



Robots: Present and Future. How will they evolve and how will they be viewed?

Chris Hudson

Center of Conflict Resolution, Munich, and University of Bath, ch2241@bath.ac.uk

Robots are unlike most of what has come before to the extent that they have been heralded for a hundred years or more. They have given rise to imaginative speculation of what they might bring. They capture the imagination of thinkers and artists. The clash of human vs machine. The ethical and philosophical debates about how they fit into our world. Now, the robot age is commencing. Here we look at perceptions, current and future, of robots, and ultimately how effective society may be at shaping their evolution.

Most people's views of robots are as yet not based on a great deal of practical experience with them. The variety that have arisen up until now are largely in factories for manufacturing, and warehouse sorting such as for Amazon and Ocado. While this has surely replaced labour employment, anger at losing these well-paying jobs does not seem to have permeated through to robots. It seems instead to have found an outlet more generally, for example, in the rise of support for populist political parties and against immigrants and minority ethnic and religious groups.

Robots in film and literature seem to be of a different version. These robots which capture the imagination, often in a discomfoting way, tend to be more advanced and semi-conscious or autonomous. We will go into this in a bit more detail later, but we are currently arguably still in the benign stage, in which the gains are largely in functionality benefits that most people can appreciate. The robots which can operate in dangerous or remote environments are likely to gain widespread approval.

One area in which robots are likely to be important is in health and social care. As populations age, robots are destined to play an important role in coping with the extra caring burden on society. Will people appreciate the cost savings, or will they bemoan the lack of human interaction? In luxury hotels, restaurants, and shops it could be that labour is kept on in service positions, whereas more value-based outlets move to the increasingly cost-effective robot alternative. Thus, robots could acquire a stigma, or less aspirational aspect.

In the coming decades robots are likely to proliferate into every part of society. Initial preconceptions of society may change as people grow up with robots not knowing any different world. For instance, when the railways were introduced in the early 19th century perceptions were mixed. Many complained that these 'iron monstrosities' would tarnish the natural beauty of the countryside. Nowadays, a steam powered railway rolling through the countryside is more likely to illicit feelings of appreciation. To some extent, familiarity breeds comfort.

The more 'functional' robots discussed so far have many of the same issues as traditional technology. Now we look at some of the more futuristic sci-fi type possibilities, which have so captured the imagination. One aspect of robotisation relates to human augmentation. Human cyborgs will be created in which humans can be made to become faster, stronger, and smarter all with no effort on their part, just money. Perhaps at some point it may be possible to impart the knowledge of a foreign language into a person's brain. While at present wealthier children may have the benefit of greater educational opportunities, they still have to do the work to succeed. With knowledge or intelligence augmented onto them, this semblance of fairness may well dissipate. As advantages for wealthy families become more entrenched, the polarization between classes could well also increase.

Military robots have the capacity to markedly change war, and how conflict is perceived. The use of autonomous weapons systems is set to increase. Robot soldiers reducing the need for human involvement makes it easier for governments to prosecute war. Currently, the main difficulty countries face is the human toll on their soldiers, especially when the contest is hard fought and the body count high. Alongside this reduced barrier to conflict is the likelihood that countries will also apply less scrutiny to the fallout with respect to the victims. The rise of militaristic robots and associated new age weapons may also change the experience of

war for the victims, especially if these potentially terrifying weapons are not regulated effectively.

The rise of the robot soldier will make it relatively more attainable to acquire private armies. We may see private robot armies in the hands of drug cartels for example. Authoritarian governments may find it easier to oppress a population as they do not even need the support of soldiers any longer, just the control over the robots. Beyond that we can also get into possibilities of semi-autonomous robots, or even completely self-aware robots making decisions for themselves. In such cases it can be increasingly difficult to establish criminal culpability, and even where theoretically possible, more difficult to track down any culprits behind the machines. The world we are left with is less that of a population actively choosing and desiring military robots but a robot army arms race driven out of fear and confusion.

If authoritarian rule is easier to facilitate and military conflict more frequent and less accountable, then the world as a whole is likely to become more amoral. It is also possible that frequent interaction with robots will change humanities nature. Comparing modern life to previous times which were spent more in tune with nature has led to changes in people's outlook. Increasing interaction with robots and less with humans could further shape people's behaviour. One aspect of this may be a decline in people's tolerance for compromise and empathy, as these characteristics are less required in interactions with robots.

We have discussed perceptions of robots so far with the assumption that they are a poor substitute for humans. However, we might also consider that robots may one day exceed human capability not just in menial tasks such as stacking supermarket shelves, but in all areas. We already have artificial intelligence programs written poetry published in top ranked academic journals. Rather than being viewed as a second-best alternative, they may be preferred across all in society. This may even extend to romantic partners, which could have stark implications for fertility rates.

While robots have the capacity to bring great benefits, how they are ultimately viewed will depend on a number of things. Firstly, if the productivity gains are distributed across society fairly, then workers who have their jobs replaced by robots will be less aggrieved. Secondly, the more dystopian realizations may be prevented by effective global, regulation of robot development. This looks increasingly difficult as powerful actors such as the US and China become less inclined to be

bound by international agreements. It is also important to have a public debate about how these issues should be governed, but again, this appears unlikely as public attention is often only mobilized once problems have become chronic at which point it could be too late.