

The human package deal
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20 December 2016

As Australia's Chief Scientist I have been struck by our knack for finding reasons not to succeed. We are not innovative, our research is average, we don't collaborate, we're underfunded, we're *overfunded*, life's so good that we're complacent, life's so bad that we're fearful and boring... There seems to be no data we can't report in a depressing way.

Then it hit me that this negativity is not some quirk of the Australian character, but part of the human condition, so deeply ingrained that we even apply it to the business of being human itself. We are not as fast as cheetahs, we can't see like an eagle, we can't camouflage ourselves like a chameleon, we can't smell like a dog, we can't dive like a dolphin...

If I thought about our country as the sum total of its inadequacies then I too might be tempted to despair. But consider for a moment the positives – unemployment is low, the standard of living is high, and Australia is the only country in the world that can say it hasn't seen a recession in 25 years. Something is clearly going right! And that something can only be found by thinking of our country as more the sum of its real and imagined limitations.

So too with humans. Yes, we could come up with a miserable list by looking for the outliers in the animal world and comparing our performance on the very things that make those animals exceptional. That would be the wrong way to assess our capabilities! Humans are the most remarkable synthesis of a lot of tolerable characteristics to create a whole that is truly astonishing. This is particularly so when it comes to our brains, rightly described by many commentators as the most complex machine in the known universe.

If there is any creature out there that might one day come close to the package of features known as a human being, it is the creature that we ourselves are creating – the algorithm. Or call it Artificial Intelligence, or Machine Learning, or Robotics.

It's easy to look at the individual skills embodied in the world of algorithms and conclude it is all over. We will become irrelevant, of no importance; and soon enough, unemployed.

But take solace in package deals. Yes, computers are faster and more accurate than us, just like a cheetah runs faster. Yes, image processing software can pick out more details than we can, just like an eagle sees further. Yes, there are algorithms that can learn like we do and beat us in chess, Go and Jeopardy! And there are algorithms that can analyse company reports, or compose music or write a short story. There are robots that can drive, others that can climb, still others that can crawl through rubble to find signs of life in collapsed buildings after an earthquake.

But put them altogether (which is proving very hard to do) and all you will have is a highly capable machine. Good luck getting it to go snorkelling, dry off and have a drink at the bar,

share some funny stories, then wander over to the lab to discover something new before rushing home to read to the kids. Good luck getting it to *enjoy* those things.

A smarter robot is not a substitute human.

And in a world of algorithms, why would I still choose to be human? The answer, friends, is the package deal. The package of features that constitutes a human is special and will remain special for a very long time.

Cheers.