HOW PERSONALIZED ARTIFICIAL INTELLIGENCE IS ADVANCING TREATMENT OF DIABETES

Nik Tehrani, Ph.D.

International Technological University and DynoSense Corp.

Corresponding Author:

Nik Tehrani, Ph.D.

39270 Paseo Padre PKWY #424

Fremont, CA 94538

Email: nik@niktehrani.com

ABSTRACT

The future of healthcare is connected to multifaceted, advanced artificial intelligence (AI) which collects patient data that lead to providing personalized, interactive health solutions This is directly relevant to the over 30 million people (9.4% of the US population) who have been diagnosed with type 2 diabetes in the United States. The future of health has to do with multi-layered, advanced personalization. AI has the potential to analyze massive amounts of patient information that would otherwise take a large staff and resources to accomplish. An immense system of data can connect indications to causes can allow AI to create an intricate guide of the individual's condition and give a customized solution for clinical procedures.Deep learning ophthalmology AI technology can diagnose diabetic retinopathy, AI has the potential to better identify selection of diabetic patients for clinical trials to help identify safety and efficacy issues of new medications.

Keywords: AI artificial intelligence, diabetes, remote health monitoring, deep learning technology, eye disease, diabetic retinopathy

Introduction

The future of healthcareis connected tomultifaceted, advanced artificial intelligence (AI) which collects patient data that lead to providing personalized, interactive health solutions [1].This is directly relevant to the over 30 million people (9.4% of the US population) who have been diagnosed with type 2 diabetes in the United States [1] [2].The future of health has to do with multi-layered, advanced personalization[1]. The type of personalization is not only physiological and biological, but also involves understanding who the patient is in terms of lifestyle, i.e., behavior, culture, actions and motivations[1].By gaining understanding of the total person, caregivers can holistically match the patient with specific possibilities in scientific knowledge

gleaned from scientific and medical papers and guidelines and interventions used to treat diabetes[1].

AI Diabetic Health Monitoring

New uses for artificial intelligence to diagnose and treat diabetes have risen in the health care industry, such as IBM's Watson Health system, which assesses massive quantities of patient data to provide guidance on medical decisions, as well as DynoSense Corp.'s remote health monitoring system that gathers cloud-based personalized patient data that can help predict changes in health that would require a need for action by caregivers. Other companies have also developed AI technologies that provide adaptive learning and medical knowledge that offer guidance to caregivers based on patients' health profiles. Peer-reviewed research suggests that Lark Health Coach, an AI chronic disease platformcan aide in the prevention of diabetes. Lark provides disease prevention and managementby monitoring a patient's health using phone sensors and integrated health devices[3] [4]. One-on-one text based communication imitatesempathetic counseling to help steer a patient toward healthier options[3] [4].AI has the potential to analyze massive amounts of patient information that would otherwise take a large staff and resources to accomplish. For diabetic patients, and others, this is tantamount to receiving a doctor's care every day [1].

Health Assisting AI: Diabetic Retinopathy

People who have diabetes are at risk for diabetic retinopathy, which can cause blindness if not treated properly [5]. Artificial intelligence, such as Google Brain, Machine Learning, and Microsoft Intelligent Network for Eye care (MINE)can detect diabetic retinopathy through dilated eye exams, even if there are not vision related symptoms[6]. A doctor can use a camera to take images of the back of the eye (retina) to look for signs of diabetic retinopathy, such as lesions or hemorrhages[5].

Deep learning ophthalmology technology used for eye care can diagnose and treat patients more efficiently, since without deep learning technology for diseases of the eye, doctors would have toreview a multitude of photos[5]. Also, eye doctors in remote areas can use telemedicine to take images of their patients' retinas and transmit the images to ophthalmologists in other locationsfor diagnostics[5]. This approach will allow eye disease analysis to be faster and better, with positive benefits for diabetes care [5], since it would enable patients to receive ophthalmologic diagnostics without travelling to a specialist[5].It is predicted that, with better AI technology, a person could snap a cellphone selfie for a retinal eye screening[5].

AI and Clinical Procedures

Presently, AI portable applications can cover a vast piece of outpatient and clinical administrations, allowing for specialists to take care of more basic cases. AIcan help make patient diagnoses fasterby finding relevant data that doctors need to treat a patient and present it in a succinct, easily understandable format[7]. AI can comb through a patient's history related to a particular disease and link to that patient's other histories such as high blood pressure, coronary

blockages, history of smoking, and prior pulmonary embolism[7]. Such information might otherwise take lengthy research by the physician who does not have time to do so[7].

AI provides essential healthcare by analyzing patient data, and once it is actionable and meaningful, the information istransmitted to the patient and a caregiver.This results in an immense system of data that connects indications to causes. The machine learning calculationscreate an intricate guide of the individual's condition and give a customized solution. AI proposes steps and measures to cure the ailment, including cautioning and notifying the individuals when they have to see a specialist.

Many technologies have been implemented in health monitoring systems and devices. DynoSense Corp. has developed a unique and efficient preventive care solution to help consumers, providers, and insurance companies to make smarter decisions, improve health, enhance productivity, and save lives[8].DynoSense's technology allows patients to monitor 33 health metrics at home with a single action in less than 60 seconds, including all the critical vital signs [8]

AI and New Drug Discovery

New uses for AI and machine learning in drug discovery are continually being developed. This technology has the potential for providing mechanistic insights to many diseases, including diabetes, thereby leading to better identification of selection of patients for clinical trials to help identify safety and efficacy issues with compounds[9]. The ability to tap into a wider chemical space to select the best molecules for drug discovery can lead to innovative compound design and a maintainable channel of new medicines[9]. Data Mining, Business Intelligence, Sensing, Ubiquity, Intelligent Agents and Pervasiveness in Medicine, can put effort with new cures and new information for health experts[10] [11].

Conclusion

In general, data innovation can help enhancing human health and life span. AI intelligent software can be conveyed with the end goal to enhance medicalresearch, illness counteractive action, and healthcare benefit delivery.
AI is upgrading human endeavors to enhance the general quality and accessibility of health administration.

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