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Machine Replace Human Jobs

**Abstract:**

Technological advancements are replacing humans at jobs with automated machines such as robots. Humans have survived many technological advancements, but the latest innovations are not like anything in the past. Modern information and computer technologies are continuously developing algorithms duplication aspects of the human brain. The results are dismal job opportunities for humans. Machines are taking over jobs previously performed by human experts at an exponential rate.

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# **Introduction:**

## **Purpose**:

Jobs previously performed b human experts are quickly being replaced by intelligent automated machines such as robots. The report describes the potential effects of this revolution on job markets. The purpose of the report is to investigate the most affected areas of job markets by the latest innovations in information and computer technologies. Analysis of literature and various technological reports is performed to understand the broader picture in the most comprehensive way. Recommendations are provided after careful analysis of the technological landscape and its effect on previous as well as future jobs.

## **Background:**

It is obvious and can be understood by general observation as well that most of the automation jobs in the auto manufacturing industry are replaced by machines. But the claims by Brynjolfsson, a professor of MIT and his colleague McAfee claims are most terrifying. Both the researchers argued since the last couple of days that technology is replacing humans in various fields at higher than expected speeds. The exponential induction of robots in factories is considered to be the primary cause of sluggish growth of the job market during the last decade (Rotman). Researchers foresee dismal conditions for future graduates in traditional disciplines. The automation and improvements in software technologies are not only threatening to graduate, in fact, but the machine has also replaced many low-level jobs as well in fields including manufacturing, financial services, law, education, and medicine.

Advancements made in the development of algorithms of machine learning and artificial intelligence have replaced human experts more than the creation of new jobs for human experts. It can be considered that humans are in a fight against modern machines to save their jobs. Any person working in an auto manufacturing plant has undoubtedly experienced the blow of modern technology machines. The situation is not worsening in the United States of America but in all of the technologically advanced nations. The fact is true because more rich nations have more money to invest in technological advancements.

## **Methodology:**

As the debate on the topic is an ongoing process. The method adopted to investigate the matter involved analysis of various technological reports and literature articles. Significant consultation has been made to the research work of the Brynjolfsson and McAfee along with the review of news and literature articles. The report analyzed most affected sectors of the jobs such as switchboard operators, ticket operators at railway stations and many other jobs that are at greater risk of being abolished in the near future. According to a study, more than 47 percent of the jobs in America are at high risk of being replaced by automated machines.

# **Discussion:**

There are a lot of concerns discussed in various reports when it comes to the impact of artificial intelligence on the job prospects of humans. It is a fact that is globally established that technology boosts productivity and make societies healthy, but it has a dark side as well. Which is the technological advancement is eliminating the need for human experts in various fields leaving them in worse conditions they have not experienced ever before. Productivity in industries is at record level by deploying these latest technologies, innovation has never been so fast, and on the other side at the same time the income for the low-level job is falling, and there are fewer jobs (Mangu-Ward). People are falling behind, and the technology is growing so fast, but the organizations are not able to keep up with the pace of advancement and accommodation of their skilled workers.

America and China are considered to be the powerhouse of the manufacturing world. Although the deployment of machines and robots is common in the manufacturing sectors of these countries but at current fewer people work in welding and painting plants than robots. Organizations claim that the introduction of robots and automated machines has increased the production tremendously and reduced the costs of production to a minimum. However, the unemployment of skilled worker has also increased at the same rate. Industrial robots are now more flexible, efficient, and cheaper as compared to their counterparts of 1997. Trends in the advancement of artificial intelligence and machine learning seem to be dramatic. One example of this change can be observed by the latest experiments of driverless cars by google. It shows that technology is becoming mature enough to remove drivers from their jobs. Future will be of driverless cars. Here is the catch that is considered to be alarming in all these developments. Driverless cars are being developed by the technology giant and once successful they will be quickly adopted by the rich having resources to afford such luxury. The question here is that where the drivers will go? There is no suitable answer to this question by any technology enthusiast. Technology is not bad and driverless cars will certainly provide comfort to people, but at the same time drivers will be in great trouble (Selko). Rich people will be provided with more comfort, and the majority of low-income drivers will be left in the lurch because the rate of adoption is greater than expected among the young generation. Various other jobs threatened by the technological advancement are described as under;

## **Lawyers:**

Being a lawyer is considered to be a good profession if not great. It is considered to be the career with high earnings and of great social status but sighting the advancements in artificial intelligence the situation may not be the same in the long run. Hiring a lawyer is an expensive job a large portion of the work a lawyer perform in routine can be automated as well by artificial intelligence. While the profession may not be completely removed by the automation because there will be a need for human experts. But substantial work of sorting files and decisions related to the documents such as which of the documents are related to the trial and which are not can be overtaken by the machines having artificial intelligence algorithms to sort information robustly (Sharif and Huang). It can be considered that in future robots will be arguing for contracts and parking fines. Even if the advancement is not going to happen overnight, but it is not a good sign for young graduates because they will lose effective training opportunities for pre-trial works. They will not be able to get hands-on practice for sorting trial related legal documents.

## **Data Entry Operators:**

In earlier days the easiest definition of automation was as a machine capable of performing repetitive tasks on its own. When considered the job of data entry operators and clerks the same adjectives come into mind such as boring, repetitive, and dull. And that is what modern machines are good at doing. So, there exists a potential threat for future and existing data entry operators that modern machines will soon be doing the same work with more speed and efficiency (*Biometric Scan Software Industry*). As organizations are adopting information and computer technology solutions, they will not hire a human to transfer files from one format into another when machines can do it at a much faster rate. The most embarrassing thing about the job can be a typo in a typed document as machines will not be prone to such errors so, these jobs are not going to stick around for humans in the foreseeable future as well.

## **Journalism:**

The role of journalism and journalists play in society is crucial. Journalists have to go for interviews research facts and figures and cover events as well. It has been observed that drone cameras are currently being used in coverage of news events. Drone cameras are cheap in price and they also not require hourly wages as well. Although the currently deployed drone cameras are controlled by human experts, but the latest innovation will soon remove the need for human intervention (Behar). Automated drone cameras will replace cameramen experts not only from journalism but from all the related branches of media such as film making. Modern and ever-evolving artificial intelligence algorithms will be able to write news and cover stories. Robots known as wordsmiths will be employed in the media industry leaving human experts behind in the fields of journalism as well.

## **Drivers:**

During 2004, researchers from MIT and Harvard claimed that a computer would never be able to drive a car due to the complexity of information involved in driving a car. However, in a time shorter than ten years, several thousand miles of test drives have been completed by self-driving cars. Research continues to make them more efficient and environmentally friendly. If the statements of researchers can be proved false in less than a decade, then it can be imagined that how much time will it take to completely replace human drivers. A large number of drivers being jobless will create a huge burden on the economy especially for developing countries and underdeveloped nations.

## **Chefs:**

Keeping computers and their huge processors cool at times of high load is an essential hurdle in increasing the processing power of small chips. Given the fact that the computer requires cooling, it can be a terrible idea to deploy a computer in the kitchen. However, cooking robots are being developed and actively deployed in hotels. They are cooking food and serving it as well to customers. They are not only a potential threat to chefs but to waiters as well. They will never ask for tips and will never make mistakes in cooking food items (Estlund). Hotel owners and organizations will invest in technology rather than hiring chefs for cooking delicious food items. The latest innovation in chef robots revealed robotic algorithms that can even mimic the motion of hands of a human chef. Observing the technological advancements, the job is not going to stick around for human experts in the long run.

## **Finance Experts:**

As the case with lawyers being a financial expert is regarded as a highly paid job but the situation is not going to last longer, but the situation is not going to last longer. Artificial intelligence algorithms are more robust in making trade decisions and spotting patterns in piles of data than exert humans in the field. Estimates by experts in various fields of finance and banking suggest that almost thirty percent of the jobs in the finance sector will be replaced by artificial intelligence within the next decade.

## **Business analytics:**

The most important aspect of the modern business process is to provide support to customers. If a business is not providing customized solutions to the customers, then it will not be possible to grow in diverse markets. Modern business processes harness the power of artificial intelligence to analyze big data and develop trends, a job previously performed by human specialists. Another advancement in technologies had made it possible to deploy robots known as chatbots to provide services to the customers. As customers do not want to wait for long times for human experts to be free for service. Chatbots dramatically increased the rate of lead conversions into direct sales. Almost eighty percent of such jobs are already outsourced by organizations to offices operating in developing countries where the hourly wages are very low, the overtaking process of smart chatbots is not the good news in any way.

## **Healthcare:**

Artificial intelligence and robots are replacing many jobs in healthcare as well. Paramedical staff in all of the healthcare providing services are at potential risk of being overtaken by the computers (Kepczyk). When wearable technology is suggesting healthy diet plans, computers are providing best care plans for cancer treatments, and robots are performing surgeries, these jobs are not going to stick around for humans as well. It is expected that in less than a decade every person will be having an artificial intelligence powered physician in the pocket.

## **Manual Jobs:**

Along with many high-level jobs, perhaps, the most vulnerable classification is of manual workers such as construction and sanitary workers. A huge amount of manual working jobs are already occupied by robots. Automated machines are performing the jobs of workers in warehouses and various other departments. Vehicles and jet planes in manufacturing plants are not assembled by humans anymore (Crossley). Machines are developing and assembling smaller machine parts instead of human experts. A job previously performed by ten human experts is now handled by a single machine. Human experts now only perform the job of monitoring those machines instead of participating in the actual process of manufacturing or assembling the parts.

# **Counterarguments:**

One set of researchers and experts argue that the advancements in technology and the latest innovations are not killing jobs; instead, they are transforming the job markets. The modern world may not require drivers to drive the cars but will be in high demand for the mechanics and technicians of self-driving cars. Without having enough human experts to handle exceptions the technologies will never be able to completely wipe out the job markets for human experts. Human experts will always be required to monitor and supervise the work performed by automated machines.

Robots powered by algorithms can replace journalists and camera operators, but they will not be able to innovate further in the restricted domains. A robotic journalist will not be able to train more journalists for high-level tasks (Fiorenza et al.). It can be considered that low-level jobs will be completely occupied by automated machines, but human experts will always be there to perform high-level tasks. As in the example of self-driving cars, even though the algorithms will be performing most parts of the job but there will always be exceptions and ethical situation requiring the attention of humans. A single project of the self-driving car may give rise to many ethically controversial situations. For example, if a person is traveling in his self-driving car and he has no manual control over the car. Suddenly huge metal boxes fall from the truck in immediate front of the car. Now, the car is programmed to hit the car at the left sider the bus on the right side. How the life of the one person be saved in case of the accident?

There is a growing list of ethical situations requiring human intervention. If the car is going to hit the metal box, then the life of the person sitting in the car will definitely be compromised. In any other case life of an innocent person will be at higher risk. So, an algorithm developed by humans will never be free from errors (Davis and Sinha). In life-threatening situations the control cannot be completely left with the machine. As in the above example, the person must jump in to control the car and to avoid the accident. Similar and even more advanced ethical dilemmas may arise in the healthcare sector where robots are performing lifesaving surgeries. Therefore, technological advancements are not completely wiping human experts out of the game; rather they have transformed their role.

# **Conclusion and Recommendations:**

Advancements in technology such as artificial intelligence and machine learning software have certainly taken over humans. Many more jobs will be overtaken by automation and computers leaving humans behind. The situation is becoming more and more worse with the passage of time. Given the pace of improvement in automation technologies, many jobs performed by human experts will be replaced by machines. Humans especially young graduates and low-income workers need to be more vigilant to adopt new learning technologies to survive a war with machine revolution. Although most of the jobs will certainly be occupied by machines at the same time, the role of humans will be more crucial. They will be monitoring and performing high-level tasks rather than current jobs. Essentially the advancements in science and technology have transformed the role and jobs of human beings rather than completely removing humans out of the game.

# Works Cited

Behar, Michael. “The Everything Test.” *New York Times Magazine; New York*, Nov. 2018, pp. 26-30,32.

*Biometric Scan Software Industry*. Acquisdata Pty Ltd, 3 Dec. 2018. *ProQuest*, http://search.proquest.com/docview/2162339627/abstract/9D35A6EF980F4429PQ/3.

Crossley, Scott A. “Technological Disruption in Foreign Language Teaching: The Rise of Simultaneous Machine Translation.” *Language Teaching; Cambridge*, vol. 51, no. 4, Oct. 2018, pp. 541–52. *ProQuest*, doi:http://dx.doi.org.edmonds.idm.oclc.org/10.1017/S0261444818000253.

Davis, Lisa, and Anupam Sinha. “Straight-Through Receivables Reconciliations.” *Global Finance; New York*, vol. 32, no. 8, Sept. 2018, pp. 10–11.

Estlund, Cynthia. “What Should We Do After Work? Automation and Employment Law.” *The Yale Law Journal; New Haven*, vol. 128, no. 2, Nov. 2018, p. 254.

Fiorenza, Luca, et al. “Technical Note: The Use of 3D Printing in Dental Anthropology Collections.” *American Journal of Physical Anthropology; New York*, vol. 167, no. 2, Oct. 2018, pp. 400–06. *ProQuest*, doi:http://dx.doi.org.edmonds.idm.oclc.org/10.1002/ajpa.23640.

Kepczyk, Roman H. “APIs and RPA Tools Automate Client Services.” *CPA Practice Advisor; Ft. Atkinson*, vol. 28, no. 7, Aug. 2018, p. 42.

Mangu-Ward, Katherine. “The Robot Revolution Is Here.” *Reason; Los Angeles*, vol. 46, no. 11, Apr. 2015, pp. 18–25.

Rotman, David. “How Technology Is Destroying Job.” *Technology Review; Cambridge*, vol. 116, no. 4, Aug. 2013, pp. 27–35.

Selko, Adrienne. “Manufacturing Mini-Hearts for Better Health Outcomes.” *Industry Week; Cleveland*, Jan. 2019. *ProQuest*, http://search.proquest.com/docview/2169604587/abstract/9D35A6EF980F4429PQ/1.

Sharif, Naubahar, and Yu Huang. “Industrial Automation in China’s ‘Workshop of the World.’” *The China Journal; Chicago*, vol. 81, Jan. 2019, p. 1. *ProQuest*, doi:http://dx.doi.org.edmonds.idm.oclc.org/10.1086/699471.