

Trends and Technology of Artificial Intelligence used in Health Care Industries

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Abstract: Artificial intelligence plays one of the biggest roles in today's technological world. This study is based on several real-world exemplifications of AI operations in healthcare. While AI is being embraced appreciatively by healthcare providers, its operations give both the romantic perspective (new openings) and the dystopian view (challenges to overcome). We bandy the details of those openings and challenges of the smart wearable AI devices to give a balanced view of the value of AI operations in healthcare. We have collected different trends and technologies which are playing an important role in healthcare, further we have done detailed research on smart wearables and how it is helping us to stay updated on our health and keep track of our daily calorie intake.

Keywords: Artificial Intelligence, Smart wearables, Healthcare development, calorie count

1. INTRODUCTION AND LITERATURE REVIEW

[1] The article represents a theory of data science and the challenges and cavities of dealing with big data. The review fits well with recent developments in knowledge modelling and the semantic web, the article also tells about the usefulness of machine learning for discovering interesting patterns. It also tells about the role of big data in the automated world by solving predictive models. [2] This research talks about a revolution that will transform supply chain design and management and the opportunities for research where supply chain management (SCM) intersects with data science, predictive analytics, and big data, the author examines some different applications of data science, predictive analytics and big data and provide some example of research questions. [3] Since the tourism industry is one of the fastest-growing industries, the article states how a large amount of tourism data needs to be systematically analysed to gain significant insights into the science and business sectors. Data science is classified into seven distinct phases and finally, the future of data science in the tourism industry is discussed. [4] In this paper, the author reviewed the recently born data wisdom approaches to defying COVID-19, including the estimation of epidemiological parameters, digital contact dogging, opinion, policy- timber, resource allocation, threat assessment, internal health surveillance, social media analytics, medicine repurposing and medicine development. they also compared the new approaches with conventional epidemiological studies and challenges of data wisdom approaches to defying unborn contagious complaint pandemics. [5] The exploration is grounded on Retailing Morality Comparison Between Human and AI

they examined how individualities innocently bear toward AI agents and tone-service machines. Across three studies, they demonstrated that consumers' moral enterprises and behaviors differ when interacting with technologies versus humans. In further documents, the decline in mortality is caused by lower guilt displayed toward new technologies. These findings offer perceptivity into how technological developments impact consumer behaviors and give guidance for businesses and retailers in understanding moral intentions related to the different types of relations in a shopping terrain.

[6] The exploration is grounded on a methodical scoping review of artificial intelligence, telehealth and affiliated technologies. This study aims to review operations of artificial intelligence (AI), telehealth, and other applicable digital health results for public health responses in the healthcare operating terrain amidst the COVID-19 pandemic. There were also many descriptions of operations for the internet of effects (IoT), representing gaps and openings for digital public health. Eventually, the performance of digital health technology for functional operations related to population surveillance and points of entry hasn't been adequately estimated. [7] In this exploration, they propose a theoretical model drawing on the trust-commitment proposition and service quality model by an online check. The findings indicate the significant part of the trust and perceived immolation as factors interceding the goods of perceived convenience, personalization and AI-enabled service quality it also reveals the significant effect of relationship commitment on AI-enabled client experience. In addition, the study has practical counteraccusations for retailers planting AI in services offered to their guests. [8] Immersive virtual reality (IVR) technology has demonstrated positive educational issues related to its use and is gaining traction in educational and training settings. This study was designed to answer the following questions Is IVR a useful tool to learn and exercise problem-working chops? Does IVR give a more engaging experience for children to exercise problem-working chops than on a tablet or a board game? Do problem-working chops learn with IVR technology transfer to real-life (physical game)? The plant that actors' interest and enjoyment scores using IVR were significantly more advanced than actors in the other two conditions. The children in the IVR condition were suitable for learning how to break the problem and transfer their literacy to physical game. [9] The purpose of this chapter is to punctuate the main technologies of Artificial Intelligence used in power systems Also, for each technology mentioned in the chapter there's a brief

description of the power system. Also, these styles ameliorate the operation and productivity of the power system by controlling voltage, stability, power-inflow, and cargo frequencies. The robotization of the power system ensures support for the restoration, fault opinion, operation, and network security. It's necessary to identify the applicable AI fashion to plan, monitor, and control the power system. Eventually, the chapter will punctuate the compactly sustainable side of using AI in power systems. [10] In this journal, we understood the current state of artificial intelligence (AI)-grounded technology operations and their impact on healthcare assiduity. The results indicate that major hospitals are currently using AI-enabled systems to compound medical staff in patient opinion and treatment conditioning for a wide range of conditions. Rapid-fire advances in AI and affiliated technologies will help watch providers produce new value for their cases and ameliorate the effects of their functional processes.

Taking the aforementioned studies listed above this research paper is divided into eight sections in which section 1 gives a literature review section 2 tells about the hypothesis formation section 3 and section 4 show the different trends and technologies of artificial intelligence in healthcare. In section 5 we have done detailed research about how smartwatch is helping in health care, now in the last portion of our research paper section 6, 7, and d 8 tells about the conclusion, limitations and future scope of this research analysis.

1.1 GAPS AND MOTIVATION STUDY

The study of this research will help us to find out the relevant use of artificial intelligence devices in the health care industry. As we know artificial intelligence has helped us in diagnosing various diseases, administrative work of health care and developing new medicines but deep learning artificial intelligence is reinventing modern healthcare through machines that can predict, comprehend, learn and act.

1.2 OBJECTIVES

The main objective of the research paper is to keep track of new AI scientific updating. We will also study the different trends and technologies of artificial intelligence. As we know the use of ai in the smart wearable devices department is in its early stages so new progress and inventions will help us to widen the use of artificial intelligence in future.

1.3 HYPOTHESIS FORMATION

How will artificial intelligence help in future in the health care industry especially in the regular health check-up department and staying updated with health where now humans are working with full force and what are the advantages and disadvantages we are going to face in future

1.4 RESEARCH METHODOLOGY

According to the trends which are going on, we can say

that Artificial Intelligence is transubstantiating day by day and also enhancing itself according to the time, and AI is playing an important part starting from robotic surgery to workflow operation but When it comes to our health, When it matters of life and death, the work of AI to ameliorate issues is veritably reliable and got success. But there's still important to overcome to come to an AI-dependent healthcare assiduity, especially data sequestration enterprises and crimes of machines but there's sufficient support from those governments, technology companies, and healthcare diligence that are ready to invest and test out AI-powered tools and results.

2 FORMULATED OUTCOME

According to exploration, we can say that AI is one of the biggest trends in healthcare assiduity and different technologies are still in the exploration and development stages. As we know artificial intelligence has formally started doing the work sophisticated at doing what humans do, but more efficiently, snappily and at a minimum cost. The eventuality for both AI and robotics in healthcare is vast and in no way-ending. Just like in our everyday lives, AI and robotics are decreasingly a part of our healthcare ecosystem.

3 TRENDS OF ARTIFICIAL INTELLIGENCE IN THE HEALTHCARE

3.1 Artificial Intelligence's role against covid:

The global epidemic has had a profound impact on our society, but cutting-edge technology has helped us stay ahead of the wind. In fact, a company from Toronto, Canada was suitable to prognosticate that COVID-19 would spread worldwide. By surveying media sources in over 65 different languages daily, their operation called Blue-Dot can ascertain dangerous outbreaks in what's nearly real-time. AI has also been helpful in assaying crowd temperature data. This makes thermal screening a much more feasible option for relating potentially characteristic individualities. Advances in AI-powered facial recognition have also made it feasible toward relating individualities indeed if they're wearing a face mask. It can also descry if the stoner is wearing a mask in the areas where it's obligatory.

3.2 Artificial Intelligence in diagnosis & drug development:

Artificial intelligence has a plenitude of operations outside of treating and responding to the epidemic. AI is incredibly helpful for perfecting effectiveness with information processing and decision timber. In healthcare assiduity, machine literacy is extremely helpful for the development of new medicines and the effectiveness of opinion processes. For those being treated for the good of COVID-19, AI is helping dissect CT reviews to descry pneumonia. Technology developed by Microsoft, dramatically speeds up the process of 3D contouring of the case, bringing time to completion down to twinkles rather than hours. The design is open-source on GitHub. Project Hanover is another Microsoft AI system meant to index biomedical exploration papers from PubMed. This helps reduce the time for cancer opinion and assists with

deciding on which medicines should be used for each case.

3.3 Artificial Intelligence in mental health:

Artificial intelligence inventions don't just apply to physical health. MIT and Harvard University experimenters have employed machine literacy to track trends and internal health in correlation to the COVID-19 epidemic. By using an AI model, they were suitable to dissect thousands of online Reddit dispatches to find that motifs of suicidality and loneliness had nearly doubled over a period of time. This has the implicit to transfigure our understanding of the internal health of larger populations.

3.4 Natural language processing:

Chatbots have the eventuality to ameliorate the effectiveness of telehealth. Experimenters at UCLA combined chatbot technologies with AI systems to produce a Virtual Interventional Radiologist (VIR). This was intended to help cases tone-diagnose themselves and for aiding croakers in diagnosing those cases. Chatbots powered by Natural Language Processing aren't ready to give a primary opinion, but they can be used to help in the process. They're also well equipped to help gain information from cases before proper treatment can begin. data we carry to the model, the better it'll accomplish. It's all-important that your AI platoon is composed of educated software inventors and data scientists that can work coincidentally to deliver stylish results.

4 TECHNOLOGY OF ARTIFICIAL INTELLIGENCE IN THE HEALTHCARE INDUSTRY

4.1 Smartwatches revolutionizing delivery:

A smartwatch is a constant watch with a micro-computer. The rearmost smartwatches offer a touch-screen-enabled interface that houses colourful operations for everyday use, including a medical app. An ingrained, high-end smartwatch has lapping functions with multi-functional smartphones. Bedded in this bias are AI-enabled health operations that allow people to tone- examine certain important health functions, similar as measuring and detecting blood pressure, diabetic conditions, heart rates, and other health enterprises. They can also suggest particular drugs, diets, and so on, to help the stoner maintain good health.

4.2 Aidoc/MaxQ – CT brain bleed diagnosis:

Late 2018 marked the advertisement from Aidoc that it had been granted the U.S. FDA concurrence of its first AI-grounded workflow result, the opinion of bleeds on the brain. The systems created work with radiologists to flag acute intracranial hemorrhage (ICH), or bleeds on the brain, in CT reviews. With over 75 per cent of all patient care involving cardiovascular conditions, the workload on radiologists is massive. Integration into the health assiduity is simple and won't bear significant IT time and with fresh tackle not needed, it's a simple resource that can be set up and maintained ever. With a result to help workflow optimizations and increase the number of correct and high-quality reviews, the demand for this AI-

enabled technology is anticipated to be huge.

4.3 IDx-DR – Detect signs of diabetic retinopathy:

IDx has evolved an AI individual system, IDx-DR, that autonomously analyses illustrations of the retina for gestures of diabetic retinopathy. The software has entered FDA favor's to be used in the US.

4.4 iCAD – Breast density via mammography:

CAD blazoned the launch of iReveal back in 2015 with the thing to cover bone viscosity via mammography to support accurate opinions in bone cancer webbing. With an estimated 40 women in the US having thick bone towels that can block the mammography from viewing implicit cancerous towels, the issue is huge and a result was imperative. The technology uses AI to assess bone viscosity in order to identify cases that may witness reduced perceptivity to digital mammography due to thick bone towels.

4.5 QuantX – Breast Lesions:

QuantX is the earliest MRI workstation to give an authentic computer-backed opinion, redeeming an AI-grounded set of devices to help radiologists in the estimate and characterization of bone abnormalities. Using MR image data, QuantX uses a deep database of known issues and combines this with advanced machine literacy and quantitative image analysis for real-time analytics during reviews. A fast comprehensive display is seen with all processing on-demand in real-time with rapid-fire display and reformatting of MPR, full MIPs, thin MIPs and deductions. A QI Score, a clinical metric identified to the liability of malice is calculated with the images and regions of interest during reviews. This is paired with an analogous case comparison.

5 COMPARATIVE STUDY ON HOW SMARTWATCH HAS HELPED US TO IMPROVE AND MAINTAIN OUR HEALTH OVER YEARS

Our ultramodern and tech-attentive world allows us to fall into a sedentary life fluently. We're frequently plugged into our computers at work, spend time on a bias at home, and have automated home systems that can turn on our lights or TVs. Yet, technology can also encourage us to ameliorate our health by giving us lesser access to physical remedies, telemedicine, or indeed help us stay on top of our specifics and manage diabetes. Moment, the rise of smartwatches and wearables like the Fitbit and the Apple Watch are revolutionizing healthcare in an entirely new way by allowing us to take charge of our physical and internal well-being right from our wrists.

5.1 SMARTWATCHES ENCOURAGE ACTIVE LIFESTYLES

Wearable devices and smartwatches are snappily getting necessary technologies in the healthcare assiduity. In some cases, smartwatches can cover your heart rate, sleep habits, and physical exertion. For doctors, patients can also take that information and partake it with your croaker

to gain precious sapience around your health to make differences that could ameliorate your overall well-being. Are smartwatches making people more active? A recent check showed that 57 smartwatch possessors started exercising further after copping a wearable device like the Apple Watch or a Fitbit. So, in short, yes. With a wealth of apps available, anyone can snappily jump-start a fitness routine that's at a position designed for them. In terms of exercise shadowing, numerous wearable apps fall into the following orders

Exertion shadowing: Numerous smart devices have erected-in exertion trackers that log your movement. Smartwatch can help track everything from way per day, your heart rate, calories burned, and much further. Exertion shadowing apps also work great because they encourage numerous of us to meet our diurnal fitness pretensions and push our regular physical exertion by displaying trends that set new objects as we progress.

Short Exercises: These apps give you short interval exercises, easy to follow tutorials and progress monitoring you can read from your wrist. Indeed if you only have 10 twinkles a day, using them encourages numerous of us to increase our overall physical exertion.

Exercises on demand: These drill apps allow you to pick the type of fitness routine that works with your schedule and your skill position. You can connect your watch with your phone or another device to get real-time readings of your overall accomplishments and the calories you burned whether you are doing yoga, in a spin class, in strength training at the spa, or a multitude of other conditioning.

5.2 Smartwatches offer substantiated healthcare data

Wearables are revolutionizing the croaker-case relationship by furnishing perceptivity into your well-being that drives practicable care supported by data. You can program your watch to track your sleep, diet, physical exertion, and other health information and partake it with your croaker for better sapience into your overall health. Apple Watches also cover and record precious heart-related information that's saved lives. They also have the eventuality to descry habitual conditions, as well.

5.3 Wearables allow you to set drug monuments

For cases that live with habitual conditions that bear frequent specifics, or anyone that's presently taking one, it's essential to follow the traditional guidelines as directed by your croaker. While cases do their stylish to cleave to their drug schedule, it's easy to miss a cure or forget to refill the commodity. To ensure you're managing your conventions rightly, smartwatch apps are making it indeed easier for us to set monuments that automate and track boluses.

5.4 Your watch may lower healthcare costs

Precautionary care and early complaint discovery are some of the stylish ways to reduce your overall health care costs by waking you of implicit health hazards sooner than latterly. Exploration shows that smartwatches are

perfecting the discovery of certain heart conditions like atrial fibrillation by picking up advising signs beforehand through digital health detectors. Other studies suggest that wearable bias might also be suitable to catch other ails like the common deep freeze. In addition to complaint discovery, smartwatches like the Apple Watch can also cover heart function and other cardiac health issues through individual data and its Electrocardiograms (ECG) function. Discovering an illness and seeking treatment beforehand frequently leads to reduced medical costs.

5.5 Smartwatches allow you to track your diet and calorie input

We all know a healthy diet promotes physical and internal well-being. While we've the stylish intention of sticking to our diets, it's easy for us to lose focus or get distracted. Calorie counting, developing healthy eating habits, mess planning, and sticking to a schedule requires a lot of planning and attention. Fortunately, smartwatches have apps that can track and log your calorie input for each mess, which makes monitoring calories a breath. There are indeed apps that include a wealth of salutary information, with food particulars and the number of calories planted in a typical serving as well. We all know a healthy diet promotes physical and internal well-being.

6 CONCLUSION

AI can really bring new edge and quality to healthcare issues worldwide. Still, gaps and challenges in the healthcare sector reflect deep-confirmed issues around shy backing, weak regulation, inadequate healthcare structure, and deeply bedded socio-artistic practices. These cannot be addressed by AI results alone. Also, the technological possibility cannot be equated to relinquishment. there are some great inventions of AI one of the inventions which we banded in this exploration paper in smart wearable bias. This in turn would indicate that importance of the dominant narrative or explanation for the development of AI in healthcare, in terms of perfecting equity and quality, is doubtful to be addressed through request forces alone these results are more likely to serve populations who formerly have access to high-quality care, generally in metropolises with well-developed digital structure. The effectiveness of these systems will depend on the accurate identification of problems and their matching to applicable results. Presently, there's a threat that results are technology-led rather than problem-led, and they're as a result frequently eyeless to specific contextual requirements or constraints. In order for this bias to gain wide acceptance by health professionals, rigorous exploration on their delicacy, absoluteness and effect on workflow should be conducted before smart watch operations are integrated into clinical practice. Stoner studies to probe ideal functionality, stoner interface design, and usability for a variety of clinical and patient settings are demanded. Farther exploration is needed to understand the impact of smart watch operations on clinical practice.

6 LIMITATIONS

Here are a few important limitations of artificial intelligence in health service

Data bias: Practice of the AI model needs a consequential scale of input eyeing health data or others. Similar bias may do when the data used for training doesn't reflect the target population and when inadequate or deficient data is used to train AI models, there may be unrepresentative data due.

Particular: Health service data are the most sensitive information that can be possessed by an individual about another. In health care, esteeming the sequestration of an existent is a vital ethical principle because sequestration is bound by patient autonomy or tone- government, particular identity and well-being.

The principle of ethical double goods: Considering that wisdom is a backword, certain findings eventually beget damage. This is veritably suitable for special borders in AI. Thus, the principle of double effect ethics must be precisely considered in applying AI, for illustration, stem cell exploration and gene editing.

The problem of heritage related to exploration and biomedical drugs: As with all new scientific ways, biomedical ethical principles must be adhered by AI in healthcare operations. They're autonomy, benefit, non-crime, and justice. They're manifested as concurrence, sequestration, safety, voluntary participation, independent decision timber, etc., which should be considered and rehearsed in any perpetration.

The smartwatch isn't a new concept. Still, with the arrival of Android Wear and Apple Watch, it has attracted wide attention. Research papers regarding healthcare operations of smartwatches are scarce, grounded on our hunt of the literature. In order to expand the range of our review, we searched all material databases available, and we included studies presented in medical conferences, as well as ongoing clinical trials. In the hunt terms, we used smartwatch or smartwatch as the main keywords to ensure a broader content of papers to be considered for addition. Due to the miscellaneous nature of different databases, the quality of the included studies varied greatly. Nonetheless, this review highlights that while there's an eventuality for healthcare operations using smartwatch technology, more rigorous studies of their use in clinical settings are demanded.

7 FUTURESCOPE:

We believe that AI has an important part to play in the healthcare immolations of the future. In the form of machine literacy, it's the primary capability behind the development of perfect drugs, extensively agreed to be a plaintively demanded advance in care. Although early sweating at furnishing opinions and treatment recommendations has proven grueling, we anticipate that AI will eventually master that sphere as well. Given the

rapid-fire advances in AI for imaging analysis, it seems likely that utmost radiology and pathology images will be examined at some point by a machine. Speech and textbook recognition are formerly employed for tasks like patient communication and prisoner of clinical notes, and their operation will increase. It also seems decreasingly clear that AI systems won't replace mortal clinicians on a large scale, but rather will compound their sweats to watch for cases. Over time, mortal clinicians may move toward tasks and job designs that draw on uniquely mortal chops like empathy, persuasion and big-picture integration. Maybe the only healthcare providers who'll lose their jobs overtime maybe those who refuse to work alongside artificial intelligence. Wearable technology has the capacity to unleash broad, far-reaching possibilities in healthcare assiduity. Wearables can help continuously collect inestimable, personalized real-world data to support invention in care delivery and clinical exploration. Using wearables to gather comprehensive physical and behavioral stoner criteria can help identify those at threat of complaint, ameliorate adherence to treatment rules, and enhance the overall care experience. Digital data can also be used to measure case-centered endpoints in clinical trials and experimental studies to determine the factors driving patient issues, enabling a true "digital metamorphosis" in healthcare.

While some healthcare spaces are starting to employ wearables, specific considerations around norms, policy, and design integration must be addressed for them to reach their full eventuality across the healthcare sector.

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