on the upper left, we can imagine the future doctor’s job might be using AI’s analytical engine in urodiagnosis but the doctor becomes a connector to the patient providing warmth, care, love, visiting patients at home, and giving patients a chance, a greater comfort and confidence that they will live longer or recuperate. And we know that the placebo effect will kick in [00:12:00] and people will recuperate better and live longer and that is the one kind of symbiosis.



The other kind, of course, is with jobs that are more creative. Then maybe not so much human connection but then AI can be the tool that will help scientists invent more things, such as invent more drugs, pharmaceutical methods of treatment that will help people recuperate and live longer. And of course, we will celebrate the jobs that require both compassion and creativity.

So in the future, it’s not one that is gloom and bleak where AI takes all the jobs but there are plenty of opportunities to celebrate our humanity and plenty of chance just for AI and humans to be symbiotically working together. But what about that lower left-hand? We’re gonna have a very difficult 10 or 15 years as those routine jobs are displaced [00:13:00] because after all, the number of jobs that are on the right side are small. And the number of jobs that are on the lower left is large but I would say not to worry because the upper-left jobs in the compassion area comes to the rescue. Because don’t we believe we’re going to need more caretakers? More nurses? More doctors? More teachers? More concierge? More masseuse? More psychiatrist to help people alone? And those are the jobs that can become the human connector that will potentially we can re-train the lower-left hand people for the jobs on the lower-left hand side.



For example, in the next six years, US is projected to need 2.3 million more healthcare workers: nurses, and at-home care [00:14:00] and also elderly care as people are living longer, we will need more people to care for the people who are over 80, who need 5 times as much help as those between 60 and 80. So those jobs are growing, but if we look at some challenges that we face, we'll see that routine jobs like the tractor operators are paid a lot more than the personal care. So I think as a society, we really need to increase the payments and increase the compensation and the social status so that the people on the left-hand side will feel...

[Crowd Applauding]

...will feel that they have a future and go for the retraining. Companies should offer retraining. Amazon is offering a \$12,000/year retraining, reimbursement, for jobs like nurses and I think that is won [00:15:00] -derful and some might say, "Well, Kai-Fu you're an AI scientist, don't you think robots can take care of the elderly?" I was — one final story that says basically no, I had a robot maker who made robot to take care of the elderly. And it's a wonderful robot that did all kinds of things. It woke people up; when they needed to, reminded about medicine; and could order food; call the doctor; and entertain the elderly but the entrepreneur came to me and said, "Kai- Fu, I'm afraid the elderly uses only one function... which is customer service.

[Crowd Laughing]

They would click on Customer Service, the deal of a person comes on...

[Crowd Laughing]

And then [Chuckles] he or she says, “How come my daughter hasn’t called today? Let me show you the photo of my granddaughter.” So this, so people do not want robots to be cared for. It’s obvious to you **[00:16:00]**...

[Crowd Applauding]

... and that’s why I think we need to do a lot more work to make these jobs of compassion possible not only because that’s what people want but also robots don’t have the capability of doing them and even if they did better than they do today, the users don’t want them.

So to conclude, I feel that in my being towards death experience and understanding AI, I now feel AI is serendipity because it is here to remind us that work is not the meaning of life. There is more to work than why we exist. And furthermore, AI is just a tool and is able to take away all the routine works so that we finally can be liberated from routine work, so that we can do the things that we love, we can spend more time with the people we love and we can find why it is that we exist as humans **[00:17:00]**. Thank you.

Host: Awesome. Great! Thank you!

[Crowd Applauding]

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