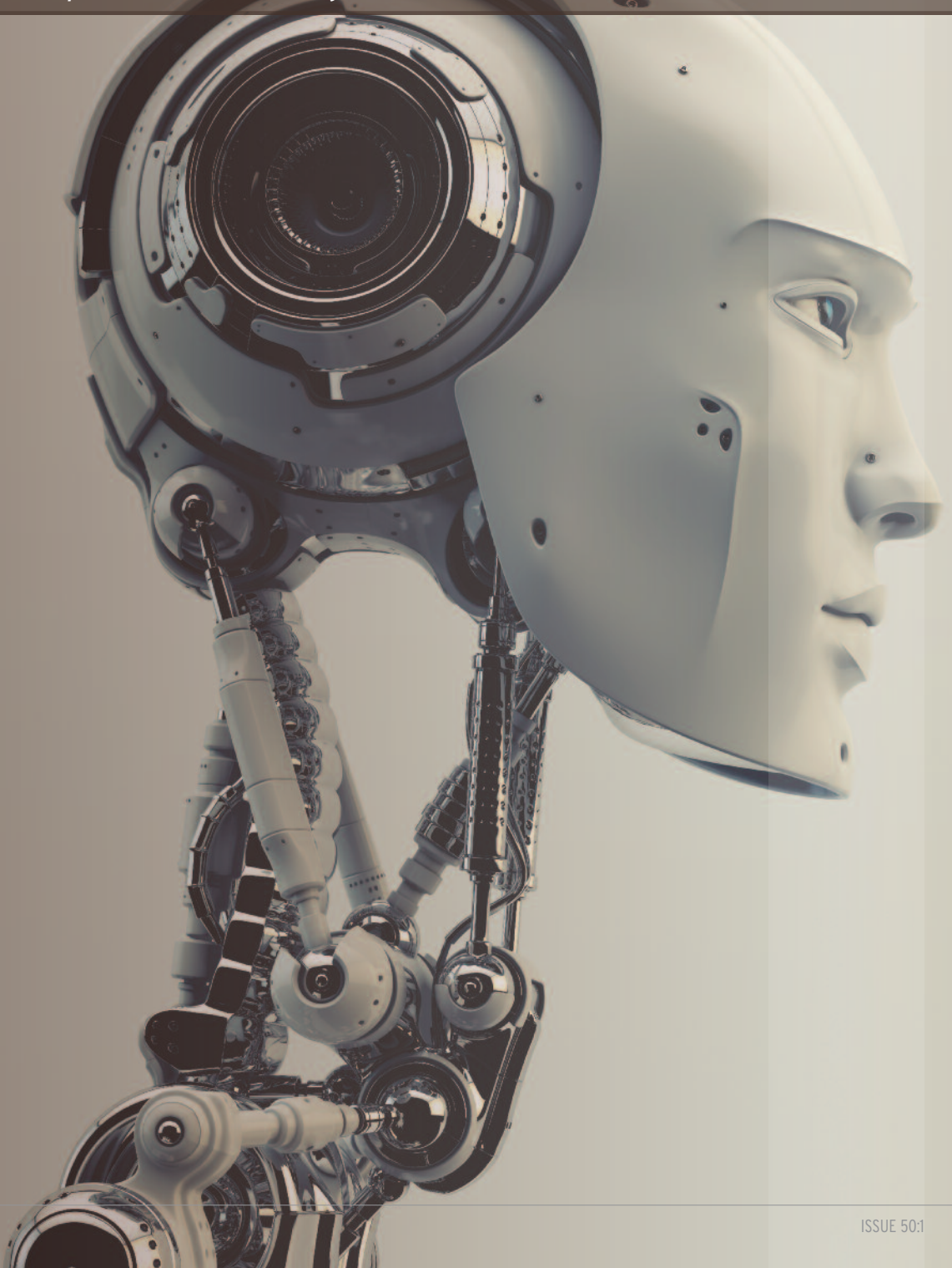


# the machine will see you now

John Wyatt examines artificial intelligence (AI) and the future of healthcare





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**A**s a child growing up in the 1960s, I was an avid reader of science-based predictions of the future. By the year 2000 we would all be travelling in hover-cars, there would be colonies on the moon, nuclear fusion would provide free power, robots would do all the work and the major problem for humankind would be how to fill the endless hours of leisure time, once limitless resources and energy were on tap.

Sadly, reality has turned out to be somewhat different! Yet nobody in the 1960s predicted mobile phones, personal computers, or the all-pervasive nature, power and global spread of the internet, let alone virtual reality and cloud computing!

According to Moore's Law, computer technology has been doubling in power every 18-24 months since the 1960s and this rate of improvement is predicted to carry on for some time to come. Massive investments amounting to trillions of dollars are currently going into AI and robotics, not just in the US but in Japan, China, India, Europe and across the world. AI is already having a significant impact on our life, but much of this is invisible. Behind the scenes they are supervising our computer searches, selecting the adverts we see online, trading in financial markets, selecting job applicants and translating books.

It's clear that the fundamental driving force behind these remarkable changes is old-fashioned capitalism - maximising shareholder value. Intelligent automation optimises speed and productivity whilst minimising expense. AI and robotics can work 24/7 without getting tired, they don't demand pay raises, they are less likely to make mistakes and their function doesn't deteriorate with repetition. Instead they are constantly learning and improving on the job, leading to increased accuracy and efficiency. Above all, unlike human workers, they are infinitely scalable. Once you have one intelligent machine performing a task effectively, you can very rapidly

expand to a thousand, a million, a billion...

So although the speed with which automation will enter healthcare is debatable, the ultimate direction seems clear – the inexorable logic of the market economy will ultimately triumph.

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There is no doubt that AI technology offers considerable benefits in many areas of healthcare, including improved analysis of scans and laboratory data, improvements in hospital management and logistics and early warning of health emergencies. In the UK a commercial company, Babylon Health, is collaborating with the NHS to provide primary care via a smartphone app. The goal is to employ an AI-powered system combined with sophisticated personal health data tracking to enable early diagnosis, treatment advice and continuous monitoring of many medical conditions. Human clinicians may only be involved if automated systems cannot solve the problem.

As AI becomes pervasive within healthcare systems, issues of legal control, privacy, copyright and responsibility for malpractice are likely to become more problematic. In November 2019, controversy erupted because Google had gained access to healthcare information, including names and other identifiable data, of tens of millions of people in the USA without their knowledge.<sup>1</sup>

When it comes to caring for patients, systems are being developed to recognise human emotions using powerful face and speech recognition software and to respond in real time to these emotions. These systems can be virtual – existing purely as an avatar (a human-like form on a screen), or as a disembodied voice like Amazon's Alexa. But they may also be in a physical and

embodied form, for instance as a 'cute' childlike robot. It seems likely that in the future, AI systems will be developed to provide 24-hour supervision and 'friendship' for the elderly, the disabled, babies and infants, those with mental health problems and maybe ordinary people who feel lonely or isolated.

### Christian responses

Much of this may seem like science fiction and it is certainly true that it is often difficult to distinguish between the hype and the reality. But the drive for increasing automation seems clear and behind these developments there are deep philosophical and cultural trends. In particular, there seems to be a progressive blurring and merging of our concepts of what it means to be human and what it means to be a machine.

the world as we do, having a 'self' with intentions and goals. One troubling aspect of anthropomorphism is that it is not under conscious control; our response is instantaneous and deeply emotionally engaged.

Some time ago I was with a group of senior church leaders who were debating the theological implications of AI and robotics. We visited a computer lab in which a group of small, childlike robots were active – speaking, waving and moving around on the floor. Instantly, the atmosphere changed – people waved back, laughing, engaging delightedly with the robots, as though they were precious and vulnerable children.

The irony is that our very humanity makes us open and vulnerable to manipulation by human-like machines and the aim of many AI and robotics designers is to encourage anthropomorphism because it improves the machine interaction.

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### blurring of the concepts of human and machine

On the one hand modern academic disciplines, such as cognitive psychology and computational neuroscience, use advances in AI as a means of understanding how the human brain works. The more we understand how computers work, the more we can understand how the human brain works. This approach has been strikingly successful, leading to major advances in fields such as computational neuroscience and cognitive psychology.

On the other hand, we find ourselves projecting our humanity on to intelligent machines. In other words, we have a very strong and in-built tendency to anthropomorphise. We instinctively think of machines as having a first-person perspective, looking out at

### 1. We need a more profound understanding and critique of modern technology

A common understanding of technology sees it merely as a neutral tool, like a hammer which can be used equally for good or evil. But in reality, the power, widespread reach and hiddenness of advanced technology in our lives means that it changes and manipulates the world we see. Technology generates a 'reality distortion field'. On the one hand, modern technology can be seen as a fulfilment of the creation mandate given to the first humans by the Creator – 'Be fruitful and increase in number; fill the earth and subdue it...' (Genesis 1:28). As such we need to celebrate the extraordinary achievements and promise of digital technology in modern healthcare. But we can't be naïve about the hidden power plays, and the invasion of personal space and privacy. So before we accept new and powerful technological innovations in medical practice, perhaps we need to ask detailed questions about transparency, vested interests, privacy issues, and potential dehumanising consequences. As CS Lewis once put it '...Man's power over Nature turns out to be power exerted by some men over other men...'.<sup>2</sup>

## 2. We need to resist the conceptual blurring between our created embodied humanity and intelligent machines

It seems inevitable that AI technology will become increasingly effective at simulating many aspects of human intellectual, emotional and relational behaviour. The technology will be capable of providing physical and virtual companions, colleagues, teachers, therapists, carers and playmates. But this will raise complex and troubling issues. Is it appropriate to provide a simulated companion for an elderly person with dementia or a child with autistic spectrum disorder?

Behind these developments lies a conceptual and emotional blurring between the human person and the intelligent machine. It is clearly true that there are aspects of our humanity, including our thinking processes that are machine-like. But to understand ourselves as though we are in reality machines is a new and subtle form of idolatry. It is to worship the products of human ingenuity in place of the Creator. In Christian thinking human beings are unique in the cosmos because they are created in God's image, as embodied reflections of the being and character of God. The goodness of our embodied humanity is vindicated and reinforced in the Christmas and Easter miracles, the incarnation and resurrection of Jesus, when God himself takes on our humanity and is raised as a physical, recognisable and touchable human being. So, we

should ensure that sophisticated AI technology is employed to support and protect the centrality of human embodied face-to-face relationships, rather than to provide a simulated replacement.

## 3. We need to develop resilience to the dehumanising and manipulative possibilities of technology

There's a well-known saying that 'if you want to understand what water is, don't ask a fish...!' In the same way, we are so immersed in technology that it is almost impossible to comprehend its all-pervasive nature and influence on our lives and on our future practice as health professionals. Whilst we look forward to increasingly, powerful diagnostic, monitoring and therapeutic opportunities, I think we will need to develop arguments in favour of real human carers rather than simulated ones, real human relationships in favour of simulated compassion and real experiences in place of virtual reality. There is no substitute for human empathy, solidarity and love expressed in a face-to-face relationship of embodied human beings and in compassionate, thoughtful words spoken by human mouths. ■

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