The future of knowledge in the coming era of intelligent machines

Gerd Leonhard Wed 14 May 2014 13.04 BST

Opinion: Futurist Gerd Leonhard says the rise of artificial intelligence means we need to rethink the way we learn

Technology is inadvertently making great progress in replacing human workers in pretty much every industry, whether it is in accounting, media, marketing, manufacturing or financial services.

Just witness the recent rise of restaurants that simply give you an iPad to order your food instead of sending a waitress to your table – 30-50% fewer employees needed, in one swoop. Then, look at what the Kiwi startup Xero will be doing to those who work in accounting or imagine 100s of 1000s of self-driving cars swarming in big cities (no cabbie needed) and you know where this is going: human labour is being disposed of at pace and the way we learn is heading for a total reboot.

Narrative Science's software already writes articles that are allegedly indistinguishable from those written by journalists, and the Qualcomm Tricorder XPrize project is looking to build a StarTrek-like medical diagnosis device that could replace a team of doctors (again, allegedly).

Widespread structural unemployment ahead

A recent Oxford report points out that in the US alone 50% of all jobs could be automated away within 25 years.

The consequences of this inevitable rise of smart machines, robots, artificial intelligence and so-called cognitive computing are clear: our future does not lie competing in jobs such as information storage, data processing and repetitive computational tasks – smart machines are certain to beat us, hands down. Rather, our future lies in being more

human and less like machines (listen up, MBA students). In this future, making mistakes, failing, not complying and creatively destroying things are some of the key skills on which we will be able to beat machines for quite some time.

Yet, this raises the question of what knowledge will actually mean, in the future. We will need to consider the dramatically increasing importance of emotional and social intelligence, of reading between the lines, of intuition – ie "knowing without knowing", as Sophie Burnham calls it – and of what can only be described as unique human wisdoms. How can and will that be learned, going forward?

True human intelligence requires a body

Human-only knowledge is undetachable from actually having a body, as is aptly demonstrated in Spike Jonze's latest masterpiece Her. Yes, machines can indeed emulate, copy and approximate, but without a body – and all that difficult human stuff that comes with it, such as emotions – they are not even close to replacing us in what really matters. But then again, maybe this is not the goal of those that build them.

Consider the simple example of a self-driving car (SDC) that encounters a situation that will result in a certain collision with a human no matter what it does. If the SDC needs to decide who to crash into, how would it select the "victim", and based on what rules? Crash into the motorcyclist with the helmet or the one without the helmet? This is mission impossible for a machine but not for a human, and therein lies a key difference.

All machines, for now, require programming and by definition programming does not allow for alternate scenarios that have not been programmed. To allow for that would require going up a level, creating a self-learning AI.

And this is, of course, precisely what would make "full AI" so dangerous: unencumbered by anything that makes them human (biological shape, emotions, beliefs) AIs are likely to eventually consider us mere "wetware" – something to be tolerated (we hope) despite its minimal computing

capabilities and the fact that it constantly makes mistakes.

Most human jobs of the near future don't even exist today

I foresee a future, a decade or less away, where up to 50% of all jobs don't yet exist, or currently exist only as a singular skill or character trait. Imagine jobs such as "right-brain therapists" or a "simplicity designers" (see Mashable's great list of 2020 jobs), or of course, any new job related to designing, managing and controlling all that intelligent technology around us ("AI supervisor", anyone?).

So let's consider how the pyramid of skills will morph. Not too long ago, gathering relevant information and developing number and fact-based logic and plans formed the backbone of almost any education, except at art colleges and theological seminars. Just-in-case learning was the leading paradigm, solid planning and flawless execution the prevailing approach.

Just-in-time not just-in-case

Going forward, just-in-time learning will become a key paradigm – possibly not to the total detriment of traditional just-in-case learning, but surely putting a major dent into that concept, and questioning the rationale behind getting an expensive degree in something. That's yesterday's logic.

In the future, beyond merely acquiring some kind of unique ad-hoc knowledge and understanding based on ubiquitous, machine-curated information, it will be even more paramount to arrive at a highly individual kind of wisdom based on it. The goal will be to attain something that transcends mere data streams and creates real value, much like a painter's value is not in the paint but in the picture.

The future: be less like machines

We need to unlearn the habit of acting like machines and relearn how to act like humans. Quite likely this means – as Sir Ken Robinson has been pointing out in his amazing TED talks – going back to what did as children: playfulness, experimentation, listening, imagining, dreaming and failing fast, failing cheap and trying again. Paradoxically, maybe having

smart machines gathering data, information and to some extent knowledge, may actually free us up to do just that and focus on nurturing creativity and attaining wisdom.

Gerd Leonhard is a futurist, speaker, author, CEO of TheFuturesAgency and host of The Future Show and can be found on Twitter via @gleonhard.

The latest episode of The Future Show on knowledge and learning is available to view online at thefutureshow.tv.

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