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AI and Ethics

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Everyone is betting on Artificial Intelligence (AI). As a 2016 *Forbes* article speculated: "Businesses that use AI, big data and the internet of things … to uncover new business insights will steal $1.2tn a year from their less informed peers by 2020." AI is changing everything and this massive investment in the technology shows that fundamental disruption will happen soon.

So, what is so special about AI? Essentially, it is not innately intelligent. It does not think or make common-sense decisions like a human. A game-playing AI does not know it is playing a game or what a game is. However, in many cases AI is smarter and faster than we are, particularly when it can be trained to do a specific task.

However, before you take a bet on AI let's think about the next manifestation of these skills – adding sensors. The machine at the poker table would now be able to sense, and remember, pupil dilation, mannerisms, the amount a player is sweating and other biological signs of stress (bluffing) to empower its decision-making. If we transfer this skill set into business, military, government and diplomacy, AI, possibly embedded in a robot, becomes an invaluable aid in negotiations to assess whether the negotiator on the other side has a strong or weak position. This would be bad if you were a small-business owner negotiating with a larger company enabled by AI, but perhaps in childcare it could help guide children away from lies and deceit.

Game-playing AIs remind us that AI already has a significant part in our lives and will change them in every way. In 2014 Stephen Hawking and others warned AI could be our greatest achievement – or our last. So, whether or not you believe AI might become malevolent, by thinking about the ethical design now, we need to raise our understanding of the technology, so we can maximise its benefits and recognise the risks.

The US Institute of Electrical and Electronics Engineers (IEEE) recently asked scientists, lawyers, social scientists and other experts to consider some of these ethical dimensions. To give two examples: on privacy, as we let more listening devices into our homes, how do we prevent the data they collect falling into the wrong hands through hacking or simply being sold between companies without us receiving any money? Another example: mixed reality, including virtual reality, will become pervasive in the next few years. As we move from headsets to what the IEEE committee describes as "more subtle and integrated sensory enhancements" we will use technology to live in an illusory world in many aspects of our lives. How do we balance the rights of the individual, control over our virtual identity, and the need

to live and interact on a face-to-face basis while being empowered to live rich lives in mixed reality?

There is, of course, always a tension between innovation and regulation. But it can often seem that giant steps are taken in technology with minimal public discussion. Take the self-driving car: although it may be safer than human drivers and is likely to save more than a million lives a year worldwide, it will also take jobs from drivers, traffic police, sign-makers, car-repair companies, carmakers and more. Is this a bargain we want to make? In taking that decision, have we given thought to a car that knows everywhere we go, decides routes, perhaps, based on paid adverts from shops along the way – and listens and sees everything we do on board? What will happen to that data and can it be kept safe?

Additionally, while some worry about the uncommon "trolley problem" of whom the car should choose to hit in a freak accident – an old lady or a mother and baby – perhaps the more frequent issue will be how we find out what the algorithm was thinking at the time of an accident, because AIs are self-learning and devise their own strategies.

Similar concerns are emerging over the internet of things. Robot vacuum-cleaners already plot cleaning cycles using computer-aided vision that, for some models, is relayed to their manufacturers. As more things at home become connected, they will be hackable and the data they collect saleable.The benefits of AI are numerous, and it may be that regulation is needed to ensure everyone benefits from this technology.