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The Role of Artificial Intelligence in Medicine Applications

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ABLE BSTRACT

The goal of research on artificial intelligence aims to make machines and software similar to human performance, so measuring the degree to which an artificial intelligence system can resemble human capabilities is used to determine the types of artificial intelligence. Thus, by comparing the machine with humans in terms of versatility and performance, it becomes possible to categorize artificial intelligence, with multiple types of artificial intelligence, where artificial intelligence that can perform human-like functions with equal levels of efficiency will be considered as a sophisticated type of artificial intelligence, while Artificial intelligence with limited functionality and performance is considered a simpler and less sophisticated type Based on this scale, and in general, artificial intelligence can be classified. Depending on the species classification of AI-enabled devices based on their similarity to the human brain, and their ability to "think" and possibly "feel" like humans. According to this classification system, there are four types of artificial intelligence systems: “interactive machines, limited memory machines, theory of mind, and self-aware artificial intelligence.

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1.Introduction

1.1. University education

Education as a lifelong adaptive learner in the event of accelerated medical fields and rapid development of medical knowledge, medical education is not about transferring and remembering biblical knowledge, it is about change. In a society where you can find and learn the knowledge you need yourself; the focus should be on developing efficiency [1,2].

The American Medical Association was founded as part of the "Accelerated Change in Medical Education" initiative in 2013 and has identified the federation as the main goal of improving medical education in the future. [3]. Professor Cotterer, Deputy Dean of Education at the U.S. School of Medicine, says that learning using appropriate methods to achieve goals that help in self-assessment, external and nutrition on learning outcomes, as well as solving problems in a model of self-reflection and modifying the way of learning in the field of deep learning that uses intelligent e-learning to be appropriate for the lives of developed communities as discussed in tables 1,2. Applying a model that uses intelligent automated teaching to teach through intelligent applications and is effectively applied in order to achieve this, with the help of mentors, training, and the right time will lead to accurate evaluation

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results. Some developed countries have also introduced De Medical School through the full application of facial learning in medical education since 2015 [2-5].

As mentioned above, medical education in the world's major medical schools is to lead students through inverted learning, small group discussion, student research, etc. Adaptive lifelong learning through targeted learning, early clinical exposure and field education aims to develop capabilities.[6] As the book of medical journals is known as in addition to formulas, medical sciences include complex social problems and disciplines related to medicine lectures, field visits, magazine clubs, seminars, small group meetings, etc. In a way, by finding a student-led solution or meeting a teacher, introducing educational programs that reflect learning outcomes from the past into the curriculum (Table 2) [1-6]. Vanderbilt Medical School of Medicine is an educational platform that uses intelligent education called "VSTAR" that can use models to help learners and mentors in a timely manner and learn effectively through positive affirmation, thinking and feedback and supports the development of learning competencies. Research courses for students in intelligent learning, critical thinking and the development of scientific thinking skills enable them to make an important contribution through the resources of each university and the university's mission; different programs are offered as mandatory and optional courses in accordance with the goal of talent development [8-10].

Employment and training in the top-rated medical schools in the United States for all students are managed by most students through smart education programs and intensive research applications for students of 12 weeks or more. In addition, many smart curriculum-related educational programs are provided in all classes. For example, the University of California-San Francisco School of Medicine operates basic courses (once a week during the first and second year, the Journals Club, the case study of students using smart applications, a symposium on the content of the basic medical course learned from smart programs and applications for smart education) [11], and indulging in data collection and analysis (two weeks in the middle of the first year, making it constantly evolving as well as discussing various areas of incomplete medical knowledge. Deep exploration (12-20 weeks after the required clinical practice) helps 4 weeks of clinical study design during this period through training, a plan is prepared for future projects) and the final stage is the organization of smart educational programs related to the research of students from first to fourth grade Women develop the ability to derive direct self-derivation of research tasks. Medical schools in European countries offer compulsory and optional courses based on the university. Although research is provided, in fact, critical thinking and self-guidance to students contributes to the development of learning efficiency and is necessary for the development of student-led research projects as shown in Table 1 [4-13].

Table 1- List of interdisciplinary programs for adaptive learning [4-13]

Medical school	Name of program	Format
Harvard University	Advanced integrated science course	4 weeks, 2 courses during 3rd and 4th year
Johns Hopkins University	Topics in interdisciplinary medicine	3–4 days, 16 times over 1–4 years
Stanford University	Translational science intersession	1 day, 4 times during core clinical clerkship, 8-week
University of California, San Francisco	Reflections, research, & advances in patient care	1 day, 8-week intervals during core clinical clerkship
	Inquiry immersion	2 weeks mid 1st year

Table 2- Examples of artificial intelligence related elective courses [1-6]

Medical school	Course name
Boston University	Machine learning for biomedical applications
Harvard University	Computationally-enabled medicine
University of Pittsburgh	Artificial intelligence and machine learning in healthcare
Stanford University	Precision medicine and big data

Data science training: - Data science is the discovery of useful patterns of large amounts of data. It includes a set of principles, problem definitions, algorithms, and processes used such as mathematics, statistics, computer science, information science, machine learning techniques, etc. [9] It uses techniques and theories derived from many fields. 2018 [10] Garg reported that mechanics in the university curriculum at the Faculty of Medicine aim not to become a professional, but to understand and use machine learning. He suggested that digital literacy should be targeted. Therefore, given the limited training time of medical schools, it is possible to summarize the process of intelligent education therefore [10-11]:

1. Machine learning is used in medicine rather than education specifically.
2. The characteristics, retrieval and importance of the data underlying machine learning will be a principle for extracting information.
3. An explanation of the possibilities proposed in applications for intelligent machine learning and knowledge to provide accurate information to patients,
4. Statistics on population health (population health in question) and information technology to predict, assess and manage diseases.
5. To understand the scope of the application of machine learning in medicine and the organization of educational content by focusing on ethical and legal issues by practicing the use of advanced methods.

As a guideline, it should be taken into account whether or not AI technology will be used for medical care and you should train them to see what the goal is. 2019 other study [12] presented a relevant educational program for each stage of medical education. It is suggested that the relationship between the development of educational programs in this field in the university curriculum should be in its infancy. As an example of teaching that is still organized as a mandatory subject in the regular curriculum, however, optional courses are opened, and current integrated courses (seminars, magazine club, case study), diverse education are used through participation in relevant research courses, etc. Examples of optional courses offered at American medical schools are illustrated in Table 4[13-15], at Yonsei University, Ulsan University in schools, etc., and education on relevant content is carried out as an optional subject. One of the reasons why AI-related education is not systematically conducted is because there are not enough specialists to teach relevant content with faculty at medical schools. I recommend colleges hire data science or software experts to enhance education in communication skills and empathy as Topol has shown that the administrative burden is borne by physicians and physician assistants [15-17]. Communication time So that the more time you spend communicating with the patient, the greater the empathy, it is possible to obtain information that artificial intelligence models cannot. ، It will help you customize a treatment that suits your condition. In terms of communication not only communication between patients, doctors and the community included in the current curriculum, but also the application of the learning model and the use of medical information possessed by individual patients it is necessary to develop a communication education that reflects that necessity, etc [14-17].

1.2. Curriculum and operation

Medical schools in Iraq achieved achievements in evaluation and accreditation in 2012. The educational goal is to develop different competencies including educational and research capabilities [19-20]. The standards for evaluating medical education applied from 2019 are It is recommended for education in preparation for changes in the medical environment. However, education in medical schools in clinical laboratories included lectures in basic medicine during the pre-training period, a great deal of medical knowledge is taught mainly through lectures, it is

not easy to add new educational contents with a narrow approach that increases the competencies of creative self-learning and medical knowledge/efficiency of patient treatment [21].

Education for development and the future environment is not enough. Also, grades for promotion are dependent on medical knowledge grades, high number of students who arrive suffer from a lot of stress due to over-learning due to pressure on them [22], and exhausted students are altruistic about the social responsibility of physicians. They have fewer negative views and fatigue may reduce empathy for the patient. [23]. Through these results, the interaction between each component of performance-based learning is developed and future medical care brought about by advances in medical technology such as artificial intelligence and genomics refers to the care of future medical workers who can respond appropriately to the environment, so data science-related learning programs and empathy education can be added [23-25]. It is not only possible with partial curricular modifications such as reinforcement. The amount and content of medical knowledge education should focus on the education period before clinical practice, balanced redistribution during the training period and the balanced development of each competency for education to respond actively to future changes, and students can apply individual educational contents according to their competence and level [26].

The need to develop a flexible and organic curriculum linked to education. In addition to the excess medical knowledge / patient-oriented learning for absolute assessment, which is provided by some medical colleges in Iraq to induce the use of smart applications such as electronic exams and lectures with students in closed groups using video communication technology by phone with group cameras where there will be a variety of the evaluation tools for the process in performance other than medical knowledge and medical competence so that it will be balanced competencies through the introduction of laws and student feedback with activities that it is necessary to work with so that development can occur [27,33,49].

2.The importance of research

Many researchers have tried to increase the work capabilities by inventing the tools they need to facilitate their tasks. Aim is the most advanced challenge for creating and distributing advanced tools for action, using advanced technology aimed at increasing human accuracy at work [17,23]. The practice of medicine, diagnosis and treatment is to obtain as much data as possible on the patient's health and to make decisions for treatment accordingly. Doctors once had to rely on their expertise and study as well as their skills to judge solutions to problems while using the initial tools available on time and limited resources as well [30]. AIM Medical helps us correctly diagnose diseases more efficiently, as well as researchers rely on artificial intelligence to develop medicines, customize appropriate treatments for diseases, and even study human genes to provide appropriate treatments and vaccines for diseases [30,31]. Artificial intelligence has the ability to detect the relationship to a set of data and this has been widely used for many clinical situations, accurately diagnosing results, finding appropriate treatment or predicting diseases [3,33].

3.Search problem

Artificial intelligence is a wide range of technologies and objectives. Its researchers work both to find ways in which systems can be built and applied in the real world. Medicine, on the other hand, is a much older and clearer project about its objectives. Artificial intelligence in hybrid field medicine, which forms through AIM [31,34].
The relationship can be technology-driven. Medicine can provide AI researchers with a complex set of real-world problems that can be developed. To achieve a good result, a lot of early work files in computer-based diagnosis focuses on medicine because it is a good test model. Today, however, advanced AI researchers are working to find solutions to medical problems [35,40]. There are pressing medical problems that need solutions, and artificial intelligence competes with other alternatives to provide those solutions. Success here is measured by the ability to solve real-world problems; success is measured by reductions in patient review or mortality or by improving the efficiency of health care delivery and the correct diagnosis of the patient. Otherwise, doctors who are not interested in technology will have unsatisfactory and poor results [36-38].

Clinical results need to be measured to improve the medical level. Thus, you must find the creation of an electronic patient register so that clinical data can be collected and analyze[30]. However, to achieve this, ways are needed to extract information from an often-complex medical record. Thus, there is a great effort, both in the field of informatics medical and in AIM, to develop terminology coding schemes for electronic patient records to have a valid diagnosis of patients [29,31].

4.The purpose of the search

As a result of what the world is going through today, artificial Intelligence has been used in many forms and disciplines, such as Siri, Alexa, Google, aviation and electronic games. More recently, the use of artificial intelligence in medicine has also begun to improve patient treatment by performing operations more quickly and accurately, providing efficient health care [12,28]. Machine learning is used to evaluate radiation images, pathology slides and

electronic medical records of patients (EMR), which helps in the diagnosis of patients as well as providing them with treatment as well as increasing doctors' skills and competence. Artificial intelligence is perhaps humanity's most complex and talented creation to date. This ignores the fact that the field is still largely unexplored, which means that every amazing artificial intelligence application we see today represents just the tip of the iceberg of artificial intelligence [39,40].

The transformation of artificial intelligence in various industries has led businessmen and the average public to believe that they are about to revolutionize AI research and maximize the potential of artificial intelligence because it provides significant medical services to help doctors properly diagnose the disease as well as the speed of response, reduced reviews of doctors and ease of work for medical staff in hospitals [41].

It is noteworthy that 5% of the world's adult outpatients suffer from a misdiagnosis. 6%-17% of medical accidents in hospitals are the result of misdiagnosis [3,2,40]. Support the need for appropriate education. In this research paper, the current situation and research and development problems in the medical field of AI technology toward medical education will determine the points and respond to changes in medical care [42]..

5. AI Overview

Figure 1 schematically illustrates the relationship between artificial intelligence, machine learning and deep learning for medical students. It's going to be. Machine learning is one way to apply artificial intelligence to medical students. In a statistical way achieve a goal by learning through training. As a learning method for machine learning, where data is entered into a largely multilayered artificial neural network, a learning method that derives results from data jams, the nature of the data gives self-extraction features, high accuracy, diverse and complex tasks, and has other advantages as well as being applicable to all data for many types of patients [8,17,43].

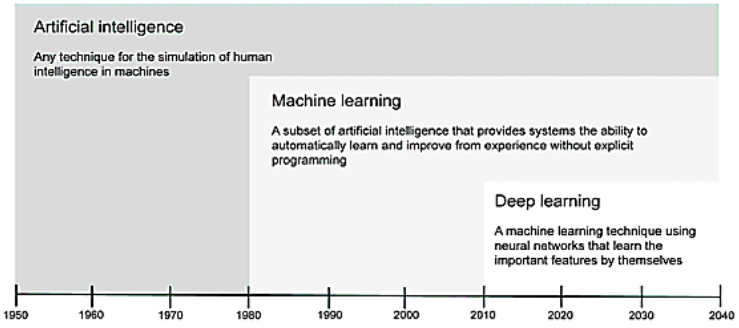

Fig. 1 – Artificial Intelligence, Machine Learning and Deep Learning

5.1.Image analysis

Analysis of images using artificial intelligence (X-rays, ultrasound, computer CT scan, MRI[4,5,44], pathology (primary cancer tissue examination) [6.7], gastrointestinal diseases (laparoscopic imaging) dermatology (cardiac imaging) [11], ophthalmology (optical motion tomography, OCT and bottom of the eye image) [1], etc., is applied in various medical fields and in 2019 reported[13] Recently, from January 2012 to early June 2019, the results of analysis of photo papers using deep learning have a good ability to analyze and are the same as that of experts. In some recent cases, it has been emphasized that the excellent level has been achieved, and medical professionals have been informed of a better ability to distinguish the deep learning model. The existence of previous comparative images of the CT lung image analysis model from the diagnosis of lung cancer, for example, will lead to low-dose treatment[45] as well as the presence of a breast cancer diagnosis by Google Deep Mind Model[15] of radiation showed positive rates, where it was better than the diagnosis of specialists, and an in-depth look at 26 skin lesions representing 80% of skin diseases where the deep learning model was proven using artificial intelligence, He is better than the traditional dermatologist model and also excels in another model of primary care physician [46] as shown in Tables 3,4.. Sometimes the accuracy of the diagnosis is for the model of learning artificial intelligence initially and before development be incorrect, these were for models of cases of skin cancer, which analyzes only one medical condition, such as lung cancer despite the development of the model, there were limitations on its application in actual clinical situations [47]..

Recently, as in Table 4, artificial intelligence has been used for ophthalmology using a technique using OCT [12], skin diseases as well [16], chest X-rays as well, simultaneous analysis and differentiation between different pathological changes in imaging have proved successful in diagnosis models have been developed to simulate image reading in real clinical situations for the purpose of modern trials [17,39].

After developing in the right direction in the analysis of images related to certain diseases, by deep learning of artificial intelligence to diagnose rare genetic childhood diseases through analysis [19] leading to Alzheimer's disease, evaluation of changes in cognitive ability [20], evaluation of coronary blood flow in the heart [21], etc. proved superior and successful [20,39]. They are also used in functional areas. Images that humans cannot see age, sex, and smoking status in the bottom of the eye by detecting nuances in the risk of cardiovascular disease Alzheimer's disease anemia and so on. Mutations in lung cancer and gastrointestinal cancer through data for tissue samples observed fluid instability [26], in chest CT scans to diagnose lung cancer while the molecular phenotype of ovarian cancer through CT scans and the possibility of providing new information for patient care became predictable [28,30.46].

Image analysis through artificial intelligence and deep learning, which has evolved rapidly since 2016 and is still in the R&D phase, offers licenses in many areas and has reached the stage of use. In the United States and developed artificial intelligence countries including Japan and Korea, in 2014 AliveCor an algorithm that automatically analyzed atrial fibrillation was introduced in AI-related products after receiving FDA approval and the number of permits was 4 in 2016, 8 in 2017, 28 in 2018 and 22 in 2019. There is a growing trend. Including products approved after July 2020 [36-44].

Areas of application of FDA-approved AI models are not only image analysis, but also ECG. Chart analysis, hyperactivity disorder and attention deficit, autism in children, sleep disorders, epilepsy and in the field of mental illnesses such as dementia, blood sugar, total blood count, iron concentration in the liver back examination area, fall in the elderly, analysis of eye movement, calculation of coronary blood flow, hospitalization monitoring of the patient's physiological parameters, and recommendation of insulin dose for diabetics, through CT data covering different areas of the patient Such as calculating coronary artery calcification (Table 3) [7,14,19,24].

Table 3 -List of the Food and Drug Administration approved artificial intelligence models since September 2019 [7,14,19,24].

Approval date	Company	Description
2019. 9	DreaMed Diabetes	Insulin delivery recommendations
	GE Healthcare	Triage of pneumothorax patients in portable chest X-ray
	HeartFlow	Modeling of coronary artery disease
2019.10	Biofourmis	Monitoring of vital signs in ambulatory patients
	HeartVista	Cardiac MRI analysis
	Omega Medical Imaging	Diminution of radiation exposure during cardiac fluorography
	Subtle Medical	Improvement of brain MRI image
	HealthLytix	Detection of prostate cancer in MR
2019.11	Hologic	Diminution of image volume for breast tomography
	Ultromics	Analysis of echocardiography
	Zebra Medical Vision	Pleural effusion detection in chest X-ray
	Sight Diagnostics	Complete blood count analysis
2019.12		

In developed countries (Europe and Japan), starting with the Vuno bone aging detection system in 2018, as of 2019, 13 products have been approved by the Ministry of Food and Pharmaceutical Safety [30,33,45].

Table 4 - Most licensed products are complementary medications that require a final judgment by a doctor.[17-30].

Year	Company and product name	Description
2018	Infomeditec NeuroAI	Dementia prediction from brain MRI
	JLK UNISTRO	Brain infarction pattern analysis in CT and MRI
2019	Lunit Insight CXR1	Lung nodule detection in chest X-ray
	Vuno BoneAge	Bone age diagnosis
	DeepNoid Deepspine	Lumbar compression fracture in X-ray
	JLK Inspection	ASTOSCAN Brain aging prediction in brain three-dimensional MRI
	JLK Inspection Colonoscopy	Colonoscopic image analysis
	JLK Inspection Gastroscopy	Gastroscopic image analysis
	JLK Inspection Lung CT	Nodule detection in lung
	Lunit Insight MMG	Nodule detection in breast mammography
	Samsung Electronics ALND	Lung nodule in chest X-ray
	Vuno Chest X-ray	Image analysis of chest X-ray
	Vuno Deepbrain	Dementia diagnosis

Although it is a medical device, IDx-DR (IDx Technologies Inc., Coralville, IA, USA) that diagnoses diabetic retinopathy is a specific imaging device (Topcon NW400; Topcon Medical Systems Inc., Oakland, New Jersey, USA) by analyzing retinal images taken, the patient's condition can be examined by a specialist
Judging independently whether this is necessary or at the level of simple observation without the intervention of a doctor may be done. In addition, in-depth approval by the Food and Drug Administration (FDA) since 2019 the learning model is installed in the video device and presented to the user.

Currently, suture robots are being developed in the field of surgery [30], rather than directly participating in the process, and patient information is available through information on the patient's condition in a comprehensive real-time intraoperative analysis, [17,23]. In addition, they are used to comply with medications for chronic diseases. In 2018, at the University of California - San Francisco and Chicago in deep learning models, university hospital electronic medical records were individually selected, and data on disease diagnoses were recorded at final discharge to show the results of high-accuracy predictions from the current model. An AI model for pediatric disease diagnosis developed for years of clinical experience in most patient groups for a pediatrician with years of clinical experience where the use of AI was more accurate than for a pediatrician with years of experience [32]. Google DeepMind uses EMR records from patients admitted to a US veterans hospital using AI technology reported to predict acute kidney injury 48 hours before [4,33]. This technique is used to treat acute kidney failure that requires dialysis. In many cases, the predictive rate of onset before 48 hours was 90%, and of all acute kidney types in escalation to twice the value, the predictive rate was 55.8%, with one patient out of three. They are warned [22]. In addition to patients who underwent surgery from the date of discharge [34], sepsis in the intensive care unit [35], UK Biobank data, cardiovascular disease risk in people without a history of cardiovascular disease [36], probability Cardiac arrest in in-hospital patients, prognosis of ICU patients There are models that predict this [26].
In the field of health care, a large amount of data has been obtained using smart phone devices that can be used through continuous data analysis, remote management of the patient's health status, and can be used for prevention and prediction of the risk of disease. [39]. Previous study [40] reported that in people without diabetes, analysis of gut bacteria measured blood glucose, type and amount of food intake, and bedtime collected from blood test results is an 'artificial intelligence' machine learning model that predicts the pattern of increase in sugar in the blood. This model was applied to a different group than the group used to develop the model [13,15].

Similar accuracy was demonstrated, and a change was observed in the distribution of microorganisms [40] Improved medical management and management system by automating repetitive tasks and diverse directions

using chatbot automation and standardization of medical records [21], and medical devices to improve performance (image quality of imaging equipment, treatment protocol radiological), patient classification and hospital resource management, patient safety management using computer vision (falls, ICU monitoring, etc.), monitoring and teaching of surgical procedures, etc. Used in one area and in the field of drug development from the drug design stage to toxicity prediction, where a patient group is selected for safety testing, it can be used to develop drugs in various areas such as detecting post-marketing side effects for example, the search period for a new drug usually takes more than 5 years, but when artificial intelligence is used, this period of time is shortened [43-45,47]. The development of an agonist for HT1A) to treat obsessive-compulsive disorder through the use of artificial intelligence where there is a case in which the first phase of clinical trials began [46], it was discovered that antibacterial chemicals can kill bacteria in the body and was resistant to antibiotics [47].

5.2. Principles and Technical Problems of Deep Learning

The principle of deep learning

Deep learning, the most widely used machine learning model in the medical field and this is a brief explanation of the basic principle as follows [50-53]: -

Artificial Neural Networks:

It is a model of a network of nodes that act as problem-solving cells by changing the strength of the link through deep learning of artificial intelligence where the artificial neural network contains an input layer, a hidden layer and an output layer. It consists of (output layer) (Figure 2B). In the input layer, where each node matches the input variable is worth 1:1 and the number of hidden layers 2 if abnormal, it is called a deep neural network [50-53]
The nodes in the hidden layer and the output layer contain different inputs from the previous layer. We convert the input value in the process (clamp) between the value (input, xi) and each function node to calculate the total multiplied by weight (wi) and how to take out the weighted total of the input contract. Includes activation function to select (Figure 2A, C). Arbitrary constant to adjust output through activation function [53,54].

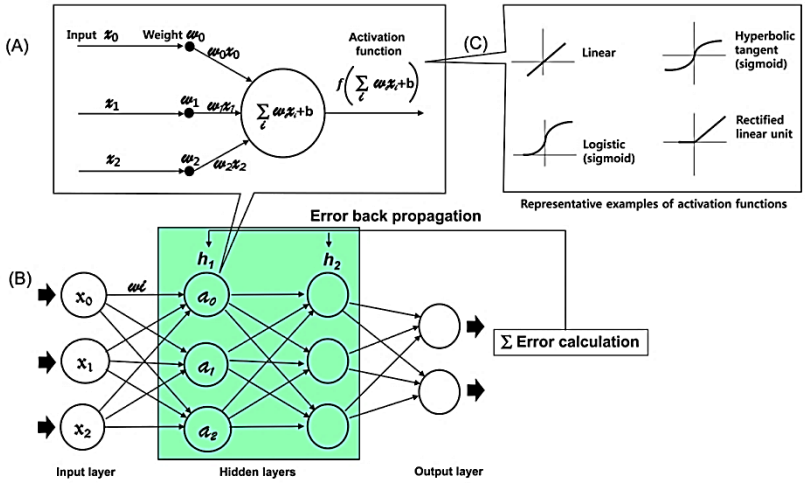

Fig. 2 – New model of Artificial Neural Networks

Researchers can modify it for better results by introducing bias. Bias values usually start at 1.0, but can be negative in some situations. Different changes can be made from (Figure 2a). Deep learning of artificial neural networks depends on the number of nodes and layers, connecting each node. Modify weights and biases (Figure 2a), how to change the values entered into the node type activation function that determines whether you want processing (Figure 2c) and the method of ordering the layer and the method of communication between the node (neural network) architecture) of the product obtained from a large amount of data through a combination of reduced error by repeating the repeated error [55]. This is achieved by deriving an improved result using an artificial nerve based on the network structure based on the way the nodes communicate, pre-processing data, layer composition, etc. This is achieved by deriving an improved result using an artificial nerve based on the method of communication between nodes, pre-data processing, layer formation and object recognition, and representative types are different types based on televic neural networks that are mainly used for analysis, etc [37-49].

The recurrent neural network is mainly used to process natural language, speech recognition, etc. [50] It analyzes images or sounds of the generative antagonist network with the ability to generate cells for the network. Even without specialized knowledge in data science, when the deep learning model is formalized through research, a variety of global information technology (technology information) is used for machine learning (autoML) and application software provided by companies where a programming interface (API) is provided. Previous Report [51] becomes google's autoML, through which medical imaging images can be significantly recognized.

6.Recommendations

The need and direction of change in medical education in the future, the use of machine learning in the medical system will become more widespread and a significant change in medical care can be expected. Wartman and Combs found that future med-care properties [53] are:

1. The patient creates an environment for providing medical care regardless of location,
2. Doctors, nurses, social workers, by various medical providers such as visiting home nurses, physical therapists and family members.
3. Artificial intelligence programs. Is the effective use of data, provided by a variety of sources, including team sponsorship
4. The role of AI models in medicine. It was summarized as management. To actively respond to these changes the importance of the four sessions presented by the World Economic Forum was emphasized as a necessary efficiency (critical thinking, communication, Cooperation and creativity). Changes in education and related forms are necessary for development and some European universities have demonstrated the need to teach artificial intelligence, particularly in medical schools and pre-medical students, as a result of the Survey on the State of Iraq, and 97% (149/153 people) of respondents said it was necessary. According to a survey of students at the University of Medicine, 73% of students felt the need for additional education to better prepare for medical creativity, 44% of the areas they thought needed to be educated were advanced science and data science statistics, 36% of the population was selected. However, in preparation for new technologies in medicine, in the questionnaire asking how useful the education students receive and the specialties only 18% of respondents said they found it very useful, showed the need to develop the curriculum. In order to respond to medical changes resulting from recent developments in artificial intelligence technology,[52] the representative of the American Medical Association was presented by the Council of Delegates [54] and the NHS in the UK. [55] The contents of education are as follows:

1. Education through artificial intelligence helps to understand the principles of medicine and extracts useful information from medical knowledge, integrates, interprets, diversifies it and increases the ability to progress to the situation.
2. Continuous results analysis and performance improvement helps the ability to self-directed learning to improve education for medical school students
3. Understanding the principles of intelligent machine learning explains the information provided by machine learning and recognizes its limits. Which contributes to the statistical knowledge that effectively and critically transmits this to patients.
4. Through AI models, real-time monitoring has been obtained, and the ability to provide more accurate medical care based on a large amount of data.
5. Competence in various medical fields when selecting and applying appropriate machine learning models
6. Communication with members of the medical staff including AI models and the ability to collaborate and manage the complexity between them
7. Empathy for the condition of a particular patient individually and the ability to communicate with them

7 .Conclusion

Artificial intelligence technology, including deep learning, is advancing rapidly in diagnosis and treatment as well as diagnosis, risk prediction, health indicators, surveillance, drug development, improved medical and other efficiency in various medical fields. Applied techniques are being developed. Some of these techniques have been officially approved and used in the medical field, and these changes are accelerating daily. A significant change in the medical environment is expected. However, AI technology continues to evolve in order to apply it in a positive direction to improve the quality of treatment and artificial Future search intelligence in various actual medical fields different from model development environment and algorithms including training data and algorithm transparency through it is necessary to identify technical problems and objectively verify the effectiveness of the system.
Furthermore, these models can improve the quality of care and clinical outcomes of patients. They should also be considered. In addition, security with medical technology and maintenance of regulatory and administrative

systems in the spread of AI technology it is necessary to review various areas such as change. of these medical environments.

A systematic study of medical staff who can actively adapt to rapid changes in human education is required. The extraction of meaningful knowledge of a large amount of information to increase the efficiency and ability of data science in order to empathize with patients and related medical fields in order to educate the ability to communicate effectively with the community, and in the Faculty of Medicine a comprehensive review of university curricula is required, and even after graduation, actual clinical in each specialized field, it is necessary to use artificial intelligence models correctly in a specialized training program.

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