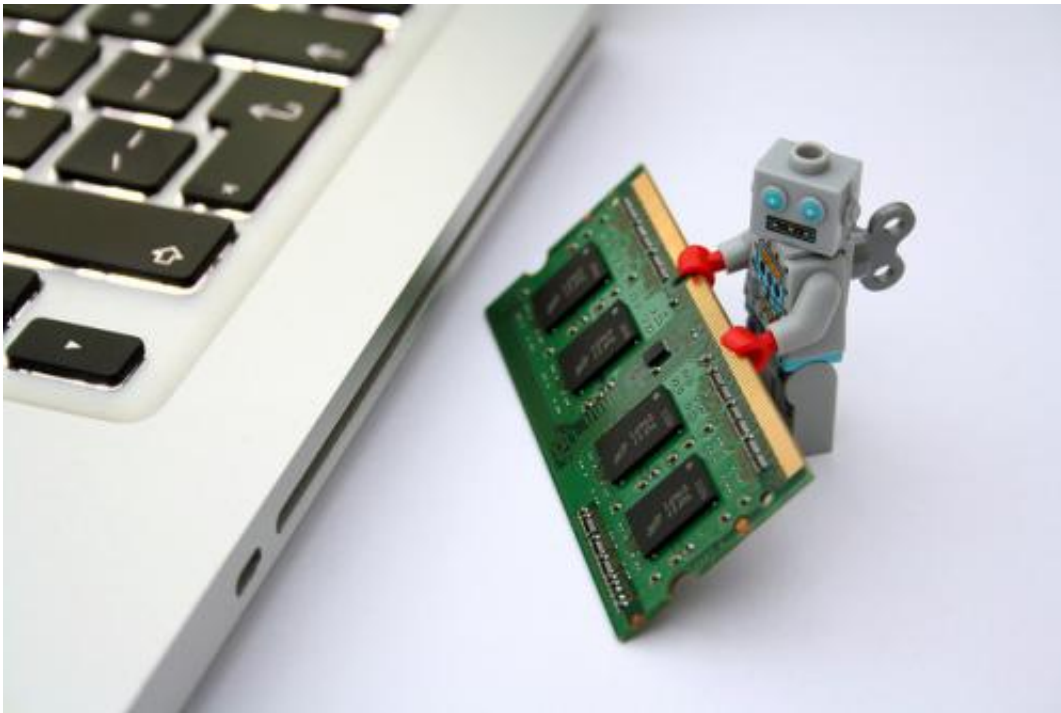# Job survival in the age of robots and intelligent machines

January 5 2015, by David Tuffley

How to protect your employment prospects as robots take over more jobs.
Credit: Flickr/Chris Isherwood, CC BY-SA

It is a sobering thought that in ten years, around 65% of the jobs that people will be doing have not even been thought of yet, according to the US Department of Labor.

In Australia, there are reports that up to half a million of existing jobs

could be taken over by robotics or machines run by artificial intelligence.

So with smarter computers taking on more of the work that people currently do, we are left to wonder what jobs there might be left for us humans.

Could a robot do your job?

Almost any job that can be described as a "process" could be done by a computer, whether that computer is housed in a robot or embedded somewhere out of sight.

So if intelligent machines can take over many of the jobs of today, what can you do to ensure your job prospects in the future?

Some jobs will always be done by people. The reasons can vary greatly: economic, social, nostalgic or simply not practical for robots to do.

If around 65% of the jobs in 10 years have not been invented yet, we cannot be sure what those future jobs will actually look like, though futurists are not shy of making predictions.

While we may not know what outward form these jobs will take, we can still make a catalogue of the generic skills that will be valued highly.

Thinking skills for future workers

In his book Five Minds for the Future, the Harvard professor Howard Gardner makes the case for cultivating a disciplined mind, being someone who can bring their attention to a laser-like focus and drill down to the essence of a subject, perceiving the simple truth of it.

Then to take this clarity to the next level by combining multiple ideas in new ways to create something interesting and perhaps useful. This done by the synthesising mind and the creative mind.

Gardner describes the respectful mind that values diversity in people and looks for positive ways to interact, thus overcoming the "us and them" instinct that still creates so much conflict in human affairs.

Building on this is the ethical mind, of one who thinks about the big picture and how their personal needs can be brought into alignment with the greater good of the community. Skills for a globally connected world.

Mastering the new media

The future will see a host of new technology for creating and communicating content. In-demand workers will be able to critically assess this content and find ways to communicate it to good effect.

Communication skills have always been important and will remain so.

Knowing how to deal with large data sets will be a handy skill; finding ways to make sense of the data and turn it into useful information.

This could involve devising new, multi-disciplinary and perhaps unconventional approaches to the challenges.

Managing the information

We already filter a deluge of information every day. Our grandparents were lucky, they had to deal with a lot less.

People will need to be even better at managing the cognitive load, they will have the thinking skills to filter the deluge and find optimum solutions to problems.

When good collaboration tools exist for virtual project teams, there are few limits to what can be achieved. More projects will be done by such teams because the technology that supports them is getting better every year.

It allows the right people, with the right skills at the right price to be employed, regardless of where they live.

So it will be that people with the right virtual team skills will be in high demand.

Virtual environments

Speaking of the virtual, Procedural Architects will be at a premium. These are people who can design virtual environments and experiences that allow people to get things done and perhaps have some fun.

This is what the minds behind Google, Youtube, Facebook, Amazon, Wikipedia, Twitter, eBay, LinkedIn, Pinterest, WordPress and MSN have done.

All of this leads us to the question; what actual jobs are likely to be in demand?

Employment specialists compile lists of what they think will be in demand, based on trends. These are some of the jobs that appear on multiple lists.

The IT sector is likely to need:

information security analysts, big data analysts, [artificial intelligence](link) and robotics specialists, applications developers for mobile devices, web developers, database administrators, business intelligence analysts, gamification designers, business/systems analysts and ethicists.

In other disciplines, there will be a need for:

engineers of all kinds, accountants, lawyers, financial advisers, project managers, specialist doctors, nurses, pharmacists, physical therapists, veterinarians, psychologists, health services managers, schoolteachers, market research analysts, sales reps and construction workers (particularly bricklayers and carpenters).

Both lists are not exhaustive.

On the downside, occupations likely to shrink in demand include:

agricultural workers, postal service workers, sewing machine operators, switchboard operators, data entry clerks and word processor typists.

The bottom line

To position yourself favourably for the jobs of the future, become someone who can look at problems in unorthodox ways, seeing different angles and finding workable solutions.

Be a multi-disciplinary, insatiably curious person who knows how to use the tools to model ideas and create prototypes.

Possessed of an open mind and few fixed ideas about how things should be done, you nonetheless have a strong conscience and can operate outside of your comfort zone to achieve win-win outcomes. You are known for your integrity and resilience.

All of these qualities can be cultivated or perhaps rediscovered, since children often exhibit them in abundance. They have always been the way for creative, high-achieving people and they are still the way today and into the future.

In the brave new world of the coming age of intelligent machines, it is these essentially human qualities that will be more important than ever. Some things will never change because human nature is what it is.

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