

**FUTURE OF ROBOTS, AI AND AUTOMATION IN THE UNITED STATES****Ravi Teja Yarlagadda**Department of Information Technology  
yarlagaddaraviteja58@gmail.com**ABSTRACT**

Artificial Intelligence (AI) is rapidly developing together with automation and robotics technologies which are at their tipping point. Recently, robots have been designed to perform diverse tasks without human interference. Automated systems, on the other hand, not only perform iterative tasks, but also greatly expand the capacities of the workers. It is also a fact that it is anticipated that digital computers will eventually replace more than half of the population worldwide. Multiple industries are introducing automation to drive their efficiency, profitability, protection, and competitiveness, ranging from banking to manufacturing. Therefore, in a super dynamic ecosystem, automation is here to support stability and accessibility. Thus, this reveals that automation's future is promising since everything will become easily available and accessible. Robotics are significantly changing the nature of works since the scale of its usage has changed from the last decade to recent years. However, it is worthy to note that technology is largely unchanged, but at the same time, connectivity has brought out the greatest benefits of all time. The scale at which robotics are adopted is continuously growing and has exploded within society. It is because, daily, new applications are created for all types of environments and industries. In various instances, automation improves the quality of production through its ability to provide precise repeatability that would have been impossible to achieve by relying on human labour. Therefore, there will be a greater integration between humans and Robots, AI and automation in the future. They will work together seamlessly to attain more efficient and effective results. Therefore, this research paper will illustrate the future of robots, AI, and automation, specifically in the United States, using the literature review context.

**Key Words:** *Artificial Intelligence, Robotics, Automation, Robots.*

**INTRODUCTION**

Artificial Intelligence, automation, and robots are no longer considered things that will be achieved in the distant future. They have already occupied their daily lives and will increasingly become common soon. With advancements in these technologies continuing to surprise humans, recently, most industries have adopted these technologies to sustain a competitive environment and improve their quality. For instance, the robotics' market is growing faster than anyone could have expected (Bekey, 2012). According to the recent projections, it is estimated that by 2022, it will reach a value of 77 billion dollars. On the other hand, AI is developing even faster than robotics. It is expected that by 2022 it will have grown to worth 3.2 trillion dollars which, indicates a significant development. Thus, it is very clear that all these technologies are very powerful, and their combination within a society can effectively change people's lives for the better.

The recent information technologies and the adoption of machines powered by AI and robotics have strongly influenced the sector of work in the world. Software, algorithms, and computers have simplified tasks effectively, and it has become impossible for one to imagine how life could have been without their advent. Therefore, the economy of information technology characterized by exponential growth is replacing the industry of mass production in the economy of scales (Brady et al., 2012). However, as the past experiences are shifted to these technologies' future, some disturbing questions arise: how the future world will look like with these technologies at hand? Also, is mass poverty, unemployment, and social distortions a possible case for the future world, coupled with algorithms, intelligent systems, and robots play a significantly central role? The main thing

that is certain and clear now is that the newest developments of technology will fundamentally impact the world labour market in the future. This reflects not only on factory workers, but rather on the service sector's human activities, which are considered untouchable (Smith & Anderson, 2014). Important improvements will be made to remuneration models, well-established work time, job descriptions, workplace culture and economic systems. Additionally, legislators, the education system, societies, and employees are also faced with attaining the new challenges that their results are rooted in a technology that is constantly advancing.

## LITERATURE REVIEW

### ROBOTS, AI AND AUTOMATION IN THE WORKPLACE

The combination of robotics, AI, and automation has significantly changed the workplace itself and daily life. A robot is merely a machine programmed using a computer and capable of automatically performing complex tasks. The robots are guided using an external device that acts like control which sometimes can also be embedded within. Thus, the robots replace human efforts, although they may not resemble human beings in terms of appearance and performing actions like humans. In basic form, the engineering discipline that concerns with the operation, design and development of robots is called robotics (Namdev & Pandagre, 2014). Artificial Intelligence (AI) describes the machine's work processes that require intelligence. Therefore, the term AI means investigating the behaviour of solving problems intellectually and developing intelligent computers. AI is mostly used in deep learning, a machine learning-based on algorithms that try to model data with high levels of abstractions. As compared to humans, machines work the whole time, and if one makes a mistake, all the automated systems will memorize this and avoid making the same mistake another time (Dator, 2012). In the long term, smart computers have prevailed over human experts. Automation, on the other hand, is a method of automatically running a device, procedure, or apparatus. In this case, the implementation and development of technologies for managing and tracking the distribution and output of services and goods is called automation.

Although many people are sceptical about such innovations, progress is continually made in creating AI robots. Even though automation may, in turn, displace some jobs, it can also solve the ever-growing shortage of workers (Borenstein, 2011). AI robots can also be used in schools to assist students in writing, reading, speaking, and listening skills. These kinds of technologies will be very useful in remote areas. Both robotics, automation and AI have come a long way to achieve what they can today and as they seemed as mere concepts a few years ago and are today a reality. The robots are becoming smarter, and even though some people remain sceptical about the technology, the truth remains that there is no going back (Schuster et al., 2013). However, there are some alarming potentials, but there is a very slim chance that robots will wipe out humans in the future.

Various industries have embraced these technologies and are becoming increasingly automated. They include the retail industry, the construction industry, and surgery. Even though it is one of the largest sectors in the construction industry, it has always been very slow in adopting the newest technologies (Deb & Deb, 2010). However, things are changing since the industry is adopting technological innovations. Healthcare is also a field that the wave of innovation cannot leave behind. This means that these technologies' application in the industries reach far beyond the merely repetitive and dull administrative tasks. It also means that intelligent machines and robots can have supporting and life-saving functions. A good example is a robotics applied in medical diagnostics with a high level of accuracy or assessing dangerous objects using integrated camera and remote-control systems. Thus, this makes it possible for the robots to defuse a bomb without endangering human lives (Mathiason et al., 2014). Also, the Robo gas inspector is a robot used in inspecting and is equipped

with a technology of gas sensing and can identify a technical facility located in areas that are hard to reach without endangering human lives. A good example is in detecting leakages in underground and above-ground gas pipelines.

Fortunately, today's robotics and virtual computers go far beyond routine assignments. When they conduct diverse tasks, they carry on advanced jobs and change their choices. Present computers, for instance, benefit from the interactions of other users. Autonomous cars can collect highway data and detect traffic jams or alternative routes with considerable accuracy (Sanders & Gegov, 2013). They send it in near real-time to many other vehicles on the road until they have the information and warn them of pending hurdles. Those vehicles then alter to make use of the new knowledge. When they execute a predetermined series of tasks, machines that feel and understand are capable of far greater complexity than those that do not adapt. Indeed, it is the self-learning ability that separates the current robots from earlier generations. As they acquire experience in the process, they may conduct particular tasks and change their performance.

### **THE FUTURE OF ROBOTS, AI AND AUTOMATION**

With the advent of AI, automation, and robotics, new products are emerging on the fronts of electronics and technology, which can reshape the economy and society. Coupled with the advent of voice-activated interfaces, mobile applications, and faster networks, computing is becoming integrated and ubiquitous in daily activities (Diamandis & Kotler, 2012). Also, robots are considered the manifestation of emerging technologies. Furthermore, in conjunction with the Internet of Things and AI, innovation is escalating the level of change. It is enabling the development of many new products that are worth it. Communications from machine to machine are starting to improve human-to-machine experiences (Barrat, 2013). Regardless of human interference, detectors may link mechanical artefacts, thereby eventually bringing in an age of universal connection. Machines no longer require human guidance to take such actions and can use self-learning mechanisms to interpret circumstances and make choices. They will behave fully autonomous and benefit from past decisions and perhaps other machines' encounters.

Almost at the same time, company processes and how people make a decent living are transformed by the nature of the digital economy. Globalization has been widespread, and there is a greater emphasis on contract workers who do not earn wages in the sharing economy. The growth of the role of automation and robotics and the shifting practices of restaurants, manufacturers, and warehouses influence the way managers to run their businesses (Hancock et al., 2013). Communication is progressing, a transition is speeding up, and brick-and-mortar facilities shut down. Digital innovations are converting robots into greater tiers of sophisticated manufacturing. Instead of demanding direct personal behaviour to engage machines, remote sensors control water cleanliness automatically and warn individuals when issues occur (Brady et al., 2012). In order to prevent a crash, tracking tools on cars will detect whether a driver is in the next lane and act quickly. This kind of autonomy moves computation from a reactive to a constructive role and puts robotic devices to take individual choices in a better position.

It will take creativity, innovation and humility to navigate the change in corporate processes and digital skills as designers confront the technology transformation and its repercussions. Computing devices will become even more advanced in the coming years and have a huge effect on culture, industry, and governance. It can usher in a prosperous era of global stability, wealth, and free time if this transformation is done properly (Ford, 2013). Bad decisions, however, may create works of fiction in life that are unstable, destructive, and oppressive. Ethical and legal problems related to these innovations do arise. The main question that arises here

is what is their legal duty, as robots are taking on more automated roles, and who will be accountable if their actions impact humans? Technology makes these situations harder in some cases. In particular, technological advancement's financial benefits have poured to a limited number of individuals, increasing income disparity in this manner (Campa, 2014). The wealth created by the technological revolution has increased income inequalities rather than undermining an entrenched elite and encouraging common citizens and has made it impossible for those with lesser means to gain social mobility. There have been evidences that cultural and social strains have risen with modern technologies in their potential to globalize communications. Increased confusion, intolerance, or real confrontation may occur as new individuals contact others through communications networks (Rotman, 2013). Therefore, these technologies can increase intolerance or confusion rather than allowing people to respect their disparities.

### **How this Research on the Future of Robots, AI and Automation will help the United States**

The impact of artificial intelligence (AI) developments, robotics, and automation on the long-term employment market remain unclear. This ambiguity derives from the realization that, while many workers within the United States will inevitably be impacted, it is impossible to foresee which jobs would be lost and which industries will produce new job opportunities. Robots, AI, and automation pose a major threat to the working class's job and well-being in the US. Projections on how AI will impact the work market, and associated automation innovations rely on a basic perception of what work is (Poole & Mackworth, 2010). Many job-related activities may be carried out by either humans or computers. These functions are also theoretically subject to partial or total automation. Thus, when seeking to assess if the work is at risk, the research paper has focused on describing workplaces' role material. The introduction of robotics to industries and terminals, for instance, decreased the need for human brute strength since robots are heavier, require less rest, and can run across the clock. AI is a technology that transforms any aspect of life, despite its pervasive lack of familiarity. This is a broad instrument that helps people reconsider how they interpret data, evaluate data, and then use the relevant observations to facilitate judgement. AI is supposed to write a high school essay in the next decade, drive a truck faster than a person would, have a 50 per cent chance within 45 years of doing all human activities, and automate all work in the next century. There will be more substantial advances in machine learning's continuous growth to further significantly boost the workforce of the future through AI. Even though projections of work risk differ, economists argue that the essence of work will change robotics, automation and artificial intelligence technology. Some staff will lose their employment because of technology, some will get new jobs, yet many will need to learn new skills to move between job opportunities.

### **CONCLUSION**

As robots, AI and automation have made everybody's life simple and relaxed, and the pervasive human-robot relationship is growing steadily. AI is a vast area that is now making its way in quality assurance, business and healthcare. Various reports show that the private sector is combining AI to calculate the principle of supply-demand and simplify human resource processes. Various intelligent devices for security monitoring and failure identification of sensitive systems such as nuclear reactors are now being built by the public sector. In order to incorporate law and order regulation without any risk, AI and robotics are also impressive. Owing to the growing demand for intelligent machines in each industry worldwide, Research in this area is also rising as AI rises. It is apparent that future work will impact the labour market and that digital transformation and system automation as a global phenomenon. However, this phenomenon is still a far and diverse in the area of technology solutions, particularly in labour relations. It will be ideal for future regulations, which will maintain

uniform standards at the international level, to be tailored to technical developments and the growing need for consistency. Artificial intelligence (AI), robots, and other modes of automation are progressing rapidly, offering great performance and productivity benefits to enterprises. For developed nations like the US, automation may be the secret to overcoming the downturn in growth after the global financial crisis. It is doubtful that robotics, automation and AI would in the near future disrupt the labour market, at least concerning the number of job opportunities. Jobs are, however, prone to massive transition. These technologies could pose a threat, especially to individuals most affected by automation in the low-wage, low-skilled economy. Therefore, businesses need to react rapidly to these developments and retrain and prepare their workers to remain competitive in the coming years.

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