Will robots and AI take our jobs in covid-19's socially distanced era?

Coronavirus has put a rocket under plans for more automation, roboticisation and use of AI. Should we fear for our jobs – or will we just get better ones?

ON AN upper floor, something stirs in the semi-darkness of a closed shopping centre. It stops in front of a clothing store, bathing the window display in searing light. No alarm bells sound, no security guards rush forth. The Sunburst UV Bot, with its 1000 watts' worth of UVC light capable of "tearing apart strands of virus DNA", comes here every night, as well as to a few other malls and hospitals in Singapore. It is doing something that human workers would have done before the covid-19 pandemic: cleaning.

Similar scenes are occurring across the world. In Texan hospitals, Moxi delivers medications, lab samples and supplies. P Guard enforces lockdown curfews on Tunisian streets. James the telepresence bot helps residents at Belgian care homes stay connected. Other robots scrub supermarket floors, deliver meals to people in quarantine and even help walk the dog. Meanwhile, non-embodied artificial intelligences are assisting in everything from contact tracing and cracking the coronavirus's genetic code to the logistics and customer fulfilment of an increasingly online commercial world.

This trend towards automation and roboticisation isn't new – but covid-19 is vastly accelerating it. "What this pandemic has done is make people extremely aware of hygiene and the need to distance", says Richard Pak at Clemson University in South Carolina. "In these times, robots and automation definitely provide a safety benefit."

And perhaps also a huge problem. Unemployment has shot up as coronavirus has hit the global economy. What happens if we emerge from the covid-19 recession to find that jobs have permanently gone – with no plan B to keep us gainfully employed?

The rise of robotics and AI has often been described as part of a "fourth industrial revolution", following on from the three similar step changes over the past three centuries powered by coal and steam, by oil and electricity and by digital computing ("Four industrial revolutions").

Many cheer the promise of self-driving vehicles, virtual assistants and other labour-saving innovations. It is hard to argue with technologies that can give us a customised massage, recommend something good on Netflix or allow us to pay for groceries with the tap of a phone. During the covid-19 pandemic, such technologies have helped reduce public health risks by enabling many people to work from home, safeguarding productivity while allowing businesses to stay afloat.

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Even before the pandemic, however, many people were worried about the potential long-term jobs fallout of the trend towards automation. One analysis by consulting firm McKinsey & Company in 2017 suggested that automation could displace up to 800 million jobs worldwide by 2030. Back in 2013, Carl Frey and Michael Osborne at the University of Oxford rather piquantly used a machine-learning algorithm to assess how easily different jobs could be automated. The study concluded that machines will be able to do 47 per cent of all US jobs in the coming two decades – a figure that remains relatively constant today, says Frey. “In the UK, the estimates are at 35 per cent.”

Getting serious

Faced with employees under lockdown and the need for strict social distancing measures in the workplace, many companies have been putting a rocket under those trends, either by looking at greater automation for the first time or by accelerating and extending existing plans.

“There’s so much room for automation now,” says Derik Pridmore, CEO of Osaro, a company in San Francisco that develops AI systems for warehouse robots. “If companies were thinking about it before, they’re now doing something. If they were doing something, they’re now actually deploying it. Everyone is moving up a phase in their seriousness about automation.” In March, a survey by auditing firm Ernst & Young of around 2900 executives in 46 countries found that more than three-quarters were taking measures to either change or re-evaluate the speed of their automation processes.

Concrete steps include the likes of Amazon, Walmart and other big retailers deploying more robots to haul and pack goods in their warehouses, and YouTube and Twitter using more machines for content moderation. Chatbot use has also swelled: in March, PayPal was using such software to handle a record 65 per cent of its message-based customer enquiries. IBM reported seeing a 40 per cent jump in demand from February to April for its Watson Assistant software that firms such as US retailer Macy’s and car manufacturer Chevrolet use to handle online calls.

Pridmore says his firm has “seen a big pickup in interest from basically every region, in every application and sector” since the pandemic hit. His clients include a grocery chain in Australia that found demand had doubled as more people began cooking at home, rather than eating out. Osaro helped automate the firm’s order-fulfilment and shelf-restocking processes to cope with the increased demand.

Chris Duddridge, managing director at UiPath, whose AI platforms help automate call centres in the UK, India and other countries, echoes this sentiment. “The pandemic was indeed an accelerator for the adoption of automation,” he says. Software robots have been instrumental in helping his firm’s clients deal with the “huge backlogs and unprecedented volumes of requests” during the crisis, he says.

Anxiety about automation seems to be increasing in lockstep. As part of a recent survey conducted by the Center for the Governance of Change at IE University in Segovia, Spain, almost 2900 people from 11 countries were asked whether their governments should limit automation by law in order to save jobs and prevent technological unemployment. In January, 42 per cent of respondents in Spain and 27 per cent in China – two countries that bore the initial brunt of the pandemic – said “yes”. Three months later, as covid-19 worsened, those figures jumped to 55 and 54 per cent, respectively.

Part of that is generalised economic worry. “If you look historically, what you often see is that automation anxiety tends to be particularly prevalent during economic downturns,” says Frey. “Losing one’s job when there is an abundance of others is not that bad, but if you lose your job in an economic downturn, chances are that you’re going to struggle to find another.”

Perhaps the most infamous example, highlighted by Frey in his 2019 book *The Technology Trap*, were the Luddites, who smashed stocking frames, mechanised looms and other trappings of the first industrial revolution in the UK. The unrest was especially bad after the Napoleonic wars ended in 1815, when Europe slumped into a depression, weavers saw their wages cut by a third and food prices skyrocketed because of new tariffs imposed on foreign grain.

Today, the sheer number of sectors affected is compounding such fears. Automation-related upheaval already posed a big threat to warehouse and factory workers, but many others in white collar jobs may find themselves out of work too. Those include financial analysts and radiographers whose jobs involve a lot of routine analysis of specific forms of data. Many of those jobs can now be performed just as competently, if not more so, by an AI. “This is one of the first times in history where a mix of blue and white collar jobs are affected,” says roboticist Ayanna Howard at the Georgia Institute of Technology in Atlanta.


A Sunspot UV Bot patrols a shopping mall in Singapore

Whoever is affected, the trend tends to be a one-way street. “When automation is here, it’s here to stay,” says futurist Ravin Jesuthasan. “In the economics of robotics, once you’ve made the upfront investment, whether it’s in hard dollars or soft dollars of retraining the workforce and getting behaviour change from customers, it’s much easier to perpetuate.”

It isn’t all doom and gloom, says Frey. “The only thing that is worse than automation is no automation.” The world has been on a long-term path of technology doing more work for us for good reason, he says – it has enabled higher productivity, lowered costs, greater scalability, safer environments, more flexible working and improved connectivity, to name just a few things. “If you look back over the past 200 years, there’s no question that people are better off today, in large part because of automation,” says Frey.

Others say we shouldn’t overstate the scale or speed of this new transition, even as covid-19 gives new reasons to drive it forward. Automation doesn’t come cheap: firms need to have the funds to install new machinery and software, as well as time to reconfigure workplaces and retrain workers to use them. “Automation only happens when the technology is ready to be implemented,” says John Etchemendy at the Stanford Institute for Human-Centered Artificial Intelligence in California. “If the technology is not yet there, is not yet ready to take over the task, then the pandemic is not going to accelerate that.”

“Our fear is often based on our science-fictional notion of robots replacing us,” says roboticist Kate Darling at the Massachusetts Institute of Technology. To be convinced that we are “on the cusp of massive robot job-takeovers” would be to overestimate what robots and AI are capable of, she says. “Covid-19 may accelerate some investment, but we’re looking at a longer time period than most people think.”

Many tasks are still too delicate or complex to be automated, such as assembling a smartphone, cleaning elevator buttons or delivering the post. Others, such as confirming a medical diagnosis, still require human insight and interpretation, even if AIs can do some of the legwork. Then there are undertakings that simply cannot do without the warmth of a human touch. Most of the world is a long way from accepting robot therapists or nurses, for example.

With this wave of innovation, as with previous ones, the jobs most ripe for automation are those that are repetitive and dull. Few people have ever begged for one more spreadsheet to fill or one more box to pack, after all. Here, technology can remove tedium and free up people to do more meaningful work. More often than not, they end up working in partnership with machines – algorithms can trawl through countless transactions or medical images and flag up suspicious ones for a person to review, for example.

Work redefined

Economist James Bessen at Boston University in Massachusetts agrees with that assessment. What we are likely to see isn't fewer jobs overall, but different ones. "There's no evidence that AI will lead to massive unemployment, but there will be increased churn," he says. "Automation can actually lead to new jobs." Already, we are seeing an increase in demand for the likes of drone operators, data scientists, cryptographers, digital marketing specialists, video tech support and virtual event organisers. In the future, says Howard, we are going to need robot mechanics and customer service officers capable of handling people "so they aren't mad at a robot anymore".

That will require new training. "Jobs will be redefined," says Howard. Many experts suggest a sure-fire way to cushion against the economic effects of automation in the post-coronavirus era: invest in education, and specifically re-education. "At the heart of it is ensuring that anyone can engage with upskilling and reskilling in bite-sized chunks," says Jesuthasan, "as opposed to this fixation on a three or four-year degree where you're somehow expected to be relevant for 30 years after. I think the world has moved on very rapidly from that legacy model."

This needs workers to adopt an open mindset to learning, but governments and firms must step in and help too by offering subsidised adult education courses, retraining programmes and other types of learning to help people make the necessary transitions. All this should be part of any post-covid-19 recovery scheme. "Otherwise, left purely to market forces, you're going to find lots and lots of people left behind," says Jesuthasan.

There are other challenges we will have to face as the trend towards automation accelerates. One major issue is that AI has a tendency to inherit and amplify biases that exist in the data used to train it – for example, against minority ethnicity or lower-income groups. Then there are questions about how to frame laws around the responsible use of machines with ever-increasing autonomy, and the possibility of a growing social divide between those who can afford technology and those who can't.

Finding solutions requires having the headspace to think these things through, and that is difficult in the middle of a global pandemic. "We're still in a very reactive mode," says Howard. "To think about what comes next requires you to pause, and right now we're not in that state of luxury to be able to pause."

Get things right, though, and we can embrace the opportunities afforded by new tech, rather than being hampered by fear. As the threat of covid-19 persists, devices like the

virus-killing Sunburst UV Bot may be redefining certain jobs, but they are also making it safer for us to get on with others.