

A future for IR academics? 2018 AIRAANZ presidential address

I began my career as an academic around 15 years ago, and the day-to-day working experience then was (according to my older colleagues and mentors) very different from the work people did 15 years prior to that, and the next 15 years will be very different again. As industrial relations, scholars we are not unfamiliar with uncertainty – and what lies ahead is a great deal of uncertainty. Reading the future though, is fraught with danger. Plenty of people predicted the age of leisure that we would all be living by the 1990s, sadly that has not eventuated. The paperless office may seem a step closer depending on your organisation, but still seems out of reach.

There are countless other failed attempts to predict our future, so it is with some trepidation that I embark upon this discussion of the future of industrial relations research and teaching when we add the variable of artificial intelligence (AI) in to the model. The only certainty is that these are uncertain times.

In the post-World War 2 era, there have been plenty of scholars from IR (and related disciplines) who have progressed our empirical knowledge and theoretical understanding of technology in the workplace (two seminal contributions include; Braverman, 1974; Edwards 1979). However, Soshana Zuboff was one of the first scholars to bring our attention to ‘computer-mediated work’ in an MIT Working Paper in 1981. Her subsequent book, *In the Age of the Smart Machine: The Future of Work and Power* (1988) drew our attention to some important ideas, including the notion that technology is not neutral, but will open some human experiences and close others. Equally as important, the social, political, and economic interests interacting with technologies will have both intended and unintended consequences.

To be clear, the notion of computer-mediated work has evolved to include those machines that have coding and algorithms that results in the machine takes on human tendencies to learn from its experiences. For example, how many times have you performed a google search on your phone for something – say for example, the author of a book you remember reading years ago, then you start noticing advertising for books stores or *Amazon* in your *Facebook* feed? These are algorithms that are written in to the background of the machines that determine that most people who have searched for *A* are probably interested in *B*. These algorithms also work in many areas of popular culture so that your *Netflix*, *Facebook*, *Instagram*, *Twitter*, and news websites – all work on learning algorithms to push the sort of information that you have looked at in the past your way in the future.

For academics to best perform our roles, these algorithms can create the worst conditions for critical thinking. Because our best contribution to society is challenging bad ideas and developing good ideas, we need to hear competing ideas and views and not get stuck in the echo chambers of our google algorithms only sending us articles and stories with which we are likely to agree. That being said, one of our key contributions is research on work and people’s experiences at work. Hence, it is worth considering what the general population will be doing for ‘work’ in the future, before we consider how this will affect our own work.

We have known for decades that machines have been taking the place of humans in difficult, dirty, or dangerous jobs (Berman et al. 1994), and has changed the jobs of clerical and managerial employees (Osterman 1986). These older change studies though,

have not been of 'intelligent' machines. We are all aware of the introduction of factory-based machines that have been used in manufacturing, however, robots are also performing roles that many of us probably do not realise. For example, the Washington Post and many other news sources have AI writing hundreds of articles each year, previously written by journalists (Moses 2017); AI also performs an increasing number of accounting tasks formerly completed by qualified accountants (Turula 2017); and completes the work of qualified lawyers (Marks 2017). One of 'Zuboff's Law's' is that anything that can be automated will be automated – so what jobs will be lost to automation and AI?

Some of the jobs that appear to be most likely to disappear are telemarketers, paralegals, accountants, truck drivers, and retail sales (drawn from various sources including: Bloomberg; Frey and Osborne 2013). In fact, Grace et al. (2017), suggest that by around 2028 (a decade from the time of writing) the work of truck drivers will be performed better by machines than humans, and just a couple years after, retail workers will be outperformed by AI. While there has been much research around the closing down of worksites (see for example, Wigblad et al. 2012) performed in close to 'real time', the research on the extinction of a 'job' or profession, is typically documented by historians.

The full automation of the workforce is not likely to be witnessed by any human reading this article in 2018, indicating that there are some jobs that are safe at least in the medium-term. Surgeons, teachers, dentists, sports coaches, and clergy are among those jobs that appear the most likely to maintain and indeed require, a human hand (drawn from various sources including: Bloomberg; Frey and Osborne 2013). What does this mean for the industrial relations researcher? Simply put, there are some sectors of the labour market that are diminishing and closing down, yet there are others that are opening up and quite rapidly.

Uber and similar organisations obviously rely a great deal on algorithms within their systems, but who would we be studying? The coders? The drivers? How long before the code and algorithms are being written by the AI system? How long before the drivers are replaced by drones (for deliveries) and driverless vehicles? How is the industrial relations system going to change as we have such a major upheaval of the systems of employment and labour markets? Certainly, it is easy to imagine great opportunities for people researching the geography of labour markets – the continued shifting of jobs but AI adds an extra dimension. We have looked at obvious topics in recent years, like manufacturing jobs going to developing nations, what will be the AI equivalent? Downsizing is an obvious area for booming research opportunities – in Australia we do not make cars any longer, and it seems it will not be long before we do not make anything at all and many of the human service industries will atrophy significantly.

This discussion about our research subjects and our research future has not begun to consider another important element of this debate – our working future. What about IR scholars as employees? How long will we have a working future? A Brisbane-based academic speaking at the World economic forum suggests:

The most innovative AI breakthroughs, and the companies that promote them – such as DeepMind, Magic Pony, Aysadi, Wolfram Alpha and Improbable – have their origins in universities. Now AI will transform universities. (Dodgson and Gann 2017)

At the very basic level, technology-based teaching has created additional responsibilities for academic staff in areas like the development and implementation of pedagogically sound online learning outcomes for students (Gregory and Lodge 2015). There have

been problems identified within the research though, with time pressures, skills gaps, limited funding, and university or department level cultures affecting this (Walker et al. 2014) and a further blurring of boundaries between home and work increasing for academic staff (Currie and Eveline 2011).

But AI is more than just technology. Will AI reduce our workloads by taking away menial tasks? Will it increase our workloads through unintended and unanticipated outcomes? Perhaps a combination of both where it will shift our workloads from those frustrating administrative responsibilities, freeing up more time to commit to quality teaching and research? Perhaps it will make us obsolete? The Australian Council for Educational Research is already using AI to mark exams in secondary school – it is probably happening somewhere in universities already – it certainly has been added to our ‘plagiarism detection’ capacity.

Universities are already using ‘cognitive computing’. Cognitive computing refers to the combination of hardware and software that mimics the function of the human brain (Terdiman 2014). Cognitive computing is not artificial intelligence – AI is different because it uses the best possible algorithms for solving problems, for example, driving cars without human input. Cognitive computing supplements human decision making (Hans 2017), so it seems we can see cognitive computing is a subset of AI. The reason university managers like the idea of cognitive computing systems is that it means a genuine shift to a 24/7 service model.

While this system in place (or in development) at many universities is currently only to answer simple questions for students like ‘how to enrol’ or ‘where is the lecture for my course’, these systems are designed to learn and it will only be a matter of time before this expands – the questions start to become expanding where and what impact on our jobs?

For example, the previously mentioned plagiarism software has been operating for some time and the more assignments and publications that get fed in to the system, the greater the chances of catching students who plagiarise. Will this make our jobs easier (through easier marking processes) or more difficult (through more complex student disciplinary hearings with students)? When we have intelligent systems that are learning as they receive more data, how long before the more complex matters dealt with by academic staff be overtaken by this cognitive computer system?

AI has been used in health for decades – for example, in breast cancer detection (Houssami et al. 2017). Nobody needs to enter code in to this AI system for it to learn, the system learns by showing it a couple different images of tumours and it learns from these and continues to learn the more it finds. Can a system that is highly successfully in learning how to detect cancers expand to learn to teach students about managerial prerogative, the role of the state in industrial relations, or factors that influence the labour market in Australia?

If we have an AI system that tells students where their lecture is, or how to enrol, why can we not have this technology answering student questions about their assignments? It would start with the obvious – how many references do I need for this assignment? Are references included in the word count? But then as the system learns how to incorporate things that are central to our jobs – our teaching – our research – the context that is essential to understanding industrial relations – it will be able to answer questions like ‘how can I understand the differences between pluralism and radical pluralism in IR theory?’. If the AI systems manage to get to this level successfully, how long before they will be able to deliver lecture content? These may seem ‘pie in the sky’ ideas and questions. But the idea of writing an essay on a little box that has a screen and submitting it

for assessment with no wires to another little box with a screen hundreds (indeed, thousands) of kilometres away would have seemed 'pie in the sky' ideas to the likes of Sydney and Beatrice Webb, John Commons, Alan Fox, and their respective contemporaries.

Conclusion

What is the future for the industrial relations scholar? I am unsure. What I am sure of though, is for the foreseeable future it will have both similarities and differences to the past. AI has led to the diminishing of some jobs, professions, and industries and introduced others. There will be labour market shifts to study and understand, and potentially dystopian consequences for some. It will mean that there will be new research opportunities and some research agendas may be confined to the labour history journals (online of course!). There will be changes to our work, be it workload related, to our interactions with 'smart' technologies, or our students. Regardless, what is likely is that these are conversations that will continue at AIRANZ conferences well in to the future.

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