Artificial Intelligence

Artificial Intelligence could either lead to global mass unemployment or create new jobs that we cannot yet imagine.

Artificial Intelligence (AI) takes many different forms, and permeates all aspects of our lives today. We now have a variety of technologies where intelligent machines, powered by revolutionary advances in micro-technology and superfast connectivity, are firmly changing the way we live and work. Beyond driverless cars and very smart computers that can beat chess champions, there are numerous mundane applications of AI which are enabled by simple sensors connected to smartphone SIM cards.

A select cluster of 60 business leaders recently attended the two-day Tata Communications CEO Summit with the theme 'Artificial Intelligence meets emotional intelligence'. At the conference, which both educated and provoked guests, Zurich-based Gerd Leonhard of The Futures Agency warned that Artificial Intelligence would soon destroy millions of human jobs. According to Leonhard, within five years most companies will have armies of very cheap, very powerful, versatile machines, connected to a smart cloud, and they will be able to accomplish many routine processes. Some 25 years from now robots, through cognitive computing and using vast amounts of data from humans, will do all that kind of work.

While the conference addressed concerns, it also flagged up potential opportunities. 'AI is no longer the stuff of science fiction' Vinod Kumar, chief executive of Tata Communications, said in his opening speech. 'As leaders, we are duty bound to understand it as best we can. We must share our ideas as to how to enable it to fulfil its potential while guarding against the social and economic disruption it may bring.' Kumar further elaborated that the only way big issues could be tackled was by bringing a diverse audience together and working together to develop robust solutions which would have long-lasting benefits for everyone. A key question, therefore, is whether AI will indeed make a significant number of the human workforce obsolete.

Martin Ford has long argued that innovations in robotics, automation and AI will lead to mass unemployment in the future due to machines being able to do work traditionally carried out by humans. In his book, *The Lights In The Tunnel: Automation, Acelerating Technology and the Economy of the Future*, first published in 2009, Ford suggested the balance had swung further away from humans than originally predicted.

Ford explained, 'I wrote that self-driving cars might happen one day, and within six months of that book being published we already had such a vehicle on the road. It's possible that taxi drivers and truck drivers will soon be out of work.' He added that machine learning meant that robots weren't only taking on roles that traditionally relied on muscle power and were beginning to make decisions and solve problems autonomously. 'We are inevitably headed to a mass-unemployment scenario,' he warned. 'Robots aren't only taking on roles that traditionally relied on muscle power, they're beginning to make decisions and solve problems autonomously.' While this was unthinkable a few years ago, Mr Ford says that many people have had to change their perceptions and that academics and governments are alarmed. Ford also pointed out that machines are going to encroach on the basic capability of a lot of average people and chew up the fabric of society, meaning that we will get to the point when there simply are not enough jobs to go around, and other tasks could be deskilled so they become low-wage.

'We could get a downward spiral where businesses can't find enough customers, cut prices, cut even more workers, and the next thing you know, without adequate consumer demand, you risk deflation,' Ford explained. With permanent unemployment, Ford predicts that governments will come round to the notion of a 'universal basic income' for employees.

This scenario is, however, all a little gloomy for Ken Goldberg, professor of engineering and director of the people and robots initiative at University College Berkeley. He believes that the future promises a world where humans and intelligent machines work together, to create things.

Goldberg believes that Ford is falling into a trap that many people are falling into, and that he is grossly exaggerating the potential of AI. 'Many of the public, and even experts in the industry, have come to expect that we will see exponential advances in technology, but the fact is we've seen unfulfilled predictions about AI and robotics for the past 50 years. Fears of technology go back to Prometheus and the Greeks, and go up through Frankenstein and the Terminator. There have been many advances, yet we have to put them in context.'

Goldberg pointed to driverless cars as an example. 'There's a huge gap between assisting a driver – which is where we are now – and replacing a driver, and I'm willing to bet we will not see that happen in the next 20 years. We might not think it, but we do not live in the most technologically advanced time in history.'

Professor Goldberg, who prefers to use the word 'multiplicity' when it comes to describing how humans will interact with robots, believes our philosophy should be to enhance humans, not replace them, and that the combination of humans and machines is going to make major advances in the next couple of decades.

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