Will Artificial Intelligence Replace Humans?

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Abstract—**Artificial Intelligence is one of the familiar terms where AI technology has an important role in the development of innovation in the current revolutionary era. The development of AI itself can be applied in helping human work in various fields, because the use of AI is more effective and can reduce production costs in replacing human labor. This paper discusses the influence of AI in replacing humans. The question or problem that we focus on is about the current development of AI, then the advantages and disadvantages of AI, and how AI can replace the role of humans. The research method we use uses a non-experimental method by analyzing papers. This study will focus on conclusions about whether Artificial Intelligence will replace humans? In this paper we will find that AI is capable of humans in several areas of work that do not at all require decision making, involve feelings and things that require human intervention.**

Keywords—AI replace Human, AI help Human, AI's ability to replace human jobs, Will AI Replace Human?, AI impact in human jobs

I. INTRODUCTION

The development of technology in the era of the industrial revolution 4.0 is growing and is starting to be widely used by the community. With the use of technology, every human activity becomes more effective and efficient. Artificial Intelligence is one of the familiar terms where AI technology has an important role in the development of innovation in the current revolutionary era. This technology has the ability to think like humans who are able to learn the information obtained, have reasoning, and correct themselves if something goes wrong.

According to John McCarthy (1956), the definition of artificial intelligence is an attempt to model human thought processes and design a machine so that it can imitate human behavior. According to Herbert Simon (1987), artificial intelligence is a place for research, applications and instructions related to computer programming in doing things according to the view of intelligent humans. According to Rolston (1988), artificial intelligence is a computer-based solution to existing problems, which uses applications that are similar to human thought processes. According to Rich and Knight (1991), artificial intelligence is the study of how to make a computer do something that is still better done by humans. According to Setiawan (1993), artificial intelligence can be defined as a branch of computer science that studies the automation of intelligent behavior.[31]

The development of AI technology affects human employment. Research conducted by Andrey Miroshnichenko [1] shows that AI will replace journalists. In addition, Research conducted by Dirk Vanderbist,. [2] shows the role of AI in the HR world is increasing and this is damaging HR organizations. The tasks performed by AI are also faster, more accurate and orderly than those performed by humans. Therefore, most of them prefer AI power over humans. However, according to research conducted by Bahman Zihuri and Farhang Mossavar Rahmani [3] shows that the role of AI helps human work. AI will make human work more effective and efficient. So the study illustrates that AI will work with humans instead of replacing humans.

II. LITERATURE REVIEW

A. Artificial Intelligence

The development of AI is growing rapidly every year because it is followed by the development of human intelligence in building a technology. In human history, all major technological revolutions have brought shocks to mankind, even the whole society [13] because AI has the ability to make things more efficient in various industries [15]. In everyday life, AI has also taken on a role, such as the online shop on the gadget has a recommendation feature where the AI reads and then processes user data so that what is recommended to the user matches what the user is interested in [7]. In addition, AI has entered the automotive field, namely auto-driving technology. This technology makes driving easier and makes the driver not tired of driving the vehicle over long distances.

The entry of AI into various areas of life brings both positive and negative impacts. The negative impact caused is the disruption of the human profession in several fields due to automation. Automated technology systems make data collection and processing easier and faster. OIT research shows that automation has the greatest impact on jobs in the world's industry [21]. Willcocks, Lacity & Craig also claim that Robotic Process Automation is able to replace human efforts in some jobs [19]. It is increasingly considered a threat in taking over our job positions.

B. Impacts of AI

One of the human jobs that AI has taken over is journalism. AI that replaces journalists has an algorithm that can turn data into a good and correct narrative [1]. In addition, the negative impact of AI in the medical/health sector is the increasing use of automation in the healthcare world so that it can worsen the skills of human doctors due to over-dependence, poor understanding, overconfidence, and lack of knowledge. necessary vigilance of automated clinical workflows [16].

However, AI has a positive side such as helping humans to do their jobs to be more secure, integrated, and efficient [3]. For example, in radiologists, AI in radiologists is shaping the way radiologists work, helping them take a proactive approach in diagnosing a patient's condition. radiologists who used AI were more helpful than radiologists who did not use AI [22]. AI also helps the hospital administration and also diagnoses and provides recommendations to patients regarding drug prescriptions that must be taken [6]. The application of AI in marketing helps with marketing and customer service costs[27]. AI also helps in automating business processes. Examples are fund transfers, ATM cards, simple market transactions, and reading market data [8]. AI will be a transformative influence in industrial sectors which will drive economic growth [26]. AI can also be used in the field of office staff recruitment because the results are more objective and in accordance with the established scoring [2].

C. Concern in AI development

The more progress made in the field of AI technology, the more urgent a rational and farsighted approach is [17]. So it is very dangerous, if the development of AI continues without paying attention to the negative impact on other aspects. AI development must also pay attention to human rights [18]. For example, in terms of human rights to get a job, if the use of machines to replace the role of humans is too large, the number of unemployed will increase.

III. METHODOLOGY

We are looking for papers with keywords: AI replace Human, AI help Human, AI's ability to replace human jobs, Will AI Replace Human?, AI impact in human jobs on Google Scholar and other sources (google, Mendeley, IEEE) which has a timeframe of 2017 – 2022 for the time of publication of the paper. We found 2,860 papers on Google Scholar and 1,404 on other sources. We screened papers by eliminating the same articles and articles that were not accessible and we got 550 paper through screening process. We read the abstracts of each article, and eliminated articles that were not related to the problem formulation. Through eligibility check process we got 80 paper. From 80 paper we choose 30 papers that will answer "Will Artificial Intelligence Replace Humans?". Papers that have been selected and are eligible will be read in their entirety to answer the problem formulation of our paper. The steps can be seen on figure 1.
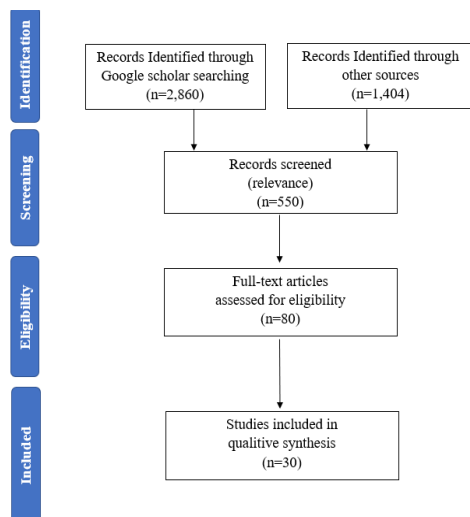

figure 1. Prisma FlowChart

IV. RESULTS AND DISCUSSION

The purpose and benefit of this research is that it can add insight into AI, find out the truth of current AI developments, and make people aware of the existence of AI that can threaten existing job opportunities. Benefits will be achieved by achieving the following objectives:

a) Knowing the advantages and disadvantages of AI.

b) Knowing the current development of AI.

c) Knowing how AI works so that it can replace humans.

d) Knowing humans will be replaced by AI or not.

A. How is the development of AI today?

The growth of AI in terms of investment, startups, paper, requirements from finding a job, and ai-related buying sellers has increased since 2000 until now. The field of software engineering will continue to expand by 2050. The process of software development makes it easier for humans to use it. Currently, AI has the ability to identify patterns, voice recognition, decision support and robotics. AI capabilities provide the role of AI in digital advertising, job profile generation, ad automotion, engaging chat-bits, selecting candidates, candidate discovery and rediscovery, detecting and removing human bias, pattern recognition and employee value estimation. AI is also able to turn a data into a story, provide diagnosis and treatment recommendations, improve patient compliance in consuming drugs, assist administrative activities, self-driving cars, online retailers, and also store customer data. We include table the development of AI on table 1.

Tabel 1. The development of AI

AI Development	Number of Paper	Study Identifiers
AI has the ability to turn data into a story in journalism	1	[1]
AI can identify patterns, voice recognition, decision support and robotics.	3	[3], [5], [7]
AI has a role in job profile generation, ad automotion, engaging chat-bits, and selecting candidates.	1	[2]
AI diagnose and give treatment recommendations.	5	[6] , [11], [16], [18], [28]
self-driving car, online retailers, and also customer data storage is AI influence in marketing.	3	[8], [11], [15]
The growth of AI is seen from investment, startups, papers, requirements from looking for work, and AI-related buying and selling since 2000 until now.	2	[29],[14]
The field of software engineering will expand in the 2050s. The software development process makes it easier for humans to use it.	1	[4]

B. What are the advantages and disadvantages of AI?

Lack of AI, AI has not been able to make decisions and has not had intuition in unexpected situations and data retrieval carried out by AI if not accompanied by appropriate regulations will cause loss of customer data privacy. However, AI has the advantage that it has the ability to process data quickly, detailed and structured, and AI is more efficient and effective than human work. We include table the advantage and disadvantages of AI on table 2.

Tabel 2. The advantage and disadvantages of AI

Strength/Weakness	Number of Paper	Study Identifiers
AI can't make decisions yet and it doesn't have intuition in unexpected situations.	4	[3], [4], [5], [6]
AI has the ability to process data quickly, in detail and in a structured way.	5	[1], [3], [5], [7], [19]
AI is more efficient and effective than human work.	5	[2], [6], [7], [17], [19]
Data retrieval carried out by AI if not accompanied by appropriate regulations will cause the loss of customer data privacy.	1	[8]

C. How Can AI Replace Human Work?

The way AI works has several common attributes in each field such as receiving data, adapting and reacting with the data according to the field and then projecting a few steps in the future. AI uses algorithms that give the computer access to data to teach itself. One example of the algorithm used is the Wordsmith algorithm which has the ability to turn data into an insightful narrative. AI mimics how human brain works with ANN (Artificial neural networks) which have the same way of working as human brain neurons. The inputted data is received by the node then the data is processed and the results of the data process will be received by other nodes. ANN can learn new things by changing the weight value. AI can also be applied to machine learning to predict the right treatment for patients, pay, and recognize patient data for the health sector. We include table how AI works on table 3.

Tabel 3. How AI Works

How AI works	Number of Paper	Study Identifiers
Receiving data, adapting and reacting to the data according to the field then projecting several steps forward.	6	[2], [3], [4], [7], [8],[20]
AI uses the Wordsmith algorithm	1	[1]
AI imitates how the human brain works with ANN (Artificial neural network)	1	[5], [26]

D. Will AI replace the human need for work?

Several studies have shown that the rapid development of AI could replace humans. However, AI does not completely replace humans because AI still needs human hands, but it will replace humans in jobs that do not require decision making and things that require human intervention. In the long term, the development of AI and even robotics is uncertain and trust in AI still needs to be developed to reach the point where AI replaces all human work. We include table will AI replace human on table 4.

Tabel 4. AI Will Replace Human?

Replace / not	Number of Paper	Study Identifiers
AI does not completely replace humans because AI still needs human hands	8	[3], [4], [6], [7], [29], [23], [13],[19]
Replacing humans in certain fields	3	[1], [12], [15]
Can replace humans if the development of AI continues to accelerate until it doesn't need human hands anymore.	5	[2], [5], [8], [9], [20]
In the long term, the development of AI even robotics is unknown and not everyone allows themselves to be convinced by AI.	1	[24]

V. CONCLUSIONS AND FUTURE WORKS.

Several studies show that the current development of AI can show some human work. However, AI is not fully capable of fully embodying humans because some AIs still need human intervention. AI is capable of humans in several areas of work that do not at all require decision making, involve feelings and things that require human intervention.

For now, AI Experts cannot prove that AI is able to surpass humans in all fields because there are still many shortcomings that AI does not have. There is still a lot of work to be done in the AI field to perfect it, so that nowadays AI can be considered as a complement to humans. Trust in AI also still needs to be developed to reach the point in all human work. But for the long term, AI technology is unknown. We suggest for the next research focus on one specific profession that could be replace with AI in the next 5 until 10 years.

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