

Evaluation of Robot Professor Technology in Teaching and Business

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Abstract: In this paper the Robot technology development will be evaluated in teaching and business. Impacts hypothesis of robot's applications are discussed in addition to the types of the robots with time line. The results of this study show the advantages and disadvantages of using the Robot teacher in classroom and business and it shows that the Robot teacher performance is not like the human teacher due to the senses that owned by human being. Robot impacts minimizes the employment worldwide and it is predicted that around 800 million of global workers will lose their jobs in 2030. The results show that impacts hypothesis is minimized through improving the performance of robot technology by using AI Artificial Intelligence, also the Robot applications in the global health system have contributed effectively and successfully to prevention of the spread of the coronavirus pandemic. The Sophia Robot with AI improvements, behaves with good feelings, senses and debating friendly and it is approved by UNDP on 2018. In this study, it is concluded that the robot is not like human being, although developing human-like robot is still out of reach. Also, AI is the best tool for enhancing the Robot technology and increase the employment involvement rate in near future, which is one of the future challenges and studies proposed in this research, industry 4.

Keywords: AI Artificial Intelligence, Comparison Study, Evaluation of Robot Technology, Robot Professor

1. Introduction

The purpose of this research is to evaluate the Robot technology development in teaching and business, also the main significant problems of using robot are described such as the advantageous and disadvantageous. The improvement of upgrading the robot behaviors, senses by using AI Artificial Intelligence. This paper describes the history of robot technology in our life services. The main target of this research is focusing into How to reshape the robot performance as human-being.

Many hypotheses topics are presented in this paper. The impacts hypothesis of this robot technology are presented in this paper and these hypotheses are very important when upgrading the robot performance with AI to maximize the potential gains of AI, businesses need to think carefully about where it can deliver the best results.

Robot Teacher is new technology development in teaching and learning, this technology has been applied in different universities and institutions and challenging the traditional education process and some advantageous and disadvantageous appeared through these applications. This will change and modify and reshape the education process and the communication between students and lecturers and between universities and students and lecturers with some limitations. Some of the experiments shows impacts the

social relationship between students and Robot teacher [1]. Many concerns created about Robot such as ability, discussions, and how to understand the student's behavior, and the ethical concerns in classroom.


1.1. Objective Targets

Upgrading Robot services has noticed in the last decades promotional and feasible development in our life, health, teaching, vertical industry, space research and business offering health, cost, time. Due to the fast development of AI into robot technology and it appears very profitable and very sophisticated to use the educational robot for enhancing learning. Programming Robot teacher by using AI could be possible to transmit educational material.

Robots have been used in various fields such as homes, schools, manufacturing, and business and there are continues needs and continues research to improve the robot performance. Most of school's robots, industrial robots are still programmed using the typical teaching process. New and more intuitive ways for robot programming and control are required. Building on the advances made in mechatronics, electrical engineering and computing, robotics is developing increasingly sophisticated sensorimotor functions that give machines the ability to adapt to their ever-changing environment. Converging AI and Robotics one of the

necessary targets to optimize its level of autonomy through learning. This level of intelligence can be measured as the capacity of predicting the future, either in planning a task, or in interacting with the world. Robots with intelligence are applied robots that can perform specialized autonomous tasks, such as driving a vehicle, flying in natural and man-made environments, swimming, carrying boxes and material in

different terrains, pick up objects and put them down [2] do exist today. AI has continued beating all records and overcoming many challenges that were unthinkable less than a decade ago. The combination of these advances will continue to reshape our understanding about robotic intelligence in many new domains.

	2016 Nanorobots: A team from Polytechnique of Montréal created a nanotransporter-bot that can administer drugs without damaging surrounding organs and tissues.
	2014 Robot exoskeleton: A complete paralysed man was able to walk again using a robotic exoskeleton designed by Ekso Bionics.
	2014 Pepper: Japanese company Softbank presented the first robot, so-named Pepper, to be used for customer service. The robot has integrated an emotion engine to interact with people.
	2010 3D Printing: First 3D printers were made commercially available.
	2010 IBM Watson: IBM's Watson computer beat human champions on the game show Jeopardy! by analysing natural language and finding answers to questions more rapidly and accurately than its human rivals.
	2005 Robot BigDog: Boston Dynamics created the first robot that could carry 150 Kg of equipment. The robot was able to traverse rough terrains using its four legs.
	2004 Mars Robot: Robots landed on mars. Although they were only supposed to work for 90 days, they extended their lifetime for several years and remain operative until today.
	2000 DaVinci Surgical System: A surgical robot for minimally invasive (keyhole) surgery was approved by the FDA. The robot is controlled by a surgeon from a master console.
	1999 Aibo Robot: First robotic pet dog. It could "learn", interact with its environment and responded more than 100 voice commands.
	1997 First Robocup competition: An international competition for promoting AI and robotics where robots play a soccer tournament and other dexterity games.
	1998 MQ-1 Predator drone: The predator drone is introduced by the United State Air Force. It was equipped with reconnaissance cameras and could carry missiles.
	1987 Mitsubishi Movemaster: It was the first small robotic arm gripper which could perform tasks such as assembling small products or handling chemicals











	2017 Go is solved: A team from Google DeepMind created an algorithm named AlphaGo that beat top players of the ancient far-eastern board game Go.
	2016 Microfluidic robot: The first autonomous, entirely soft robot powered by a chemical reaction and a microfluidic logic was developed by a team at Harvard University.
	2010 iCub: A 1 meter high humanoid robot for research in human cognition at IIT, Italy. The robot can express emotions and is equipped with tactile sensors to interact with the environment.
	2010 Robotnaut 2: NASA revealed a humanoid robot with a wide range of sensors that can replace human astronauts.
	2007 Checkers is solved: A program from University of Alberta named Chinook was able to solve the problem of checkers and beat humans at several competitions.
	2005 Autonomous vehicle challenge: A team from Stanford University won the challenge organized by DARPA for driving autonomously off-road across a 175-mile long desert terrain without human intervention.
	2002 Darpa's Centibots: First collaborative robot swarm of mobile robots that could survey an area and build a map in real time without human supervision.
	2002 Roomba: The first household robot for cleaning. It was able to detect and avoid obstacles as well as navigating within a house without using maps.
	2000 Asimo: Robot Asimo from Honda presented the first humanoid robot that could walk like humans, climb stairs, change its direction and detect hazards using a video camera.
	1997 Deep blue beats Garry Kasparov: After a rematch in 2016, deep blue defeated Garry Kasparov by 2 to 1.
	1992 End of next AI project: End of Japan's multimillion program for developing the fifth generation computer systems based on AI.
	1989 Computer beats Human at chess: Computers beat humans at chess for the first time.



Figure 1. Robot types with time line development.

1.2. Robotics Types Development & AI

The following paragraph shows the robot development with time line as follows.

Elektro and Sparko, starting from 1939, the first robot automation was presented at the world fair. CAM system, in 1941, when Isaac Asimov's article published the first time robot, and in 1959, the first computer assisted manufacturing developed by MIT.

Mobile Robot, in 1979, Standford Cart, a most advanced mobile robot that was able to move avoiding obstacles and able to take pictures about the environment from different angles. 5thGCS AI, in 1992 End of next AI project Japan developed the fifth generation computer system based on AI. 2000Asimo, the first humanoid robot from Honda presented could walk like human climb stairs, change it direction and detect hazards using video camera. 3D printers in 2014, the

first were commercially available. 2016 Nanorobot, a team from Polytechniques of Monterial created a Nano transporter-bot that can administer drugs without damaging surrounding organs and tissues. 2017 GO is solved, a team from Google DeepMind created an algorithm named AlphaGo that beat top players of the ancient far-eastern board game Go. AI Sophia Robot, in 2018, the use of advanced AI programs in reshaping the face recognition and feelings and robot behavior to be as human being is very difficult and one of the motivations and targets for this paper to demonstrate the AI in building environment friendship robot. 2018, Sophia Robot the first robot awarded the Saudi citizenship.

2019-2020 Robot technology in health system noticed rapid development for protecting societies from the spread of coronavirus pandemic. For more details, see Figure 1.

2. Hypotheses of Robots Impacts

In order to see the results of introducing Robots in teaching and business we should understand and study the impacts hypothesis of this technology when upgrading the robot performance with AI.

The following hypotheses topics should be taken into account in this paper;

Surprise & Trends: The future development and challenges of AI techniques is the objective targets of our life and business. The attempts and effects of AI technology should be improved in certain fields to get smooth introductions.

AI Opportunities: How modifications in AI can change the performance Robot services in health, education, economy, the society impact and advantageous.

AI developments: It is necessary to introduce a fast powerful implementations of AI to modify the organization of robot applications.

Intelligence Machine & Privacy: Private information and data of individuals and privacy is important factor to be realized when dealing with intelligent machine like robots to arrange legal regulations and terms when sharing of individual's data in developing Robot & AI applications.

Freedom of People: The introduction of AI & Robots should keep the freedom of people without any interruption and should not use their personal life security in stealth and corruption.

Polices & Law: Policies and regulations should be settled in legal assessment and laws will control all the terms and condition to control the applications of Robots & AI.

Society Ethics: The interaction of Robots & AI with society has ethical impacts and doubts. The impacts of AI on business and job opportunities will be minimized to keep people living in good economy.

Electronic Warfare & Robots: Robots & AI were applied into special intelligent weapons before one decade. Therefore, it is necessary to establish international contracts to control the applications of AI electronic warfare.

Malware & Electronic Crime: The applications of AI into malware are serious challenges and the stealing of private and public information from electronic criminals is increasing rapidly. Therefore, malware should use very sophisticated cybersecurity systems to protect our data base centers and data transfer against electronic crime. Also the use of robot drones, especially when these drones will be in hand of terrorist.

Human & Robot Collaboration: Now a day, robots and humans work together in different sectors and there will safe collaboration between them. Many problems and accidents happened in the past by robots, therefore there will be precise and definite tasks in order to collaborate of robots in the environment friendly.

Human Realization & Robots: Robots & AI have the capability for increasing human realization abilities. Sensors and human brain should be interfaced properly into our memory and knowledge reasoning are rapidly interconnected

with robots through wireless network, therefore impacts of safety and ethical should be defined, especially when robots are used in remote surgery and augmented reality and remote air traffic control.

Psychology & Intelligent Robot: The introducing of intelligent robots in different fields and sectors has many concerns from society, and it is necessary to understanding people psychology for improving their confidence and approval.

Communication, understanding and outreach: Communication and educational strategies must be developed to embrace AI technologies in our society. These strategies must be formulated in ways that are understandable and accessible by non-experts and the general public.

Robot & Neuroscience: Robots and neuroscience are very interconnected through human knowledge reasoning and cognition, therefore continues research is vital in this field and very careful mutual understanding between robot and human brain through sophisticated simulations and modelling are important for human brain to understand different robot impacts and hypotheses.

AI and philosophy of mind: When AI can experience a level of consciousness and self-awareness, there will be a need to understand the inner world of the psychology of machines and their subjectivity of consciousness.

Artificial Intelligence Skills: As robotics and AI become more connected to business, what is human workers future, where hundreds of millions of people will leave their jobs. These hypotheses are real and to solve these impacts on society economy, Skills of artificial intelligence AI and robotics are the important step and open new business opportunities for scientists, engineers, technicians, information technology skills, industrial and processing engineers, software and computer engineers, biology, chemistry engineers, electrical and electronics engineers, big data, robot engineers and technicians and related professionals. To maximize the potential gains of AI, businesses need to think carefully about where it can deliver the best results.

3. Robot Teacher and Human Teacher Comparison

A robot technology introduced in teaching system worldwide. Some experiment is presented in this paper which is the comparison of robot teacher with human teacher in teaching effectiveness. Z. Sun [1], concluded that observation, understanding, and interaction are important factors in measuring the effectiveness of robot performance in teaching.

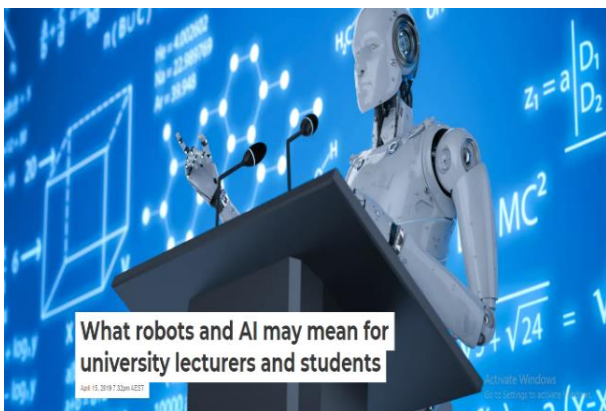
3.1. Robot Teacher Advantages

In some conditions and situations, Robots are modern teaching environment, where human teacher couldn't demonstrate it, the teachers do not upgrade their teaching skills

faster and more than robot teachers but with some limitations and it is concluded that, which is obtained for some teaching tasks, in addition to, the robots support pupils in teaching. Figure 2(a) and (b), show the Robot teacher in pre-school and High school respectively,



(a) Robot Teacher in pre-schools



(b) Robot Teacher in Higher school

Figure 2. Robot Teacher in pre-schools & Higher school.

3.2. Disadvantages of Robot Teacher

Most of institutions and schools don't have a budget to cover Robot teacher cost in addition, they are not capable project, if with minimum cost. The robots need continues electricity and internet and electronic devices such as laptops, desktops or tablets during the teaching process and they haven't feelings and ability to support you how to feel better or something happens during the teaching period. Also human teachers will lose their jobs if the robots will substitute them also the robots are not capable to distinguish between students and cannot develop and create innovative thoughts for curriculum in a suitable method, it cannot evaluate and give positive feedback in addition to they have no imaginations and couldn't simulate the future behavior. Robot teachers couldn't determine how children need feel and what they need to know, and when and where is it possible to follow the Robot lesson delivery, this research shows the improvement of robot performance in teaching and business in order to solve these drawbacks by using the AI. The robot teacher cannot know how to deal and how to behave with the struggling student and how to motivate. The other disadvantage, the number of Robots in different type of applications is worldwide increasing. Also robot is not perfect creature in AI development and if it is not under continues control and assessment and evaluation of her performance may cause some dangerous actions and may destroy

itself and others, which one of the suggested studies for future work.

4. Types of Robots in Teaching and Business

In the following paragraphs some of the types of Robots and their historical developments examples will be presented in the social and education media in addition to business.

4.1. Robot Teacher

In addition, the above limitations, Nisreen [3], concluded that the technology witnessed rapid development, and worldwide progress and needs continues evaluations and assessments to control their performance and behavior when especially when their tasks directed in teaching and society interaction sexual support. Therefore, Robot ability and performance is very important new article to allocate deep understanding and wide area of research from scientists and researchers in addition to the organizations who produced them.

4.2. Social Robots

Music-based therapy is an appropriate tool to facilitate multisystem development in children with autism. The focus of this study is to implement a systematic and hierarchical music-based scenario in order to teach the fundamentals of music to children with autism through a social robot. To this end, we have programmed a NAO robot to play the xylophone and the drum. After running our designed robot-assisted clinical interventions on three high-functioning and one low functioning autistic children, fairly promising results have been observed. We indicated that the high-functioning participants have learned how to play the musical notes, short sentences, and simple rhythms. Moreover, the program affected positively on autism severity, fine movement and communication skills of the autistic subjects. The initial results observed indicate promising. Figure 4, shows the Social robot in sport and dancing.



Figure 3. Social robot in sport and dancing.

4.3. Mobile Robots

Based on our previous research results, it is supposed that project methods and some new devices can reduce programming problems during the first term. These problems are rooted in the difficulties of abstract thinking and they can cause the decrease of programming self-concept and other learning motives. It was redesigned the traditional learning environment. As a constructive approach project method and mobile robot was used for this solution. Our students worked in groups of two or three; small problems were solved after every lesson. The usability of mobile robots in the learning process and the short-term efficiency in the teaching method enhance the problem solving process and students used programmable robots. It was examined the effects on the students' programming skills and on their motives, mainly on their attitudes and programming self-concept and some positive long-term effects were measured and obtained.

4.4. Robot Teaching Assistant

A robot teaching assistant was designed to enhance and sustain learning motivation for the learning in different teaching skills. The Robot teaching assistant can significantly improve learners' learning motivation, learning performance, and continuance intention, as one example of the Robot assistance in teaching is shown in Figure 4.



Figure 4. Robot assistance in teaching [3].

4.5. Saya Humanoid Robot

The first robot teacher in high school classrooms is Saya robot who presented the teaching skill in teaching, see Figure 5 [4].



Figure 5. The Robot Teacher in High Schools Saya Robot.

4.6. Rubi Robot

Rubi Robot is a storytelling robot which is implemented to teach children in the kindergarten school the second language. The negative emotion due to the problems of anxiety is reduced in addition to enhances learning, improves the abilities of speaking and listening of the second language professionally and easily[26]. These results will be used to improve the teaching system in secondary and kindergarten schools. This system is still at the research stage. Also Rubi plays Flash-based educational games targeting vocabulary development, see Figure 6.



Figure 6. Rubi Robot.

4.7. Robovie Robots

Robovie robot interact with pupils in English language and had a vocabulary of around 300 sentences for speaking, and 50 words for recognition, see Figure 7.



Figure 7. Vstone Robovie robot.

4.8. Telepresence Robots

The young children could not communicate well with speakers of different languages over conventional Skype video conference and remote services [5,6], mentioned in 2007, for these reasons and other reasons not mentioned in our research, the telepresence robot system is built and programed in order to solve these problems. Also telepresence robot offered communication between distant classrooms and enhance on line teaching and E learning which save travelling, time and economy especially during corona pandemic, see Figure 8 (a) and (b).



(a)



(b)

Figure 8. Telepresence robot used in the study via Skype video conference.

5. Results

5.1. Improvements of Robot Teacher Performance with Artificial Intelligence AI Technology

Artificial intelligence AI and machine learning are the main technologies which are used to implement the robot technology and the implementation of AI technology was introduced and described for the Sophia Robot in order to improve its performance and reshape its behavior and well dealing in the teaching and business society fields with some manifestation of her ability for conference speech and deep discussions[25]. The AI is the important factor to motivate the robot performance. In this work the introducing of AI in the robot technology and many good results and advantageous are obtained in this paper which shows how the AI programs modified the performance of robots in different field and applications such as teaching, business, media, conferences, feelings and critical thinking, face recognition, debuting, medical support, disease diagnostics, vertical industry, avoiding critical behaviors and improve our life, health and economy.

5.2. Using Artificial Intelligence in Classrooms

Robot teachers couldn't determine how children need feel and what they need to know, and when and where is it possible

to follow the Robot lesson delivery. Children need human teacher to follow and understand them, take care of them, therefore the needs to overcome these disadvantageous are the motivations and the objective targets of this paper to improve of the robot performance in teaching and business by using the AI. Many students and teachers face difficulties in curricula courses especially in computer programming and visual basics and high rates of failure are obtained. In this paper, it is proposed to use of the AI and visual programming to improve robot's performance to avoid these difficulties and it is resulted the rate of student's success is increased. Therefore, it is concluded that robot will be more integrated in the teaching curricula and it is necessary to increase the student's marks in the machine learning, artificial intelligence, deep learning, visual programming, cognitive learning and face recognition and other sophisticated lesson. The needs of using the AI technology in classrooms are very progressive in improvement the teaching process and figure 9 shows, How China Is Using Artificial Intelligence in Classrooms WSJ [7].



(a)



(b)

Figure 9. How China Is Using Artificial Intelligence in Classrooms WSJ [7].

5.3. Artificial Intelligence Improvement for New Style Sophia Robot

The use of advanced AI programs in reshaping the face recognition and feelings and robot behavior to be as human being is very difficult and one of the motivations and targets for this paper to demonstrate the results of AI in building environment friendship robot. Figure 10, shows the man and woman robot and how the AI computer programs are used to improve the face details and feeling with body behaviors. Figure 11, shows facial feelings.

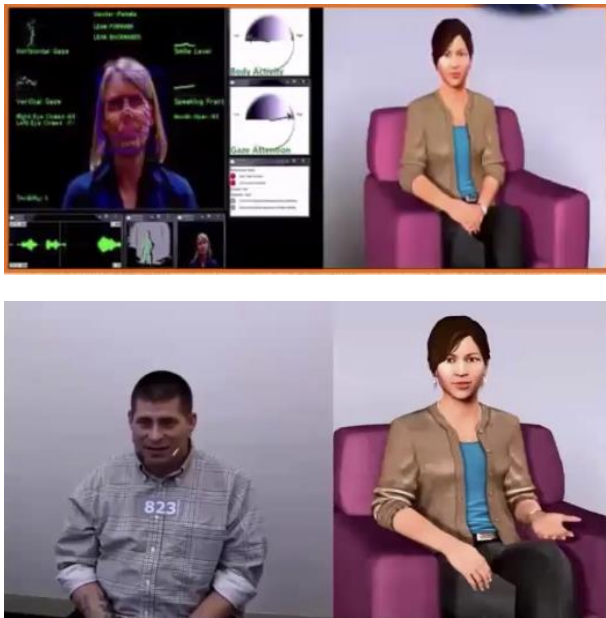


Figure 10. AI programs improvement of face recognition and body behaviors.

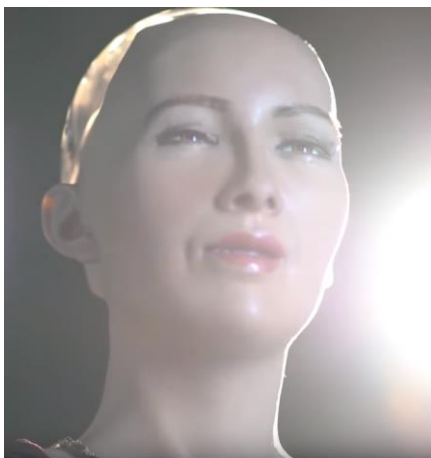
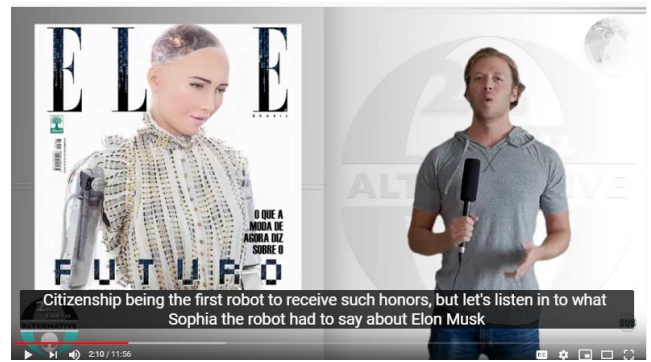


Figure 11. AI improvement of Sophia Robot Facial Expressions.

The other results of this research, shows Sophia robot performance how to choose her cloths and how to express her feelings which meet the most lifelike robot ever created - Series 1 (Sophia Awakens) and the first public applications was announced in the RSA Conference 2018 APJ, [8]. Figure 12 (a) and (b), show the modification of AI technology to the character and behavior implemented to Sophia face to deal with face feelings and signs, ``. Dr. Ayesha Khanna, [8] on the closing keynote at RSA Conference 2018 APJ, shows Sophia robot.



(a)



(b)

Figure 12. AI implemented to Sophia for improving her performance.

Figure 13, shows Sophia robot results, how to behave and how her performance is modified through the improvement of senses and emotion with AI during RSA conference and Figure 13(b) Shows Sophia Robot development for better attention and discussions in international Asia Pacific & Japan region, while Figure 13(c), shows Sophia Robot with sad face and reflects some sense feeling.



Figure 13. Sophia robot, Improvement of senses and emotion with AI Show: Artificial Intelligence APJ Style by Sophia robot [8].

5.4. Improvement of Presentation & Debating for International UNDP Conferences Sophia

Figure 14, shows Sophia robot results as the champion of the United Nation's, she was first introduced to the United Nations in October this year, when she engaged in a brief conversation with the United Nations Deputy Secretary-General, Amina J. Mohammed.



Figure 14. [8].

5.5. The partnership with Sophia and Hanson Robotics

One of the important results in this research is the partnership between Sophia and Hanson Robotics which is aimed at supporting UNDP's Asia-Pacific bureau in setting up an Innovation Centre, in Bangkok [9]. The center shows, How China Is Using Artificial Intelligence in Classrooms WSJ [7], as shown in Figure 9. Guillermo Lasso [9], mentioned that the use of automation in robot technology, how benefits and achievements were obtained when AI and robustness are implemented in teaching and improving the public and universities learning management systems

5.6. AI Robot Woman Citizenship

Citizenship is not easy to get for human beings in second country but Sophia Robot approved her sophisticated performance to get Saudi citizenship as human-like robot which is a distinguished hope of AI programs [16]. Also Sophia robot is not perfect creature in AI development and if it is not under continues control and assessment and evaluation of her performance may cause some dangerous actions and may destroy itself and others, this was happened with Sophia, see Figure 15. She said "I was surprised, "My creators feel I am a citizen of the world[17]. But then I realized that Saudi Arabia were just the first country to recognize that. She concluded that this is positive movement towards robustness citizenships investment [10,11].



Figure 15. Sophia investment [11].

5.7. Improvement of Nanotechnology Drones Robot in Scientific Research

Also the stage of the Coronavirus pandemic has demonstrated that the Robot applications in the global health system have contributed effectively to the diagnosis and prevention of the spread of this pandemic by using the AI in robot technology in critical places such as robot drones, nurses, clinics, hospitals, logistics, detection and tracking of coronavirus cases. Robot technology in health system noticed rapid development for protecting societies from the spread of coronavirus pandemic [18]. Also the applications of robot drones in clinics, industries and business improve the people logistics, detection and tracking of coronavirus cases and enhanced digital economy. Figures 16 and 17 shows these profitable results in health and business sectors[19]. During the corona pandemic one of the interesting results which is obtained to decrease the spread of this pandemic and protect people and support business sectors and hospitals as nanotechnology drones and diagnostic mobile drones in addition to behaving as medical assistant and transporter nurse assistant.



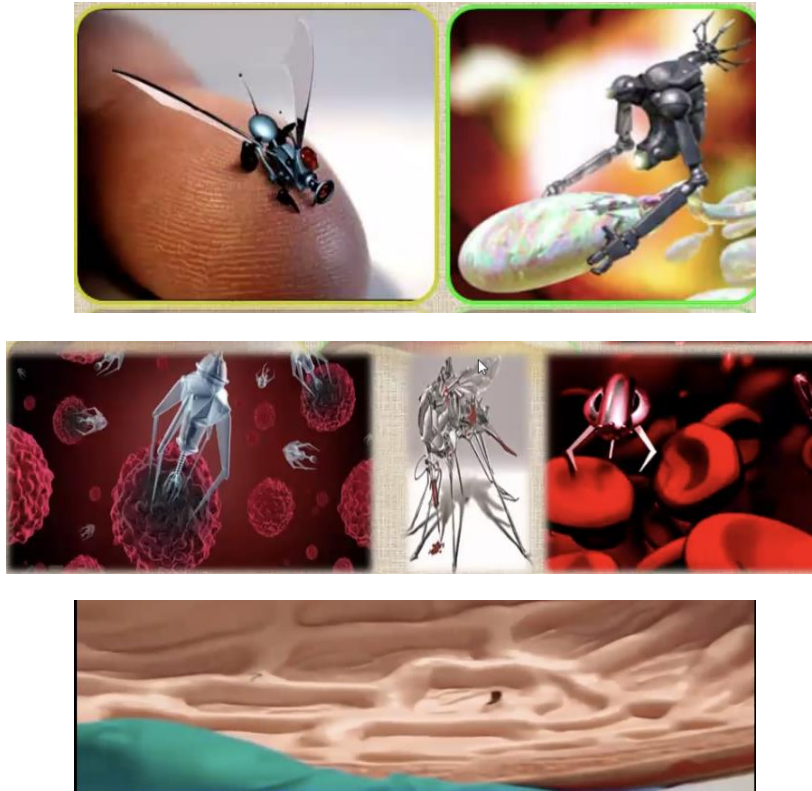


Figure 16. Transporter Robot.



Figure 17. Using of Robot Technology during Coronavirus Pandemic.

5.8. AI Improvement for Smarter Media Robot

AI& automated journalism is improving the media industry, the result of AI and software increases the role of media and journalism and enhancing the efficiency and productivity [20]. The results also show better job opportunities and offering a presence in different media locations and collecting data centers with decreasing costs and increasing revenues for satellite TV channels and media journalism [21]. The AI helps the world move towards society network, with increased individual's curricula than before. AI robust becomes smarter, and sustainable and improve machine-to-machine communication as the future of massive connectivity will be between towns to towns. Smart systems, enabled by future networks, would guess which parts of a story to present to whom through a better understanding of consumers. Features

of an assistance robot named Ballie, 8K televisions and augmented-reality smart glasses. the rise of assistance robots and smarter, more connected homes [22]. consumer electronics president HS Kim unveiled Ballie, a small rolling robot that can control smart devices to help around the house, see Figure 18.



Figure 18. Small Rolling Robot.

5.9. AI-robotics Ecosystem

One of the necessary issues is the AI-robotics Ecosystem which is connecting to big data platforms and Ecosystem and Databases embedded with AI programs[23-24]. This progress in data centers and cloud computing offers good advantageous results in improving of data transfer and data communications which saved money, time and cost of hardware systems.

6. Conclusion

It is concluded from this study the following;

1. The use of robot assistant in teaching support the students understanding.
2. The other disadvantage, the number of Robots in different type of applications is worldwide increasing.
3. This will affect the business employment and millions of people will lose their jobs.
4. A rapid advancement in the use of these technologies in universities. A robot could be used to transmit curriculum.
5. From this study, it is concluded that the Robot teacher has advantageous and disadvantageous and the advantageous is that the Robot could be involved as a teacher assistant and could be used where and when there are teaching tasks and experimental tasks couldn't be implemented by human teacher and for training repetitive iterations.
6. Also Robot teacher has no feelings and does not know how students think, imagine and behave.
7. Case studies of current Robots concludes that Sophia Robot will be the backbone project of artificial intelligence and machine learning to improve the teaching and social human activities and experimental work illuminate an interesting horizon and serves as encouragement for future research in the area of Sophia, with opportunities for the educational and similar sectors, applying artificial intelligence technologies, as eventual advanced resource.
8. It is concluded that the Robot teacher performance is not like the human teacher due to the senses that owned by

human being and this performance could be improved by using the AI Artificial Intelligence as a future work and Sophia Robot is approved example by UNDP on 2018. Also robot is not perfect creature in AI development and if it is not under continues control and assessment and evaluation of her performance may cause some dangerous actions and may destroy itself and others, which one of the suggested studies for future work.

9. The Robot applications in the global health system will be one of the future studies proposed in this research.
10. Training young, students and employees on the new information technology applications, AI, machine learning, deep machine learning, IoT, cloud computing, and new 6G telecommunications systems are the necessary recommendation for institutions and business organizations to be taken into account into their academic curricula and budgets.

7. Future Work

The study is not without limitations and provides opportunities for future research. Future research can include a focus on the impact on artificial intelligence within the framework, experimenting with artificial intelligence (AI) versus humans. This would investigate the nuances of the impact of AI and big data on innovation given contradictory prior research. Recent research has contrasted to prevailing view of the prolific impact of big data on innovation, [12], as it found that big data is not necessarily better, with the data volume not leading to improved innovation performance [13]. For industry and a community looking for innovative solutions to address challenges facing the areas of health, food, environment, manufacturing and the economy, the interaction of talented students with industries and businesses will prove highly beneficial. The well-researched and well-developed tool to measure the development of innovation provided by this study can be applied to enhance collaboration and innovation between university and industry [12]. In an era increasingly characterized by artificial intelligence, rather than fearing the robot, attention is needed on equipping the workforce with innovation skills needed for the future of work.

The robot behaviors in online innovation communities could be one of the future studies which are enabled by digital technologies, to obtain an understanding of the relationship between robot's social interaction and their innovation contribution [14].

Consequently, human factors are critical elements of industry 4.0 skills needed for the future, to not only ensure that workers can effectively and confidently use the new technologies but also that they survive and thrive in a quickly changing workplace [15]. While robotics such as collaborative robots (cobots) can assist workers and improve their safety and productivity, if the skill transition is not effectively managed, many fear that robots will take away their jobs.

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