

Robots and AI Taking Over Jobs: What to Know About the Future of Jobs

Artificial intelligence is poised to eliminate millions of current jobs — and create millions of new ones.

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The article discusses how AI is expected to replace 85 million jobs worldwide by 2025, but it will also create 97 million new jobs in that same timeframe. While some industries will continue to rely on human workers, many professions will be totally automated in the next five to 10 years. Research suggests that both specially trained workers and blue-collar workers will be impacted by the continued implementation of AI. Although AI is sure to change the future of work, there are many theories on the nature of that change. And many of them are neither gloomy nor doomy. Three simple pieces of advice:

1. “Avoid bullshit jobs. If you’re bored in your job, it’s probably a bullshit job and the machines will probably eat it.”
2. “jobs hinged on care, creativity and education will remain vital to our society.”
3. “stop fretting and start acting”



Image: Shutterstock

There are two sides to this coin: Robots and AI will take some jobs away from humans — but they will also create new ones. Since 2000, robots and automation systems have slowly phased out many manufacturing jobs — 1.7 million of them. On the flip side, it’s predicted that AI will create 97 million new

jobs by 2025.

WILL ARTIFICIAL INTELLIGENCE (AI) REPLACE JOBS?

AI is and will continue to replace some jobs. Workers in industries ranging from healthcare to agriculture and industrial sectors can all expect to see disruptions in hiring due to AI. But

demand for workers, especially in robotics and software engineering, are expected to rise thanks to AI.

Some people don't see it both ways. For example, Sean Chou, former CEO of AI startup Catalytic, thinks robots are stupid —and he's not alone in his frank assessment.

"All you have to do is type in 'YouTube robot fail,'" Chou said.

Don't misunderstand, though; it isn't that the machines aren't rising. It's that they're rising much more slowly than some of the more breathless media coverage might have you believe — which is great news for most of those who think robots and other AI-powered technology will soon steal their jobs. "Most of" being the operative words.

Types of Jobs AI Will Impact

The consensus among many experts is that a number of professions will be totally automated in the next five to 10 years. A group of senior-level tech executives who comprise the Forbes Technology Council named 15: insurance underwriting, warehouse and manufacturing jobs, customer service, research and data entry, long haul trucking and a somewhat disconcertingly broad category titled "Any Tasks That Can Be Learned."

HOW MANY JOBS WILL AI REPLACE?

According to the World Economic Forum's "The Future of Jobs Report 2020," AI is expected to replace 85 million jobs worldwide by 2025. Though that sounds scary, the report goes on to say that it will also create 97 million new jobs in that same timeframe.

Kai-Fu Lee, AI expert and CEO of Sinovation Ventures, wrote in a 2018 essay that 50 percent of all jobs will be automated by AI within 15 years.

"Accountants, factory workers, truckers, paralegals, and radiologists — just to name a few — will be confronted by a disruption akin to that faced by farmers during the Industrial Revolution," Lee wrote.

When considering those developments and predictions, and based on multiple studies — by the McKinsey Global Institute, Oxford University and the U.S. Bureau of Labour Statistics, among others — there is massive and unavoidable change afoot. Research suggests that both specially trained workers and blue-collar workers will be impacted by the continued implementation of AI.

Developments in generative AI tools like ChatGPT and Bard have raised questions about if AI will replace jobs that involve writing. While it's unlikely that AI will ever match the authentic creativity of humans, it is already being used as a catalyst for writing ideas and assisting with repetitive content creation.

For example, tasks like writing formulaic emails, creating social media posts and responding to customer service requests can already be offloaded onto AI writing tools or chatbots. In some cases, AI is used to create a first draft that is edited by a human.

When it comes to AI art and design, the technology has already produced work worth hundreds of thousands of dollars. And AI art generators like Midjourney and Dall-E are gaining traction. So what does this mean for artists and designers? Some view AI-generated art as a tool, while others view it as a threat. While many believe AI will never achieve the celebrity level of some human artists, graphic design and commercial art fields may be impacted as these tools become more refined and capable of following specific design prompts.

Although AI is sure to change the future of work, there are many theories on the nature of that change. And many of them, you might be pleased to learn, are neither gloomy nor doomy.

Industries That Will Always Need Humans

We can take comfort in the fact that some jobs will never be replaced by AI. The jobs that AI won't be able to replicate range from creative fields to empathic jobs as well as complex political and strategic jobs.

JOBS AI CAN'T REPLACE

- Teachers
- Writers and editors
- Lawyers
- Social workers
- Medical professionals
- Therapists
- Management professionals

Some industries that will continue to rely on human workers include writing jobs, social work, criminal defence law, teaching and AI training engineers.

These fields may still be aided by the advancement of AI in the future, but AI and robots can't replicate the empathy and social intelligence that these fields require. For example, AI could be a helpful tool for educators when trying to gain an understanding of students' varying levels of competence, progress and temperament — but teachers will still be masters of diving into students' special interests and providing mentorship. And although jobs that involve writing can benefit from AI content generators, these tools still have shortcomings around accuracy and misinformation, so they are likely far from replacing human writers.

Lee cites four basic weaknesses of AI that will prevent it from taking over certain jobs. To summarize, AI is not very good at:

- Complex strategic planning.
- Work that requires precise hand-eye coordination.
- Dealing with unknown and unstructured spaces.
- Using empathy.

There will also be a demand for human workers to help adapt us to a new world with a larger AI presence. Chou noted that in order to facilitate technology adoption so it reduces workloads rather than increases them, you need people — and lots of them.

“The more technology encompasses and the more we demand of technology, the more people are involved in doing that,” he said.

Chou cites video games as a good example. Back in the “DOS days,” he said, all it took was one hyper-dedicated “rogue” and six or so months of toil to create a game that could be disseminated as shareware. Now it takes a high-tech village to produce what Chou characterizes as a “movie studio-like undertaking” requiring voice talent, designer, sophisticated physics and a multi-million-dollar budget.

“I feel like there’s this overwhelming sense that as we get more value from computers and AI, people become less important,” said Dan Platt, a senior principal of market innovation at AI company Narrative Science. “But I don’t see it that way. For the foreseeable and unforeseeable future, you will need contractors and plumbers and electricians and window installers — all these jobs that are immensely important and that the world does not operate without.”

Workers in fields that require a human touch will continue to be in demand. Although AI is poised to aid many industries, human-to-human connection in the workplace will always be necessary.

The Benefits of AI in the Workplace

Among AI’s biggest boons, many experts believe, is its ability to save humans from having to perform tedious repetitive tasks that are part of their overall duties so they’re free to focus on more complex and rewarding projects — or just take some much-needed time off.

“There’s always a concern that technology is displacing this current body of workers or tasks, and that’s true,” Chou said. “But what always happens is that work, and that output, gets redirected to things that are much more productive.”

Some think increased productivity and efficiency might even shorten the work week. Which seems good in theory but comes with its own set of issues. Namely: how will pay and benefits be affected? And who reaps the bulk of monetary rewards? Those remain unanswered questions.

“Up to this point, technology has created more work because it’s another thing you have to deal with,” said Justin Adams, former CEO at Digitize.AI and vice president at its parent company Waystar. “But I think there’s an inflection point where certain AI will get to a place where that actually flips.”

How AI Will Create Jobs

Even now, armies of people around the world are involved in the development of AI. Per a *New York Times* story on the subject, “AI researchers hope they can build systems that can learn from smaller amounts of data. But for the foreseeable future, human labour is essential.”

Chou is in agreement with the necessity for human workers. “The number of people that are necessary to deliver better and better technology grows massively,” Chou said. “So you move from worrying about the impact of high technology to actually helping to create the technology. When you look at AI, there’s this nonstop need for training, for data, for maintenance, for taking care of all the exceptions that are happening. How do we monitor AI? How do we train it? How do we make sure that AI’s not running amok? Those are all going to become new jobs.”

Gigaom CEO Byron Reese has a similar, if more hyperbolic, take on how AI will affect human labour. As he opined in an essay, AI will be “the greatest job engine the world has ever seen.”

“In fact,” Reese said, “the BLS [Bureau of Labour Statistics] forecasts faster-than-average job growth in many occupations that AI is expected to impact: accountants, forensic scientists, geological technicians, technical writers, MRI operators, dietitians, financial specialists, web developers, loan officers, medical secretaries, and customer service representatives, to name a very few. These fields will not experience job growth in spite of AI, but through it.”

“But just as with the internet,” he added, “the real gains in jobs will come from places where our imaginations cannot yet take us.”

Chris Nicholson, CEO of the San Francisco-based machine learning company SkyMind.AI, shares a similar view rooted in even more distant history.

“Everybody uses this analogy, but when the Industrial Revolution came, a certain kind of job disappeared,” Nicholson said. “But many jobs, and many [new] jobs, were created. So when you think about, say, England before and after the Industrial Revolution, it wasn’t a poorer place where there was less work. There was a lot more work, but it was a different kind of work.”

Martin Ford gives a TedTalk on earning money in a future powered by AI. | Video: TED

As part of a Ted Talk he gave in 2017, futurist Martin Ford addressed the issue by harkening to the so-called “Triple Revolution report” that was assembled by a group of brainiacs and presented to President Lyndon Johnson in early 1964. The report argued, in Ford’s telling,

“that the U.S. was on the brink of economic and social upheaval because industrial automation was going to put millions of people out of work.”

That was more than a half century ago, he noted, “and of course that hasn’t really happened. And that’s been the story again and again. This alarm has been raised repeatedly, but it’s always a false alarm. And because it’s been a false alarm, it’s led to a very conventional way of thinking about this” — thinking which holds that technology “may devastate entire industries” and “wipe out whole occupations and types of work.” Nonetheless, he continued, “progress is going to lead to entirely new things” — new industries with new job opportunities “that today we can’t really even imagine.”

It remains to be seen whether the forthcoming crop of AI-spawned jobs necessitated by the introduction of as-yet-undetermined products and services will provoke similar ire. But one thing’s for sure: when it comes to work, humans will be just as necessary as they’ve always been, only in different ways. In many of the same ways, too.

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How to Prepare for AI in the Workplace

Amazon — whose warehouses buzz with robots and will be increasingly automated in years to come — announced that it would retrain a third of its 300,000-strong U.S. workforce to the tune of \$700 million. Participation is voluntary in a program the company calls “Upskilling 2025,” which is designed to teach employees skills they can apply to work in technical roles inside or outside of Amazon.

SKILLS TO CULTIVATE IN THE AGE OF AI

- Basic mathematics
- Strong verbal and written communication
- Creativity
- People management
- Emotional intelligence
- Critical thinking and problem solving

More cynical observers might chalk that up to an expensive public relations campaign in light of less-than-flattering reports about how the company allegedly treats its workers. Besides that, Chou said, it’s infeasible. Why not simply make technology that’s more adaptable to more people, he wonders, so the learning curve is much lower? Retraining warehouse workers to be, say, engineers is completely unrealistic. Which isn’t to say there’s no value in additional education.

“I think that we should be trying to get people to understand a little bit about a lot of things so the jump is not very large and the opportunities come,” Platt said. “You’re not going to train everybody to write in Python, but if you have people that are trained to understand

the basics of engineering, or how things work, their chances [of not being displaced] are a lot higher.”

For Nicholson, surviving and thriving in an increasingly AI-powered world requires a multi-pronged approach. First and foremost, he advises, “Avoid bullshit jobs. If you’re bored in your job, it’s probably a bullshit job and the machines will probably eat it.”

Beyond that, his practical recommendations are surprisingly tech-less. And they can be summed up in two words: basic skills. For example, having solid verbal and written communication like listening, reading emotions, asking questions, writing clearly and structuring cogent arguments devoid of ambiguity.

“That’s all very important,” he said, “and it’s also very hard for machines to do. Barring a nuclear holocaust, there will be no lack of humans who need to be communicated with.”

Some math skills are crucial, too. Chiefly, deep knowledge of the so-called Riemann Hypothesis, a conjecture that the Riemann zeta function has its zeros only at the negative even integers and complex numbers with real part $1/2$. Just kidding (thanks, Wikipedia).

But it’s a good idea, Nicholson says, to cultivate a decent understanding of statistical concepts, calculus and algebraic linear regression in order to comprehend the “output of AI algorithms.” Arming oneself with that sort of foundational knowledge is key to “being able to adapt.” And in these tech-driven times, adaptation has no patience for slow pokes.

“People like to compare AI to electricity,” Chou said. “And I actually agree with that analogy. But electricity took one or two generations to go from idea to widespread adoption, whereas today we’re seeing the impact of technology occur much faster. And so the rate of fundamental social change is increasing, and it’s taking a toll faster than people are ready and able to adapt.”

But in order to survive and thrive, they must. And so, while big change is coming, a little advance planning — by workers who stand to be replaced and the companies that employ them — goes a long way.

In short, stop fretting and start acting.

“There’s no doubt that the AI revolution will require re-adjustments and a great deal of sacrifice,” Lee said. “But despairing rather than preparing for what’s to come is unproductive and, perhaps, even reckless. We must remember that our human knack for compassion and empathy is going to be a valuable asset in the future workforce, and that **jobs hinged on care, creativity and education will remain vital to our society.**”