

Kit Worzel

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Artificial Intelligence Is Going to Take Your Job (Probably)

By Futurist Kit Worzel (2018)

Artificial intelligence and robots are making incredible progress. Recently, Boston Dynamics released footage of one of their latest robots that can do backflips, and land them handily. It's been over a decade since a human beat a top-class chess AI. We have self-driving car prototypes being tested, and getting ready for the market. And then they'll be coming for your job.

AI is already used extensively in many fields to supplement work done by humans, most notably Google search. Any program that can search and compile data is an AI, even if it's a basic one. Many of us now consult a different kind of more personal AI on a daily basis, such as Siri or Cortina. We're seeing automation creep in to various tasks, including self check-outs, and fast food ordering via touch screen. But AI is going to do so much more than that.

I can put jobs into three, broad categories when it comes to AI: Jobs that will be (mostly) replaced by AI, jobs that will be enhanced by AI, and jobs that will be mostly unaffected by AI. I am looking to 2040 for this, so the timeline is about 15-25 years.

Jobs that will be replaced by AI and Robots

A) Manufacturing

Manufacturing is a field already dominated by automation, and that will not change anytime soon. AI and robotics are rapidly getting to the point where they will be cheaper than sweatshop labor in developing countries, and will make the location of a plant largely irrelevant. And since being close to your market is always helpful, this may lead to a mass return of manufacturing to the rich world.

B) Online advertising

Online advertising is already partially done by AI. Advertisers will probably use AI for crafting and customizing messages soon, which will fail repeatedly before starting to produce quality, targeted ads. The real question is how advertisers intend to get past adblock, and other similar programs, which will also employ AI to thwart obtrusive ads. Finding where ads are best placed, will be well-received, and where the traffic would best suit a product/ad is something AI will become very good at, much better than humans.

C) Transportation

Planes already have autopilots. Cars and trucks will become self-driving, and also self-loading, meaning shipping things will be very strongly automated. Finding the correct transportation for you will also be much easier, as automated tools will produce a line-up of choices for you, with prices and times. In fact, that much already exists, it will just get more refined and easier to use. As soon as self-driving cars get the go-ahead, taxis, truck drivers, bus drivers, and even rental car agencies will all become endangered jobs. All types of public transport are included here as well, from trains to tickets.

D) Telemarketing

Will be completely replaced by AI as soon as possible. No-one wants the job, no-one likes telemarketers, very few people listen to telemarketers, and paying people to do this is a waste, especially when automation never gets tired or discouraged, will sound more and more human, and will gradually find new ways to get people answering the phone to respond more positively.

E) Foodservice

There are already kiosks where you can just use a touch screen to order food, and I foresee automated kitchens in the near future. There may be some delay because the issues around food, and food poisoning are a real concern, as are preparing allergen-free servings. However, since Ray Kroc of McDonald's managed to carve out a world-wide chain with minimum wage employees doing food prep without significant issue, I don't anticipate significant delays in fast food that is untouched by human hands.

F) Procurement & supply chain management

This will be whittled down to top level management with AI assistance. A lot of these jobs are related to access to relevant information, where AI excels. All other jobs in this field will be gone.

G) Construction & carpentry

This is already happening. Precision work involving repetition is an area where robots excel. They will take over almost entirely, with only human supervisors left. Much like manufacturing, this will go where the products are needed, instead of where the workers are.

H) Accounting, bookkeeping, tax management / planning

This has been happening for years. Turbo Tax rules this world. Personal taxes and small business taxes are already predominantly done by tax programs, and there is no reason to reverse this trend.

I) Corporate training, career management

Just think of it as LinkedIn with AI insight added.

J) Real estate (pricing, attractive features, staging)

Pricing, without a doubt, will be completely automated, as will searching. Staging and preparing houses for sale are holding out, still needing a human touch, but it is getting there, as staging databases are being built that will be accessible to homeowners, and AIs will design the staging, but not in my timeframe.

K) Wholesale and retail

It will soon be possible to walk into a store, and ask your smartphone where to find a certain product. If you ask in advance, it could be waiting for you by the checkout, and all you'd have to do is scan it and pay.

Jobs that will be enhanced by AI

A) Health care

So, we already have AIs assisting in surgery. That will become both more prevalent, and more powerful, as instead of an AI assisting a surgeon, a surgeon will supervise an AI. This will be easier with planned surgery, and more difficult with emergency surgery, at least at first. However, having AI's ride shotgun in busy emergency rooms will give them a large database to pull from, and eventually give them the experience needed. AIs will also take over point-of-care, and patient management. Meanwhile, AIs will take over in the lab, because running tests with standardized results is something they could easily designed into medical testing processes. Even insurance billing could be handled, though the one big area I don't see AI in the near future is mental health, as we will get a better understanding of it before AIs can become serious partners.

B) Finance (banking, insurance, investments, corporate finance)

Finance and insurance involves crunching tons of numbers in all sectors. Gathering and processing that information can take days, if not weeks, or even longer. AI can mitigate that, dealing with the information in seconds. AIs will remove all of the low-level, grunt processing jobs, because they will be much more efficient at it. The remaining agents will also have AI assist them in finding new customers, and giving them competitive rates.

C) Legal

In the legal profession, precedent is one of the most important aspects of the job, along with precise wording of laws. AI programs can search and summarize thousands of pages of legal documents within minutes, meaning a lawyer could ask their AI to research an issue, go get a cup of coffee, and come back to read the comprehensive summary. It's even possible that public defenders and the like may be replaced with an AI that advises a person of their rights. It seems unlikely that we'll see AI acting in a courtroom on its own, but may see them acting as an assistant for a paralegal as a low-cost alternative to a lawyer.

D) Sales & marketing analysis

I'll group sales and marketing together, as they fall under a similar heading here. Analysis means number crunching and assessing results, which plays to AI's strengths. I would not yet rely on them to come up with creative solutions, but measuring customer satisfaction and looking into sales trends are both tasks they are well suited for.

E) Customer service

Although automated systems handle calls already, the tricky calls can't be handled by AI – yet. As well, people appreciate talking to an actual person, it makes them feel valued, especially in unusual situations. Until we have Turing-capable AI (i.e., generally smart as opposed to smart at one specific thing), customer service will remain as AI-assisted, rather than replacing human CSRs. On the other hand, if I could call customer service and get an AI on the first ring who listens to my issue and gives me an prompt, correct answer, rather than a 30-minute phone queue where I have to punch in seventeen different numbers, I'd happily use AI customer service.

F) Education

Education is a field where people are untrusting of AI, and many instructors/teachers/professors have tenure, so can't be replaced quickly. However, education outside of the public systems will change much more quickly. The armed forces and corporations already use AI for training. So, eventually educational games that use AI to teach children, and where AI can get steadily better in helping kids learn at their own pace, in the most effective way for each child will gradually move into the public space. There's a lot of skepticism over AI and education, and I foresee push-back here. I expect to see AI educational assistants in the classroom, but not at the blackboard.

G) Security (both physical and online)

This is interesting. Robots, security drones, and AI are better at watching things and noticing exceptions to routine than people, but people are still better at dealing with emerging problems. But there's more to it than that. A respectable amount of security and police are employed mainly to ensure road safety and parking enforcement. With self-driving cars, that's not only much easier to catch, but also to detect. It is likely that over 90% of road and parking policing will be done via AI.

With online security, I feel confident that AIs will eventually take over entirely because of the speed with which attacks can be launched, and with which hacking approaches can change, with only human supervision to provide common sense and human awareness. There is too much to do, and too much to cover in online security, so AIs will be integrated into firewalls. Of course, AIs will also be used by hackers, so it will be a never-ending race to maintain security.

H) Farming

AI and automation will assist farmers, but not replace them. Robots will do grunt work and help with crop planning, though. Farm work currently requires too many different jobs to be completely automated, and will still have humans at the helm for a long time.

I) Forestry, fishing, mining, oil exploration & production

In all primary industries, robotics will take over much of the more dangerous work, and AI will do the complex number crunching, such as finding fish, and oil, and minerals. Humans will still run the robots and supervise.

J) Social services

AI will enhance social services rather than replacing them. For example, a Florida researcher has used machine learning to help predict if someone will commit suicide up to a year in the future, based on exhibited behaviors. Apparently, most people with suicidal impulses visit a medical professional at least once before attempting suicide. Having an AI to check for these behaviors at a doctor's office would drastically lower the suicide rate.

K) Scientific research

AI will be a huge asset in scientific research. Having a computer able to quickly correlate vast amounts of data will massively reduce the amount of time it takes for scientific progress, leaving researchers free to think about the implications of the data.

L) Human Resources

Human resources already benefits from AI when sorting through resumes, and better AI will only improve this. Meanwhile, the human side of HR will largely remain in human hands, especially when it comes to thorny issues like sexual harassment, although even here, AI's will be good at identifying early warning signs that a given employee is a source of harassment.

M) Journalism

Yahoo has already started to use AI for writing news reports, with a certain amount of success. As a writer myself, I'm hoping that it stops there, but there is a Japanese AI that placed highly in a writing contest, so I'll admit to some apprehension. Assuming that the field does not end up dominated by AI, having a research assistant that can winnow out the facts in minutes is always an asset.

Jobs that will be mostly unaffected by AI

A) Management

We will always want to supervise our robots. So, there will always be a person at the top who has final say.

B) Script writing and Art

It's been tried. I'm not overly impressed, but art is subjective, and ultimately deals with the humanity of the audience.

C) Therapy and counseling

Until we understand our own minds, we can't possibly program a computer to understand them. For the foreseeable future, these jobs will remain in human hands.

That's my breakdown, at least for now, but AI is evolving with incredible rapidity, which means that things will change.

Odds are, you will not have a job in your field in twenty years' time, particularly if your job involves repetitive labor or number crunching of any kind. AIs and robots are just faster & better at such tasks, and getting cheaper with frightening speed. Just as robotics and overseas labor destroyed manufacturing in North America, AI will decimate whole industries. We have yet to figure out what comes next.

What is clear is that you will need to continually reinvent the work you do to avoid having it automated out of existence.

Speaker KIT WORZEL is represented by K&M Productions (Toronto).

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905.831.0404 | info@kmprod.com | www.kmprod.com | www.motivational-speakers.ca

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