

Jewish Contemporary Ethics Part 44: Artificial Intelligence 1 – Introduction to AI

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The last few years have witnessed a flood of interest in the science of Artificial Intelligence (AI). In the early 20th century, neurological research had demonstrated that the brain works via

networks of interconnected cells called neurons which fire pulses of electricity to communicate with one another.

Concurrently, advancements in three crucial scientific areas jointly served as the catalyst for helping to describe how it would be possible to artificially replicate the functions of the human brain. American mathematician Claude Shannon (d. 2001) developed Information Theory which describes how information is transmitted over a medium. English computer scientist Alan Turing (d. 1954) established the Theory of Computation which deals with the use of algorithms (a procedure or set of rules followed in calculations or other problem-solving operations) to solve computational problems. Norbert Wiener (d. 1964), another American mathematician at MIT, formed his theory of Cybernetics, which describes the science of control and communication.

The portrayal of AI in popular science fiction and the media is often misleading and unhelpful. Modern-day AI algorithms are excellent at performing specific tasks such as analysing banking data, playing chess or detecting trends in the stock market. But they cannot simulate general human intelligence which makes it possible for us to perform a plethora of diverse tasks requiring very different skills. Simulating human intelligence is known as Artificial General Intelligence and firmly remains the stuff of science fiction.

This does not, however, diminish the ethical reservations of contemporary AI, nor the concerns that accompany the potential for future scientific developments.

AI has been used for specific tasks for some time. If you have ever used a banking app, social media or bought anything online, you have inevitably used AI algorithms which have facilitated your experience. The data from our online activity, including how much we spend, what we comment on, where we go and what we search for, is then collected and sold on to companies who use AI algorithms to build a profile of who we are. This picture may try to predict anything from whether we should be eligible for a loan, our life expectancy or what the chances of our having a car accident may be (see part 36 of this series).

This is where the ethical difficulties of AI begin, for while these algorithms are tremendously efficient at quantifying large amounts of data, they are very poor at assessing the quality of that data. For example, if someone searches for a baby toy online, it does not necessarily mean they are expecting a baby. It might mean that their friend is expecting a baby, it might mean that they're feeling nostalgic about a particular toy their baby had and have no intention of making a purchase, or it might mean that someone else who is expecting a baby is using that person's device.

Given the upsurge in AI use, the next four articles will examine some of the potential ethical issues with using AI in a variety of fields, including medical diagnosis, financial technology (FinTech) and warfare.

