SOUVENIR

NCAI - 2023

NATIONAL CONFERENCE ON
"ARTIFICIAL INTELLIGENCE IN NURSING EDUCATION & PRACTICE"

ORGANISED BY

GOVERNMENT COLLEGE OF NURSING
DURG (C.G.)

PARTICULARS

Programme Schedule
(11-02-2023)

First National Conference on
Theme- "Artificial Intelligence in Nursing Education & Practice: Are we ready?"

Time	Subtheme	Topic	Speaker	Chairperson
08:00am – 09:00am	Registration & Breakfast			
	State Anthem			
09:00am - 10:00am	Panel Discussion	Introduction to AI in Nursing – Scope and Challenges	Panel Experts 1. Dr. (Mrs.) Abhilekha Biswal Principal, PG College of Nursing, Bhilai, Durg (C.G.) 2. Dr. (Mrs.) Shailvina D. Nand, Principal, Apollo College of Nursing, Bilaspur (C.G.) 3. Mrs. Shiny Saju Principal, Govt. College of Nursing, Rajnandgaon (C.G.)	Moderator: Mrs. Sapna Thakur, Associate Professor GCON, Durg
10:00am-11:00am	Inaugural Function & Release of Souvenir			
11:00am-11:15am	Tea Break			
11:15am-12:00 noon	Technical Session-I	AI in Nursing Practice	Dr. Rakesh Sharma Assistant Professor AIIMS College of Nursing, Rishikesh (Uttrakhand)	Mrs. Sunita Verma, Associate Professor GCON, Durg
12:00noon-12:45pm	Technical Session-II	AI in Nursing Education	Dr. Rupa Verma Principal, Sitabai Nargundkar College of Nursing for Women, Nagpur (M.H.)	Mrs. Vijaya Anil, Associate Professor GCON, Durg
12:45pm 01:00pm	AI Demo Session by Mrs. Tripti Sahasrabudhe Co-founder, Customer Delivery Nordic Mojo, (Partner of Finland Pioneering Gaming courses in India)			
01:00pm-01:30pm	Zumba Session by Jackson Dance Studio			
01:30 pm-02:30 pm	Lunch Break			
02:30 pm-03:15 pm	Technical Session-III	AI in Nursing Research	Dr. Naseema Shafqat Associate Professor, AIIMS College of Nursing, Bhopal (M.P.)	Mrs. Kalpana Bhushan Joshi, Associate Professor GCON, Durg
03:15 pm-04:00 pm	AI Model Exhibition: Inter collegiate model competition will be held and the qualifying models will be exhibited in stalls for the participants.			
04:00 pm-04:45 pm	Cultural Events & Certificate Distribution & Valedictory Ceremony			
04:45 pm-05:00 pm	Tea			

भूपेश बघेल
मुख्यमंत्री

Bhupesh Baghel
CHIEF MINISTER

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Do.No.....Date :.....

संदेश

मुझे यह जानकर हार्दिक प्रसन्नता हुई कि शासकीय नर्सिंग महाविद्यालय, दुर्ग द्वारा 'नर्सिंग शिक्षा तथा अभ्यास में आर्टिफिशियल इंटेलीजेंस क्या हम तैयार हैं?' विषय पर राज्य स्तरीय कार्यशाला का आयोजन किया जा रहा है।

आयोजन एवं प्रकाशन अपने उद्देश्यों में सफल हो, इसके लिए मेरी हार्दिक शुभकामनाएं।

(भूपेश बघेल)

टी.एस. सिंहदेव
मंत्री
छत्तीसगढ़ शासन
पंचायत-एवं-ग्रामीण-विकास,
लोक स्वास्थ्य एवं परिवार कल्याण,
चिकित्सा शिक्षा, योजना, आर्थिक-एवं-सांख्यिकी;
बीस सूत्रीय कार्यान्वयन, वाणिज्यिक कर (जी.एस.टी.)

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क्रमांक / 829 /मंत्री/ 2023 रायपुर, दिनांक 4 FEB 2023

:: शुभकामना संदेश ::

मुझे यह जानकर प्रसन्नता हुई कि शासकीय नर्सिंग महाविद्यालय, दुर्ग (छ.ग.) द्वारा एक दिवसीय कार्यशाला "Artificial Intelligence in Nurisng Education & Pratice" का आयोजन किया जा रहा है। निश्चित ही नर्सिंग के क्षेत्र में कृत्रित बुद्धिमत्ता जैसे नित नये तकनीकों व पद्धतियों के प्रचार–प्रसार हेतु यह कार्यशाला सहायक सिद्ध होगा।

इस एक दिवसीय कार्यशाला के सफल आयोजन हेतु मेरी ओर से हार्दिक शुभकामनाएं।

आपका

(टी. एस. सिंहदेव)

प्रति,

प्राचार्य,
शासकीय नर्सिंग महाविद्यालय,
चतुर्थ तल, चंदूलाल चंद्राकर स्मृति शास. चिकित्सा महा. परिसर,
कचांदूर, जिला दुर्ग (छ.ग.)

प्रसन्ना आर
(भा.प्र.से.)
सचिव

छत्तीसगढ़ शासन
लोक स्वास्थ्य एवं परिवार कल्याण
विभाग, चिकित्सा शिक्षा विभाग,
पंचायत एवं ग्रामीण विकास विभाग
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अर्द्धशासकीय पत्र क्रमांक : 346
दिनांक : 06/02/2023

:: बधाई संदेश ::

शासकीय नर्सिंग महाविद्यालय, दुर्ग (छ.ग.) द्वारा एक दिवसीय कार्यशाला 'Artificial Intelligence in Nursing Education & Practice' का आयोजन निश्चित ही छात्र–छात्राओं एवं शिक्षकों की कल्पनाशक्ति को विकसित करेगा। कृत्रिम बुद्धिमत्ता की मदद से मरीजों के देखभाल एवं उपचार पद्धति में एक नये आयाम का कौशल विकास छात्र–छात्राओं में होगा ।

इस एक दिवसीय कार्यशाला के सफल आयोजन के लिए हार्दिक बधाई और शुभकामनाएं ।

(प्रसन्ना आर.)

प्रति,

प्राचार्य,
शासकीय नर्सिंग महाविद्यालय,
चतुर्थ तल, स्व. चंदूलाल चंद्राकर स्मृति,
शासकीय चिकित्सा महाविद्यालय परिसर,
दुर्ग (छ.ग.)।

Dr. A. K. Chandrakar
M.S. (Ophthalmology)

Vice Chancellor
Pt. Deendayal Upadhyay Memorial
Health Sciences & Ayush University
of Chhattisgarh
Atal Nagar, Sector - 40, Raipur (C.G.)
Tel. : 0771 - 2973001

No/DUHS/2023/ 1160 **Raipur, Dated: 02/02/2023**

Message

I am delighted to know that Government College of Nursing Durg is organizing the 1st National conference.

I appreciate the theme " Artificial Intelligence in Nursing Education & Practice: Are we ready?

AI refer to the ability of computers to independently convert data into knowledge to guide decision or autonomous actions.

At the outset I would like to extend my congratulations to the GCON Durg fraternity for the release of the souvenir.

I hope that the deliberation by the eminent speaker will bring conceptual clearity and in depth understanding of the topic which will be of long term relevance.

I also congratulate the organizers for attracting a wide range of papers and input in this field and wish all speakers and delegates most informative and enjoyable conference.

(Dr. A.K. Chandrakar)
Vice–Chancellor
Pt. Deendayal Upadhyay Memorial Health
Sciences & Ayush University of Chhattisgarh

प्रो.(डॉ.) विष्णु दत्त
एम.डी.(रेडियोडायग्नोसिस)
संचालक चिकित्सा शिक्षा

संचालनालय चिकित्सा शिक्षा
पुराना नर्सेस हॉस्टल, डी.के.एस.भवन परिसर
रायपुर, छत्तीसगढ़
टेलीफोन नं. 0771–2234451
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अ.शा.पत्र क्र.1181 रायपुर, दिनांक 06/02/2023

यह जानकर मुझे अत्यंत प्रसन्नता हुई कि शासकीय नर्सिंग महाविद्यालय, दुर्ग द्वारा "Artificial Intelligence in Nursing Education & Practice: Are we ready?" थीम पर सम्मेलन का आयोजन किया जा रहा है। जो कि इस विषय पर राष्ट्रीय स्तर का प्रथम सम्मेलन है।

पिछले कुछ दशकों से नर्सिंग क्षेत्र परिवर्तन के दौर से गुजर रहा है। आधुनिक समय में नर्सों द्वारा अपने संबंधित वार्ड में मरीज की देखभाल के अलावा उनकें एवं उनकें परिजनों के ज्ञानवर्धन का कार्य भी किया जाता है।

Artificial Intelligence को वर्तमान परिप्रेक्ष्य में अक्सर नवीन बिजली की संज्ञा दी जाती है। जिस प्रकार बिजली के आविष्कार ने मनुष्य की जीवनशैली एवं कार्यशैली में अभूतपूर्व परिवर्तन ला दिया उसी प्रकार का परिवर्तन Artificial Intelligence के प्रयोग से इस विश्व में लाया जा सकता है।

प्राचार्या महोदया एवं अन्य शिक्षिकाओं का प्रयास नर्सिंग शिक्षण को सीखने का एक आनंदमय एवं जिज्ञासापूर्ण सफर बनाने का रहा है।

मेरी ओर से संपादकीय टीम एवं शासकीय नर्सिंग महाविद्यालय, दुर्ग के समस्त सदस्यों को स्मारिका तैयार करने के उत्कृष्ट प्रयास करने बधाईयां एवं राष्ट्रीय स्तर के सम्मेलन की शानदार सफलता के लिए शुभकामनाएं देता हूं।

03/02/23
डॉ0 विष्णु दत्त,
संचालक चिकित्सा शिक्षा
छत्तीसगढ़

Dr. Rajesh Hishikar
MBBS, MD

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यह हर्ष एवं गौरव का विषय है कि शासकीय नर्सिंग महाविद्यालय दुर्ग में दिनांक 11/02/2023 को एक कार्यशाला का आयोजन किया जा रहा है।

राष्ट्र की प्रगति में समर्पित संस्थान की प्राचार्य एवं सभी शिक्षिकाओं को इस अवसर पर बधाई देता हूँ।

मरीजों की स्वास्थ्य की सुरक्षा एवं सेवा के उद्देश्य को संस्थान सार्थक कर रहा है।

मरीजों की सेवा एवं स्वास्थ्य के क्षेत्र में अध्यतन विकास को समाहित कर अपने अनुसंधान और विकास में यह कार्यशाला अत्यंत उपयोगी होगी । इसके द्वारा अध्ययन अध्यापन को वैश्विक विज्ञान के समतुल्य करने में संस्थान का प्रयास सराहनीय हैं।

मुझे विश्वास है कि संस्थान भविष्य में भी समाजहित एवं स्वास्थ्य संबंधित जुडें कार्यो के लिये तत्पर रहेगा।

मैं आशा करता हूँ कि स्मारिका में ऐसी सामाग्रियों का समावेश किया जायेगा जो बहुजन हिताय होगा।

समारोह की सफलता एवं उद्देश्य परख स्मारिका के प्रकाशन हेतु मेरी हार्दिक शुभकामनाऐ!!!

कुलसचिव

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// Message //

It gives me immense pleasure to learn that the team of government college of Nursing, Durg is organizing 1st National level conference on the theme-

"AI in nursing education & practice: Are we ready?" Nursing profession is undergoing sea change in its practice over the decade. Today's nurse not only cares for the patients in the ward but also educates the patients and relatives.

Artificial Intelligence (AI) is often described as the new electricity. Just as the invention of electricity transformed the way we live, work & play, AI is poised to transform the world we live in.

It is the Endeavour of the Principal and the entire faculty to make learning a smooth journey full of joy and discovery.

I convey my best wishes and compliments to editorial team as well as entire Government College of Nursing, Durg team for their noteworthy efforts in rolling out the souvenir and a grand success for the national conference.

Dean,
C.C.M.G.M.C.,
Durg

Chhattisgarh Nurses Registration Council
Raipur (C.G)

(Old Nurses Hostel, Directorate of Medical Education, Mantralaya Parisar, Raipur, C.G)

S. No. / N.R.C./2023/ 248 Raipur, Date 6 / 2/2023

Message

I am delighted to know that Government College of Nursing, Durg is organizing 1st National Conference.

I appreciate the theme "Artificial Intelligence in Nursing Education & Practice : Are we ready?

Artificial Intelligence (AI) known as machine intelligence is a branch of computer science that focuses on building and managing technology. AI comprises many health care technologies transforming nurses roles and enhancing patient care.

At the outset I would like to extend my congratulations to the Government college of Nursing, Durg fraternity for the release of the souvenir.

I hope that the deliberation by the eminent speaker will bring conceptual clarity and in depth understanding of the topic which will be of long term relevance.

I also congratulate the organizers for attracting a wide range of papers and input in this field and wish all speakers and delegates most informative and enjoyable conference.

Registrar
Chhattisgarh Nurses Registration Council
Raipur (C.G.)

MESSAGE

It is remarkable to express happiness that I, Rema Rajesh, Associate Professor & Principal, Government College of Nursing Durg along with college faculty with the guidance of ever dynamic Patron Dr. Vishnu Dutt, Director Medical Education, CG Government blessed with the opportunity to organize our first National Conference on "Artificial Intelligence in Nursing Education and Practice: Are we ready?"

Artificial Intelligence (AI) is often described as the new electricity. AI is poised to transform the World we live in. By 2025, research predicts the global AI healthcare spending will equal $ 36.1 billion. Nursing too will be impacted as new AI technologies assume some tasks demanding nurses to act as information integrator, health coach and deliverer of human caring supported by AI technologies. Our conference in this direction will serve as national platform for introducing the new era of technological advancement with AI.

I welcome all renowned nursing experts, speakers and panelists who have accepted our invitation for discussion and mutual deliberations. We are honored with the gathering of esteemed guest, eminent educationist, UG, PG Nursing delegates from various places.

My sincere thanks to Director Sir, DME officials, the organizing committees, the souvenir committee, contributors, advertisers and Mr. Ravindra of Sagar Arts for their support, motivation and untiring efforts without which this conference could not have been structured and executed.

Lastly, I would like to say that "Anything is possible if we are willing to put in our efforts".

Best wishes and warm regards.

Rema Rajesh
M.Phil.(N), M.Sc.(N)
Organizing Chairperson
Associate Professor & Principal
GCON Durg

FROM SOUVENIR COMMITTEE.....

Mrs. Bhavna Chakraborty
Associate Professor GCON, Durg

Mrs. Priyanka Arsola
Demonstrator GCON, Durg

Greetings from the Souvenir Committee of NCAI-2023.

It gives us a great pleasure in writing message to the souvenir that is being published on the occasion of 1st National Conference on the theme "Artificial Intelligence in Nursing education and practice :- Are we Ready" organized by Government Nursing College, Durg .This National AI Platform will be an open data and knowledge cum innovation. This platform will enable all categories of uses for a variety of purpose including training, research, education, competitive, startups for socio- economic goodness. This platform will also catalyze the development of partnership/ collaboration/ participation model in the field of nursing for knowledge sharing, data sharing, innovation, value added AI services for the betterment of clinical practices, education and administration.

We extend our warmest thanks to the authors for their interest, enthusiasm and timely submission of articles and participation in this mega event of more than 450 delegations.

We would like to acknowledge our souvenir committee and organizing committee for making this souvenir come alive.

Mr. Ravindra Singh, Sagar Arts, Bhilai, who have completed the printing work of the souvenir to our satisfaction within the short period available to us deserve special thanks for the ungrudging response and sense of mutual accommodation.

We hereby extend our best wishes on this historic occasion.

ARTIFICIAL INTELLIGENCE IN NURSING EDUCATION

NCAI - 2023

- Dr. Mrs. Rupa A.Verma
Principal
Sitabai Nargundkar College
of Nursing for Women, Nagpur (M.H.)

INTRODUCTION

- Clinical information is vast, complex, constantly changing and requires a refined skill set for practical application during patient care.
- Now more than ever, high-quality nursing care depends on instantaneous processing and decisive action when interacting with abundant volumes of data.
- In fact, the continual demand for real-time analysis, consumption and action against volumes of clinical information has become a new standard in nursing care.

CHALLENGES FACED BY NURSING STUDENTS

- Defective evaluation
- Inadequate facilities

EDUCATIONAL PROCESS

- Inappropriate implementation
- Imprecise need assessment
- Ineffective learning **TEACHER RELATED FACTOR**
- Inappropriate teachers and defectiveness of knowledge transfer method
- Inadequate motivation

LEARNER RELATED FACTOR

- Inadequate motivation
- Lack of participation
- Lack of human resources

Definition of Artificial intelligence

- Artificial intelligence (AI) is an umbrella term used to describe techniques developed to teach computers to mimic human-like cognitive functions like learning, reasoning, communicating and decision-making. (Robert,2019).
- AI is defined as the theory and development of computer systems able to complete tasks that typically require human intelligence, such as visual perception, speech recognition, decision-making, and/or language translation.
- Artificial intelligence (AI) comprises many healthcare technologies transforming nurses' roles and enhancing patient care. In healthcare, AI typically refers to the ability of computers to independently convert data into knowledge to guide decisions or autonomous actions

Examples of Artificial Intelligence

- Google Maps and Ride-Hailing Applications
- Face Detection and recognition
- Text Editors and Autocorrect
- Chatbots
- E-Payments
- Search and Recommendation algorithms
- ETC

Artificial intelligence in education can be defined as:

Artificial Intelligence is a branch of science producing and studying the machines aimed at the stimulation of human intelligence processes. The main objective of AI is to optimize the routine processes, improving their speed and efficiency (provided it has been implemented and supported properly). As a result, the number of companies adopting AI continues to grow worldwide.

Components of Artificial intelligence

- **Learning component** - –Memorizing, solutions to problem, vocabulary, languages
- **Reasoning** -To reason is to allow the platform to draw inferences that fit with the provided situation.
- **Perception** -The element scans any given environment by using different sense-organs, either artificial or real.
- **Language understanding** -AI is developed in a manner that it can easily understand the most commonly used human language, English. This way, the platform allows the computers to understand the different computer programs executed over them easily
- **Problem solving** -The AI's problem-solving ability comprises data, where the solution needs to find x. AI witnesses a considerable variety of problems being addressed in the platform.

Fundamental principle of education artificial intelligence

Adaptive learning-

- It which means the educational methods are tailored to the student's needs and abilities, instead of them all being put in one basket.
- The system will recognize if the student is struggling with the material or perhaps that it's too easy for her — both adjustments can be made at an early stage to prevent performance issues.

Increasing Efficiency

- AI and machine learning empower both teachers and education platforms by almost fully automating many repetitive and data-heavy yet time-sensitive tasks, such as scheduling, assignments, and class management.

Learning Analytics

AI learning in education helps handle immense volumes of data generously accumulated across all educational establishments and eLearning platforms. This data is so immense that a human specialist couldn't process them in years even if they wanted to. ML is a real-life-saver when it comes to gathering and analyzing such big data rapidly.

Predictive Analytic

- Predictive analytics generally means gaining practical insights into possible future events with the clear intention of preventing undesirable moments or advancing beneficial ones.

It tracks:

- Students' progress
- Analyses behavioral patterns
- Evaluates performances to help students unlock their full potential.

Personalized Learning

- Personalized learning remains one of the best, most valuable practices of using machine learning in the education sector at the moment. Before AI applications, it was nearly impossible to process and adjust learning material to fit each individual in a class unless it were one-on-one private lessons.

Benefits Of AI For Students

- 24/7 Access To Learning
- Better Engagement
- Less Pressure

Methods to Start Implementing AI

- ✓ Identify your needs and AI technologies
- ✓ Determine the strategic objectives of AI transformation in your organization
- ✓ Make the right culture, talent, and technology meet
- ✓ Smart ways to control the outcome of AI transformation

Conclusion

Nurse educators in clinical practice and academic institutions around the world have an essential leadership role in preparing nurses and nursing students for the future state of AI. It is evident that AIs are heath systems as they currently exist, and the nursing profession needs to be actively involved in this rapidly evolving process or risk unwanted consequences for both patients and the discipline if this technological revolution proceeds unchecked. Nurse educators need to prepare the profession for a future that in many institutions and settings is already here.

AIHTs are destined to transform health education and delivery, and this process will require education, preparation, and adoption by nurse educators, as well as a strong amount of co-design of these technologies. In collaboration with other health disciplines, nurses are in an ideal position to lead research on AIs. Nurses uniquely understand the complexities of the health environment and can identify the ways patients are best served by technology. A strong educational foundation in AI principles is the first step to ensuring nurses' contribution at all levels of design, implementation, and evaluation of AIs.

ARTIFICIAL INTELLIGENCE IN NURSING EDUCATION

NCAI - 2023

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Today artificial intelligence (AI) is mingled and intertwined in our everyday lives in the form of smart phones, wearable fitness devices, virtual voice assistants and android smart televisions etc. Correspondingly the use of AI within health systems is progressively wide spreading due to their ease of organizing and analysing large amounts clinical and patient data. Rapidly emerging AI technologies are gaining popularity owing to their enormous capacity to recognize patterns leading not only to knowledge generation but also quicker and apt decision making hence better health outcomes.

Artificial intelligence (AI) is not a single entity as such but a common terminology used to define techniques established to create machines to mimic human cognitive functions like learning, calculating, judging, evaluating, communicating, reasoning and executing.

Artificial intelligence can be defined as the software and hardware systems designed by humans that act in the physical or digital dimensions by perceiving or observing their environment by data acquisition, interpretation, reasoning and processing the information and deciding the best action to be taken to achieve the set goals.

TYPES OF ARTIFICIAL INTELLIGENCE

1) Artificial Intelligence: Machines learn to perform tasks, rather than simply carrying out computations that are input by human users for e.g., playing games like checkers and chess, and programs to reproduce language

2) Machine Learning: An approach where a computer algorithm (a set of rules and procedures) is developed to analyze and make predictions from data that is fed into the system e.g., personalized news feeds and traffic prediction maps.

3) Neural Networks : Modeled after the brain in which algorithms process signals via interconnected nodes called artificial neurons mimicking biological nervous systems, to recognize and predict patterns of neural signals involved in brain function.

4) Deep Learning: Uses many layers of computation to form what is described as a deep neural network, capable of learning from large amounts of complex, unstructured data. voicecontrolled virtual assistants as well as self-driving vehicles, which learn to recognize traffic signs

AI RESHAPING NURSING RESEARCH

Nursing research is comprehensive, worldwide, proliferating, competitive arena with ever increasing expectations. Evidences on the current evolution of research suggest that almost 80% the papers on AI research were published in the last 5 years. Academic research in nursing not only silhouettes academic culture ,delivers new information ,detects new zones of knowledge and fills gaps in the existing body of knowledge .The role AI could play in nursing research complement level of intricacy to the health care system with science entrenched in its very core.AI potentially aids the researchers and institutions in avoiding time spent on from simple not so important tasks, boosting the speed and efficiency required in a competitive result -driven ecosphere. AI is most commonly reported used by researchers to solve fine, individual problems like identifying research priorities, forming hypotheses. Revealing “AI is like a tapestry of modern intelligent technologies knit together in strategic fashion that can uplift and create an automated knowledge base”……John Fremont patterns, improving the speed and magnitude of data analysis a with the advancements in web searching and advent of online databases it has become more convenient to 'keep up' with rapidly evolving research. Advanced web searching has empowered people in enhancing their professional growth and is engraved in almost every work environment, predominantly in the higher education especially in terms of supporting teaching and research practices.

Many journals and publishing agencies have steered AI tools for various tasks like selecting the reviewers, scrutinizing the usefulness and worth of the manuscripts, summarizing the study findings and checking plagiarism. Some tools also generate recommendations to assist in evaluating the quality of articles and papers. Even though AI helps the journal editors in condensing the time extent of peer review by thirty percent , the outcome still remains with the editor.

AI-BASED TOOLS USEFUL FOR NURSING RESEARCH

Artificial intelligence has invaded the realm of nursing and scientific research through the search platforms that try to improve the human efforts while searching and retrieving data from multiple sources. currently, numerous. AI has helped in structuring literature searches by sifting through countless abstracts and then picking out those that may be relevant and of interest to the researcher. Gone are the days when searching and briefing research articles were time consuming tasks involving endless efforts. AI-based tools are readily available that have reduced the researchers' efforts in conduction of literature search. Some of them are Google Scholar :It is one of the most commonly used search engines across the world which includes searching through keywords. Even though it provides access to over 200 million research articles, metadata or citation metrics are still over its reach. Nevertheless, researchers from different arenas find it very useful. Semantic Scholar :It is another advanced search engine engineered by the Allen Institute for

Artificial Intelligence (AI2) but is currently restricted to the domains of neuroscience and computer science. It is enriched with advanced filters that can emphasize on specific publications and areas of interest. It can also categorize articles and citations depending on relevance and importance.

Yewno : Yet another innovative AI-based search engine that provides a graphical result of the searches done using analysis of full-text, mathematical semantics, neural networks, and machine-learning algorithms. It has distinguished feature of presenting searches graphically by means of two panels: concept map on the left and context bar on the right. Different colour coded nodes are used like orange nodes located centrally indicate main concepts. Blue nodes point to ideas associated with the main concepts. A double-click on these discloses further connections including the content sources. Instead of keywords, researchers can explore ideas and concepts that can help researches to be more specific and extensive.

Microsoft Academic : It is another search engine that uses search algorithms for retrieval of information's uses elementary filter like name of the author, journal, area of study etc has over 160 million publications to its reach. Advanced versions are being designed to deliver more personalized options. It also aids in compiling a comprehensive list of authors in every subdiscipline.

Sparrho : It is a scholarly search engine that combines machine and human intelligence and has made tremendous progress in the direction of personalizing research searches based on social media platforms and news accretion feeds. The vast database includes patents, conferences, grant announcements, proceeding apart from journal articles. It uses natural language processing in high speed to access and categorize over 50,000 journals in no time. The findings are exceedingly personalized, multidisciplinary, and tracks the interactions of users, tagging and categorizing their share, reads, and saved searches that helps in keeping researchers in touch with advancements specific to their needs. AI based tools not only help in searching the literature or refining the searches they have extended their arena into performing tasks like automatic voicemail transcription, transcribing research notes, grammar and spell checks,editng data etc. .Some of the worth mentions are Spelling and grammar check various apps like Grammarly, spell check, typeright, proofreader is available which help researchers in writing easily though not so perfect in always distinguishing between spellings of some words. It has reduced the burden of editing to a great extent for writers.

RAxter.io is another AI based tool that provides access and also aids in contextualizing published researches.

Trinka: An AI-powered language augmentation and grammar checking tool which is particularly designed for academic writing and offers expert assistance. It not only helps in correcting the grammar and spellings but also provides subjectspecific corrections, style guide preferences, formal tone and syntaxing

EVISE: AI based tool created by Elsevier to back up their editorial process, and accelerate manuscript processing. It has a huge publication of over 1.2 million manuscripts in about 2,500 journals annually. It caters to more than a millionpeer review process with over 350,000 articles being published every year. EVISE not only helps in performs plagiarism-checking for each manuscript submitted but also suggests reviewers depending on content, checks author profiles, scientific performance, conflicts of interest, automatically prepares correspondence, Sends reminders to reviewers, requests substitute reviewers if no response received, pronouncement letters to authors and acknowledgement letters to reviewers.

PROS AND CONS OF USING AI

Undoubtedly AI is very beneficial as a personal aid in performing time consuming everyday research tasks like literature searches data retrieval and summarizing findings of enormous information available.it helps in filtering out the unnecessary information from subject areas that would otherwise be daunting task. Additionally, AI doesn't require emotional elements and while examining different articles it is swifter than humans can in segregating required information through large quantities of data and literature. Certainly, AI has led to innovations, and scientific advancements and helped in performing complex tasks rapidly with minimal errors and defects.AI has made life simpler, relaxed, and progressive by refining and extracting articles according to content not title, recognizing potential peer reviewers online from sources editors might not have taken into account. They have proven useful in fighting plagiarism through natural language processing and identifying funding sources, providing outputs to the sponsors, detecting inaccurate reporting and inappropriate

Statistics. Although there are abundant benefits of AI, scholars and renowned scientists have expressed concerns on its deleterious effects. These worries are genuine and include apprehensions on replacing humans by machines thereby leading to loss of jobs. Too much technological advancements may lead to loss of emotions, sense of satisfaction, reduced sensitivity towards subjects. Inspite of all the concerns on the rise of AI it is evident that it is the key to future, and we need to accept its evolution as catalyst for bringing positive changes in our lives. We need to embrace it with open minds to wade away the fears surrounding its utility. In terms of scientific nursing researches AI, may be a herald for consistent, anecdotal, comprehensive and manageable repository of information. AI enabled research navigation with globalization and personalization not only provides broader access but also curates content explicitly to the personal needs of researchers.

As Stephen Hawkings stated “Computers will overtake humans with AI within 100 years. When that we need to make sure the computers have goals aligned with ours” Let's use our human intelligence to utilize artificial intelligence in our researches in a way and proportion that best suits us.

ARTIFICIAL INTELLIGENCE IN NURSING PRACTICE

NCAI - 2023

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ABSTRACT

Artificial Intelligence (AI) is emerging at a rapid pace and exploring new applications in different healthcare services. Some professionals have concerns over the use of AI, whereas others foresee better work opportunities in the future. Nursing practice and education will be affected, and further data is needed on the knowledge and belief of nurses regarding the incorporation of AI in practice.

In recent years, a vast development of AI applications in all aspects of health care has been noticed. AI technology in nursing practice will enhance nursing care and patient outcome.

Currently, various AI applications are used in nursing care, including patient information mining, voice recognition, probability prediction of physical deterioration activity and health, care collaboration and communication, falls injury, nursing assessment or care needs assessment, nurse's duty rostering or scheduling, and pressure ulcers, etc. However, the future use of AI technology will benefit nurses deliver personalized, evidence-based care and amalgamate relevant data.

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Nature, Concept, scope and Implications in Nursing of Artificial Intelligence (AI)

NCAI - 2023

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Artificial Intelligence (AI) in healthcare isn't new. In fact it's currently used in many ways that are relevant to Nurses. Nurses should be involved in the conceptualization, development and implementation of AI, especially when it impacts Nursing Practice.

In healthcare, AI typically refers to "The ability of computers to independently convert data into knowledge to guide decisions or autonomous actions."

According to Merriam – Webster, AI is defined as a "Machine's capacity to imitate intelligent human behaviors, such as reasoning and problem solving."

AI definitions and context:

In healthcare, AI is typically defined as a tool that autonomously transform clinical data into knowledge used by patients, clinicians and family members to make decisions that otherwise couldn't be efficiently accomplished.

AI definitions:

Machine learning, deep learning and neutral networks are at the heart of artificial intelligence.

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Term	Definition	Application Examples
Machine learning	Machine learning is a type of AI that uses algorithms to analyze raw data and develop computer instructions to achieve objectives such as making predictions, recognizing speeches, translating text, and playing games.	• Disease (e.g., diabetes, heart disease) pre- diction • Early sepsis detection • Automated diagnosis from medical images (e.g., tumor recognition and staging) • Drug discovery • Disease outbreak detection • Personalized healthcare through genomics (e.g., drug therapy)
Deep learning	Deep learning is a subfield of ma - chine learning. A deep learning model is designed to reach the same conclusions as a traditional machine learning algorithm but does so with much less human input. To achieve this, deep learning applications use a layered structure of model elements called an artificial neural network.	
Neural networks	Neural networks are composed of algorithms modeled after human thought processes. These networks are used to recognize patterns from large amounts of data, whether it's alpha - numeric or images.	• Diagnosis confirmation • Clinical ontology/terminology development
Natural language processing	This machine learning field focuses on developing computer algorithms that process and analyze unstructured text or speech data.	• Automated content/qualitative analysis • Use of Twitter data to detect flu outbreaks

Nurses deliver the best possible care by engaging in core practices such as assessment, planning and outcome evaluation. For better understanding, nurses need to know the AI application including Machine Learning, Deep Learning and Natural Language Processing (NLP) and their implications for Nursing Research and Practices, as well as their potential role in improving patient care and health outcomes.

Machine Learning:

The "learning" here refers to software self adjustment that fine tunes an algorithm over time to increase accuracy. The goal of the machine learning tool, and the data it has access to, is determined by it's developer, but how the program uses the data isn't known. The inherent uncertainty is called the 'Black Box.'

Similarly to any dependent tool, a machine learning tool's function and use are only as good as it's data sources. This is where Nurses are needed. Nurses with a boots-on-the-ground perspective understand patient care and the information that's required to make informal clinical decisions. Nurse input improves the applicability and accuracy of machine learning tools.

For e.g. – Wang and colleagues developed a tool to predict fall severity to assist in presenting injury in high-risk patients. This algorithm used data points such as age, sex , race, bone density, procedural data and diagnoses to develop a risk score for the

likelihood of having a fall with severe injury. The researchers used retrospective data to train the model, allowing it to learn and create an accurate prediction score. This example of machine learning shows the potential for creating risk prediction scores that wouldn't be feasible with manual calculations and Electronic Health Record (EHR) – integrated flowcharts.

Deep Learning:

Deep Learning, a subfield of Machine Learning, advances nursing using neutral networks for advanced patterns recognition, which has helped Machine Learning extend to new sources of data, including speech recognition and image analysis by integrating data from many sources, AI can be used to tailor treatments precisely to patient's specific genes, lifestyles and treatment preferences.

for e.g. – Duke university researchers Theiling and Colleagues created sepsis watch, which is trained via deep learning to analyze over 32 million data points to create a patients risk for developing sepsis. If the findings call for action, the hospital's rapid response team is automatically alerted and guided through the first 3 hours of care administration.

Natural Language Processing (NLP):

NLP is the analysis of EHR text data, rather than numbers or other countable elements. It can be used alone or in conjunction with machine learning methods and may contribute to other AI areas; for example, sentiment analysis could be used to determine how positive or negative a clinician or patient feels about a prognosis. Of all AI applications, NLP usually is cited as being the most difficult to adopt because of a lack of formal data intake and reporting.

In nursing, a valuable sources of text data comes from nursing notes, which frequently are rich with clinical information. A wide variety of applications have been developed using nursing notes, including predicting emergency department patient disposition (Sterling and colleagues) uncovering patients financial barriers (Skaljic and colleagues) and predicting falls (Nakatani and colleagues).

In addition to research applications and subsequent decision support, NLP also may refer to voice recognition, such as that found in Siri or Alexa. In healthcare, voice recognition may help with note writing, information retrieval and chart navigation.

Scope & Nursing Implications of AI:

Nurses deliver the best possible care by engaging in care practices such as assessment, planning and outcome evaluation. AI has the potential to help Nurses improve the quality and efficiency of care, benefiting patients and clinicians.

1. Focused Preventive Interventions –

   Bose E and colleagues used two different machine learning feature selection technique like Minimum Redundancy – Maximum Relevance (mRMR) shows promise towards reducing public health nursing documentation burden by identifying the most critical data elements needed to predict risk states.

2. Aid in Nursing care tasks in Hazardous Clinical Environments –

   Zhi Li and colleagues developed a prototype system Tele Robotic Intelligent Nursing Assistant (TRINA) which consists of a mobile manipulator robot, a human operator's console and operator assistance algorithm which automate or partially automate tedious and error-prone tasks. TRINA is designed to assist human nurses and other clinicians to communicate with patient, gather vital signs and perform a wide range of manipulation tasks in a quarantine area, without being exposed to infections diseases. TRINA could successfully perform 26 nursing tasks in a simulated patient rooms. TRINA can act as a surrogate for the human body to allow the operator to perform frequent care giving activities in the quarantine environment.

3. Early detection of complications –

   Park JI and colleagues explained the knowledge discovery and data mining (KDDM) approach using machine learning that was employed to discover knowledge about Hospital-acquired Catheter Associated Urinary Tract Infection (HA-CAUTI)from multiple data sources and predict the patients at risk for HA-CAUTI.

   Wang L and colleagues developed a general predictive model for sevenity of falls among patient populations, using an advanced machine learning method multi-view ensemble learning to efficiently exploit the multidimensional patient data. Their goal was to provide a automatic severity index to predict if a fall will be severe in patients with an appreciable fall risk so that appropriate interventions and more alteration can be provided to those patients and prevent such accidents from happening.

4. Clinical decision making in critical care units –

   Steurbant K used COSARA architecture, an infection surveillance and antibiotic management service platform for the ICU with self-managed components to increase the performance of data retrievals. Physicians and Nurses rely on this data for their decision making. They introduced control loops to provide an automated mechanism to detect low performance and to take action, thereby limiting human technical interventions.

Nursing will be impacted as new AI technologies assume some tasks performed by nurses today. Technology will change how nurses spend time delivering patient care, but the need for nurses will remain. Nursing experience, knowledge and skills will transition to learning new ways of thinking about and processing information – the nurse will become the information integrator, health coach, and deliverer of human caring, supported by AI technologies, not replaced by them.

"AI can not replace human beings BUT….. Human beings can create wonders through AI"

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HISTORY & EVOLUTION OF ARTIFICIAL INTELLIGENCE

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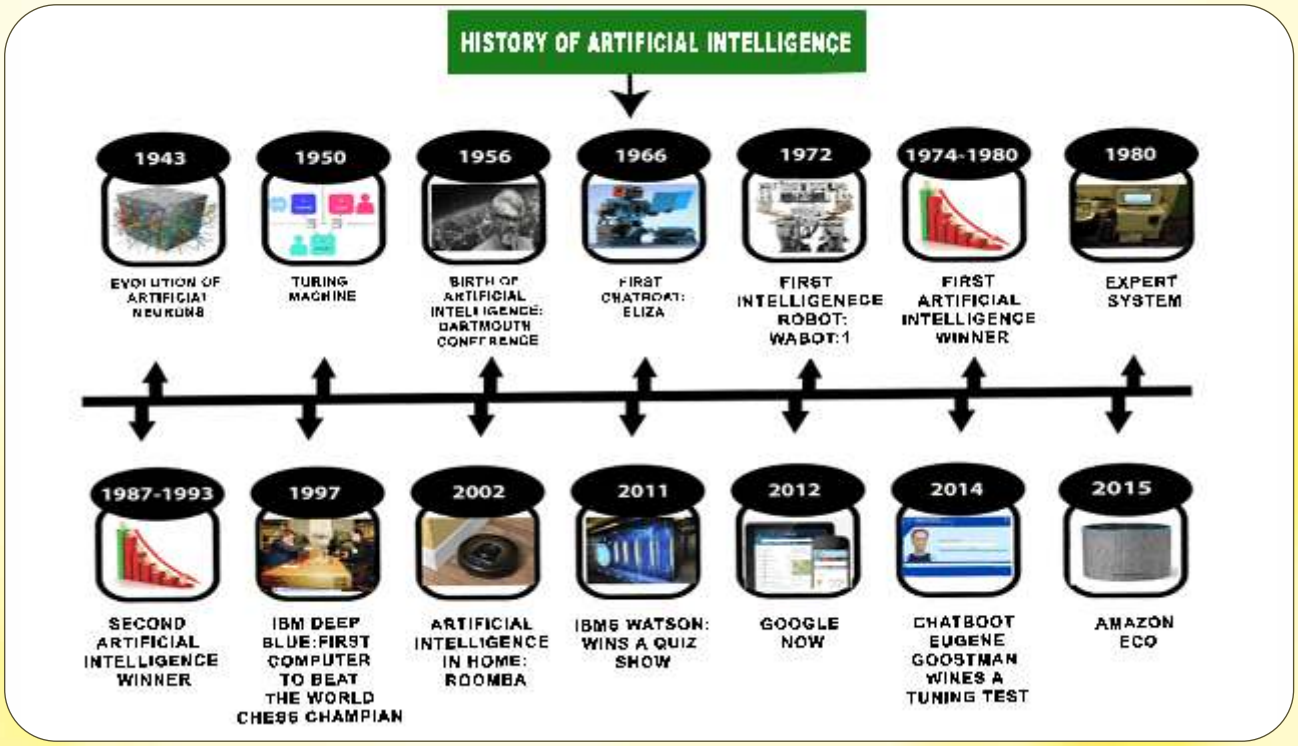
Artificial Intelligence is not a new word and not a new technology for researchers. This technology is much older than you would imagine. Even there are the myths of Mechanical men in Ancient Greek and Egyptian Myths. Following are some milestones in the history of AI which defines the journey from the AI generation to till date development.



Maturation of Artificial Intelligence (1943-1952)

- **Year 1943:** The first work which is now recognized as AI was done by Warren McCulloch and Walter pits in 1943. They proposed a model of **artificial neurons**.
- **Year 1949:** Donald Hebb demonstrated an updating rule for modifying the connection strength between neurons. His rule is now called **Hebbian learning**.
- **Year 1950:** The Alan Turing who was an English mathematician and pioneered Machine learning in 1950. Alan Turing publishes **"Computing Machinery and Intelligence"** in which he proposed a test. The test can check the machine's ability to exhibit intelligent behavior equivalent to human intelligence, called a **Turing test**.

The birth of Artificial Intelligence (1952-1956)

- **Year 1955:** An Allen Newell and Herbert A. Simon created the "first artificial intelligence program "Which was named as **"Logic Theorist"**. This program had proved 38 of 52 Mathematics theorems, and find new and more elegant proofs for some theorems.
- **Year 1956:** The word "Artificial Intelligence" first adopted by American Computer scientist John McCarthy at the Dartmouth Conference. For the first time, AI coined as an academic field.

At that time high-level computer languages such as FORTRAN, LISP, or COBOL were invented. And the enthusiasm for AI was very high at that time.

The golden years-Early enthusiasm (1956-1974)

- **Year 1966:** The researchers emphasized developing algorithms which can solve mathematical problems. Joseph Weizenbaum created the first chatbot in 1966, which was named as ELIZA.
- **Year 1972:** The first intelligent humanoid robot was built in Japan which was named as WABOT-1.

The first AI winter (1974-1980)

- The duration between years 1974 to 1980 was the first AI winter duration. AI winter refers to the time period where computer scientist dealt with a severe shortage of funding from government for AI researches.
- During AI winters, an interest of publicity on artificial intelligence was decreased.

A boom of AI (1980-1987)

- **Year 1980:** After AI winter duration, AI came back with "Expert System". Expert systems were programmed that emulate the decision-making ability of a human expert.
- In the Year 1980, the first national conference of the American Association of Artificial Intelligence **was held at Stanford University**.

The second AI winter (1987-1993)

- The duration between the years 1987 to 1993 was the second AI Winter duration.
- Again Investors and government stopped in funding for AI research as due to high cost but not efficient result. The expert system such as XCON was very cost effective.

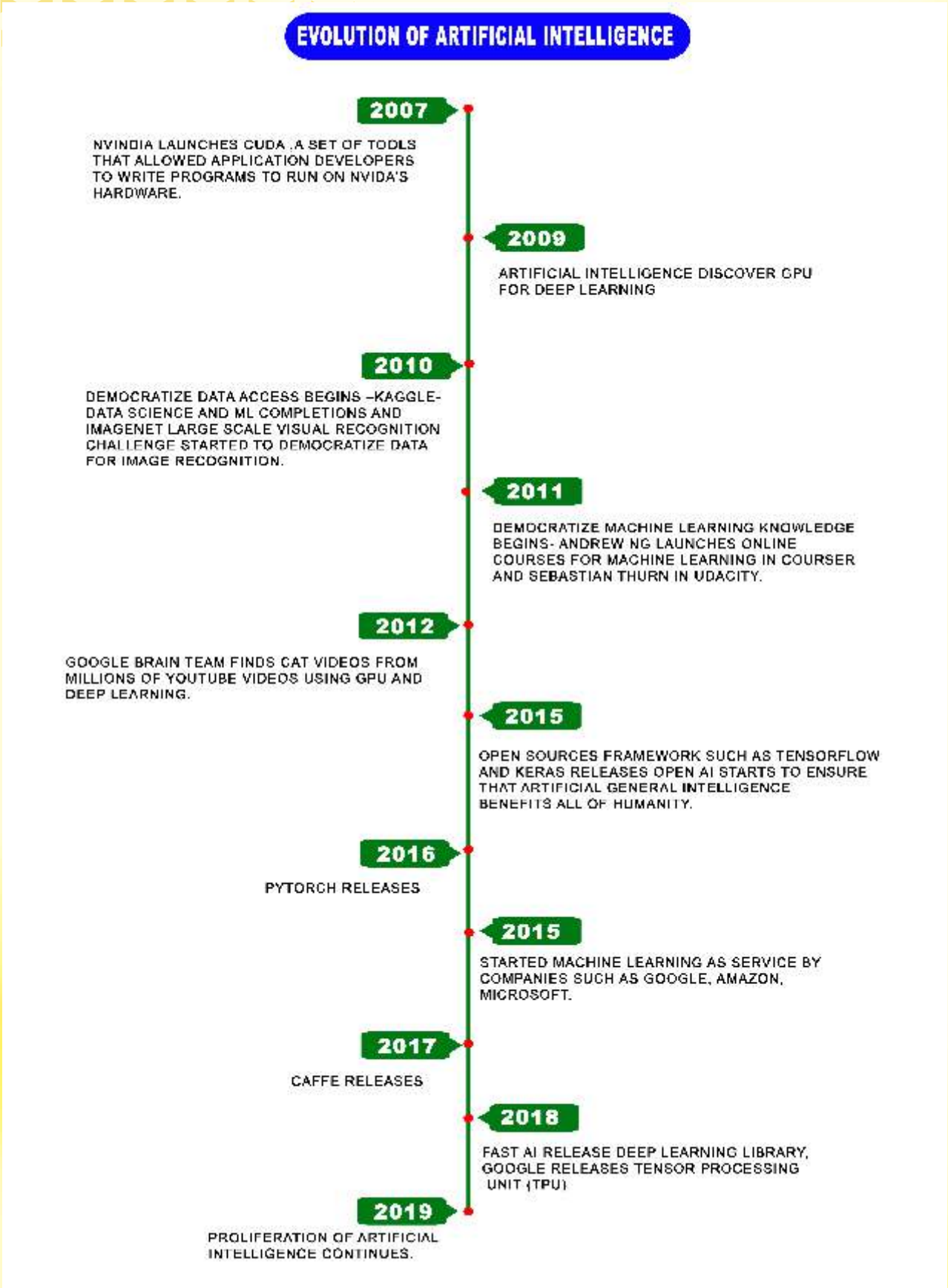
The emergence of intelligent agents (1993-2011)

- **Year 1997:** In the year 1997, IBM Deep Blue beats world chess champion, Gary Kasparov, and became the first computer to beat a world chess champion.
- **Year 2002:** for the first time, AI entered the home in the form of Roomba, a vacuum cleaner.
- **Year 2006:** AI came in the Business world till the year 2006. Companies like Facebook, Twitter, and Netflix also started using AI.

Deep learning, big data and artificial general intelligence (2011-present)

- **Year 2011:** In the year 2011, IBM's Watson won jeopardy, a quiz show, where it had to solve the complex questions as well as riddles. Watson had proved that it could understand natural language and can solve tricky questions quickly.
- **Year 2012:** Google has launched an Android app feature "Google now", which was able to provide information to the user as a prediction.
- **Year 2014:** In the year 2014, Chatbot "Eugene Goostman" won a competition in the infamous "Turing test."
- **Year 2018:** The "Project Debater" from IBM debated on complex topics with two master debaters and also performed extremely well.
- Google has demonstrated an AI program "Duplex" which was a virtual assistant and which had taken hairdresser appointment on call, and lady on other side didn't notice that she was talking with the machine.

Now AI has developed to a remarkable level. The concept of Deep learning, big data, and data science are now trending like a boom. Nowadays companies like Google, Facebook, IBM, and Amazon are working with AI and creating amazing devices. The future of Artificial Intelligence is inspiring and will come with high intelligence.


EVOLUTION OF ARTIFICIAL INTELLIGENCE
2007
NVINDIA LAUNCHES CUDA ,A SET OF TODLS THAT ALLOWED APPLICATION DEVELOPERS TO WRITE PROGRAMS TO RUN ON NVIDA'S HARDWARE.
2009
ARTIFICIAL INTELLIGENCE DISCOVER GPU FOR DEEP LEARNING
2010
DEMOCRATIZE DATA ACCESS BEGINS –KAGGLE- DATA SCIENCE AND ML COMPLETIONS AND IMAGENET LARGE SCALE VISUAL RECOGNITION CHALLENGE STARTED TO DEMOCRATIZE DATA FOR IMAGE RECOGNITION.
2011
DEMOCRATIZE MACHINE LEARNING KNOWLEDGE BEGINS- ANDREW NG LAUNCHES ONLINE COURSES FOR MACHINE LEARNING IN COURSER AND SEBASTIAN THURN IN UDACITY.
2012
GOOGLE BRAIN TEAM FINDS CAT VIDEOS FROM MILLIONS OF YOUTUBE VIDEOS USING GPU AND DEEP LEARNING.
2015
OPEN SOURCES FRAMEWORK SUCH AS TENSORFLOW AND KERAS RELEASES OPEN AI STARTS TO ENSURE THAT ARTIFICIAL GENERAL INTELLIGENCE BENEFITS ALL OF HUMANITY.
2016
PYTORCH RELEASES
2015
STARTED MACHINE LEARNING AS SERVICE BY COMPANIES SUCH AS GOOGLE, AMAZON, MICROSOFT.
2017
CAFFE RELEASES
2018
FAST AI RELEASE DEEP LEARNING LIBRARY, GOOGLE RELEASES TENSOR PROCESSING UNIT (TPU)
2019
PROLIFERATION OF ARTIFICIAL INTELLIGENCE CONTINUES.

ETHICS OF ARTIFICIAL INTELLIGENCE

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Introduction:-

The ethics of artificial intelligence is the branch of the ethics of technology specific to artificially intelligent systems. It is sometimes divided into a concern with the moral behavior of humans as they design, make use and treat artificially intelligent system and a concern with the behavior of machines, in machine ethics. It also includes the issue of possible singularity due to super intelligent.

AI ethics is a system of moral principles and techniques intended to inform the development and responsible use of artificial intelligence technology. As AI has become integral to products and services, organizations are starting to develop AI codes of ethics.

An AI code of ethics, also called an AI value platform, is a policy statement that formally defines the role of artificial intelligence as it applies to the continued development of the human race. The purpose of an AI code of ethics is to provide stakeholders with guidance when faced with an ethical decision regarding the use of artificial intelligence.

Isaac Asimov, the science fiction writer, foresaw the potential dangers of autonomous AI agents long before their development and created The Three Laws of Robotics as a means of limiting those risks. In Asimov's code of ethics, the first law forbids robots from actively harming humans or allowing harm to come to humans by refusing to act. The second law orders robots to obey humans unless the orders are not in accordance with the first law. The third law orders robots to protect themselves insofar as doing so is in accordance with the first two laws.

Ethical Challenges/principles:-

1. **Respect for persons** :- They principle recognize the autonomy of individual and upholds an expectation for researchers to project individual with demised autonomy which could be due to a variety of circumstances such as illness, mental disability, age etc.
2. **Beneficence:-** This principle takes a page of out of health care ethics, where doctors take an oath to do "no harm" .
3. **Justice:-** This principle deals with issue such as fairness and equality
    - Equal share
    - Individual need
    - Individual effect
    - Societal contribution
4. **Governance: -** Companies can leverage their existing organizational structure to help manage ethical artificial intelligence. An AI codes of ethics, also called an AI value pat form, is a policy statement that formally defines the role of artificial intelligence as it applies to the continued development of human race The purpose of an AI code of ethics is to provide stake holders with guidance when faced which an ethical decision regarding the use of artificial intelligence.
5. **Ex-aplainability:-** The company should explainable about the artificial intelligence Some ethical organization such as Algorithm watch, AI Now Institute, DAPRA (The Defense Advanced Research Projects Agency), CHAI (Central for human compatible Artificial intelligence) etc considers the necessary documentation and testing of Artificial Intelligence.

Enterprises Face several ethical challenges in their use AI technology.

When AI systems go away teams need to be able to race through a complex chain of algorithms systems and data processes to able to explain the source data, what their algorithm do and why they are doing that.

"AI needs to have a strong degree of traceability to ensure that if harms arise, they can be traced back to the Calles".

Ethics in Artificial Intelligence:-

Artificial Intelligence is a systems of moral principles and techniques intended to inform the development and responsible use of artificial intelligence technology as artificial has become integral to products and service, organization are starting develop AI codes of ethics.

- **Fairness: -** In data sets involving personality identifiable information, it is extremely important to ensure that there are no biases in terms of race, gender or ethnicity.
- **Responsibility**:- Society is still sorting out responsibility when decision made by AI system have catastrophic consequences, include loss of capital, health or life.

One challenge finding the appropriate balance in cases where an AI system may be safer than the human activity.

- **Misuse:-** AI algorithm may be used for purposes other than those for which they will created.

Wisniewski said these Scenarios should be analyzed at deigned stage to minimize the risk and introduce safety measures to reduce the adverse effect in such cases

Artificial Intelligence code of ethics

(i) Policy:- Includes developing the appropriate framework for driving standardization and establishing regulations Ethical AI policies also need to address how to deal with legal issues when something goes wrong.

(ii) Education: - Executives, data scientists, front line employee and consumers all need to understand key considerations and potential negative.

Conclusion:-

Achieving Ethical Artificial Intelligence will undoubtedly be important to its success. However it's important to note that it has tremendous potential to impact society four good.

We have started to see, this in its areas of health care, such as radiology. This conversation around AP ethics is to ensure that in our attempts to harness this technology for good, we appropriately assess its potential for harm within its design.

ARTIFICIAL INTELLIGENCE IN HEALTH CARE

NCAI - 2023

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"AI will not replace doctors but instead will augment them enabling physicians to practice better medicine with greater accuracy and increased efficiency".

Introduction:-

Artificial Intelligence in health Care is an umbrella term to describe the application of machine learning (ML) algorithm and other cognitive technologies in medical settings

The primary aim of health care related AI application is to analyze relationship between clinical techniques and patient outcomes. AI programs are applied to practices such as diagnostics, treatment development and patient monitoring and care.

Artificial Intelligence offers a real opportunity in health care not only to automate same of the problem salving carried out by doctors and other medical professionals but also to make better decisions and apply problem solving teachings that humans alone could not. This will improve the cost of care and improve outcomes simply became things will happen. AI in health care can enhance preventive care and quality of life, produce more accurate diagnosis and treatment plans and lead to better patient outcomes overall.

Types of Artificial Intelligence:-

(1) Machine learning :- is one of most common forms of Artificial intelligence it is a broad technique at the care of many approaches to Artificial Intelligence and health care technology and there are many versions of it.

(2) Natural language processing :- making sense of human language has been goal of artificial intelligence and health care technology for over 80 years. Most NPL systems include form of speech resolution or reset analysis and then translation.

NPL System can analyze recognition clinical text on patients, giving incredible result in to understand lip quality, unstructured methods and better result of patients. NPL enables computers to understand natural language as human do, just as human have different sensors such ear to here and eye to see … computer have program to read and microphone to collect audio. And just as human have a brain to process that input, computers have program to process their respective inputs.

(3) Rule based expert systems:- Many electronic health record systems (EHRS) current make available a set of rules with their software offering.

Machine learning in health care is slowly replacing rules based systems with approaches based can interpreting data using proprietary medical algorithms.

(4) Diagnosis and treatment Application:- Diagnosis and treatment of disease has been at the core of artificial intelligence AI In health care for the last 50 years. Much of the AI and health care Capabilities for diagnosis and treatment from medical software venders are standalone and address only a certain area of care.

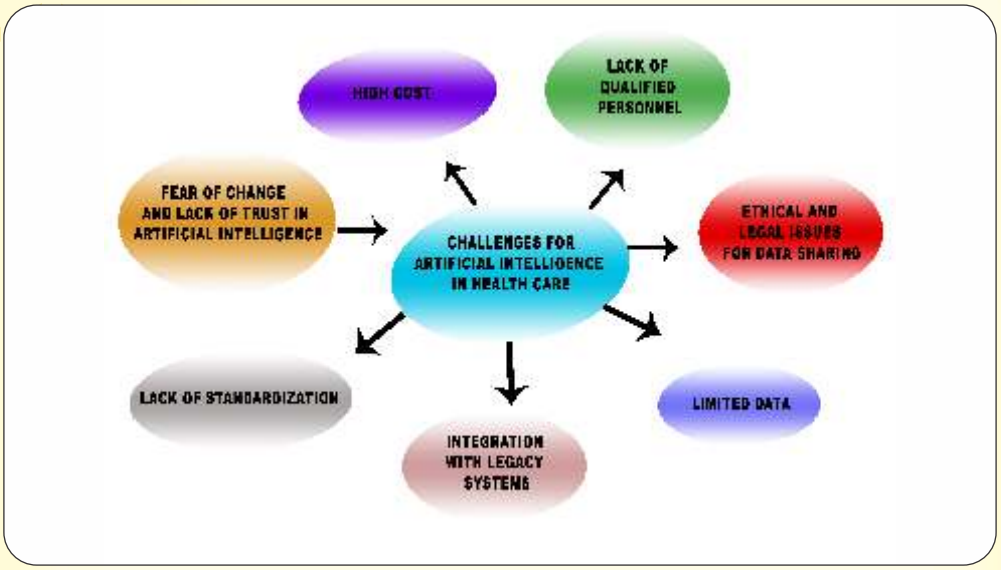
Some HER software venders are beginning to build limited health care analysis function with AI in to their product offerings.

(5) Administrative Application:- There are number of administrative application for artificial intelligence in healthcare AI in health care can used a variety of applications, including claims processing Clinical documentation, revenue cycle management and medical record management.

Challenges for AI in Healthcare:-

The healthcare sector is one area where AI is being adopted extensively to revolutionize care delivery. But several challenges must be overcome for this to be successful.

Challenges are:-



"AI will make things will happen earlier, faster and better".

(1) Lack of standardization:- When adapting AI in healthcare one of the critical Challenges is the lack of standardization. It can be challenges for healthcare provider to know which AI applications are effective and which are not. This can lead to wasted time and recourses spent can on AI eneffective.

For patient, lack of standardization can create confusion and uncertainty about the quality of care they will revenue years reluctant to patient may also be use AI application if insure about their effectiveness.

(2) Limited data: - In recent year organization have adopted artificial intelligence (AI) to improve patient care and outcomes. Health data is often siloed and difficult to access making it difficult to train AI models.

(3) Integration with legacy systems- Legacy systems are usually based on older technologies that are incompatible with never systems. This can make it difficult to exchange data between the two systems which is necessary for AI systems in addition, legacy system often do not have the competing power or storage capacity needed to run AI algorithms.

(4) Fear of change and lack of trust in AI: - One of the load bumps in adopting AI in healthcare is that many in people are afraid of change and lack trust in AI. This especially true when it comes to making decisions about our health. We to be often reluctant to try new things even when they have the potential to improve our lives.

(5) High costs:- High costs across the AI segment are another concern in adopting AI in health care.

(6) Lack of qualified personnel:- one of the most problematic Concerns in healthcare is the lack of qualified personnel in the field of artificial intelligence (AI). This storage of qualified personnel represents a major obstacle to the adaption of AI in healthcare.

(7) Ethical & Legal issues for data sharing :- Since patients health information is protected by law as private and confidential health care providers must comply with strict privacy and data security policies.

Conclusion: -

Since the medical industry is at the teach clawn of a new wave of AI fuelded teach innovation, it is time for health provider to establish a roadmap for incorporating AI in their clinical practice.

ARTIFICIAL INTELLIGENCE TRANSFORMING DIAGNOSTIC

NCAI - 2023

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The diagnosis of diseases is decisive for planning proper treatment and ensuring the well-being of patients. Human error hinders accurate diagnostics, as interpreting medical information is a complex and cognitively challenging task. The application of artificial intelligence (AI) can improve the level of diagnostic accuracy and efficiency. Artificial intelligence (AI) is about to make itself indispensable in the health care sector. Examples of successful applications or promising approaches range from the application of pattern recognition software to pre-process and analyze digital medical images, to deep learning algorithms for subtype or disease classification, and digital twin technology and in silico clinical trials. The goal of all the approaches is to allow personalized and informed interventions, to enhance treatment success, to improve the timeliness and accuracy of diagnoses, and to minimize technically induced misclassifications.

ARTIFICIAL INTELLIGENCE FOR BETTER DIAGNOSIS

AI has the potential to revolutionize how we diagnose disease. Machine learning, deep learning, and reinforcement learning are all tools that clinicians can use to help diagnose patients more accurately than ever before.

AI can reduce the time it takes to diagnose a patient by using machine learning to find patterns in data from other patients with similar symptoms. This allows AI algorithms to make predictions about what diagnosis each patient may have based on their symptoms and medical history without human intervention or interpretation. This capability significantly reduces the time it can take to diagnose a patient.

AI also allows doctors and nurses to spend less time researching new cases and more time treating them by using deep learning techniques like image recognition or natural language processing. With these techniques, machines analyze images from CT scans or MRIs and notes written by doctors and transfer them into electronic health records (EHRs).

TRANSFORMATING CLINICAL DIAGNOSIS

Numerous medical data sources are required to perfectly diagnose diseases using artificial intelligence techniques, such as ultrasound, magnetic resonance imaging, mammography, genomics, computed tomography scan, etc. Furthermore, artificial intelligence primarily enhanced the infirmary experience and sped up preparing patients to continue their rehabilitation at home. Artificial intelligence techniques helps to diagnose numerous diseases such as Alzheimer, cancer, diabetes, chronic heart disease, tuberculosis, stroke and cerebrovascular, hypertension, skin, and liver disease.

In clinical diagnostics, time series AI algorithms can be applied to medical devices producing continuous output signals, with the application of electrocardiograms being an especially active area of interest. AI applied to electrocardiograms can detect and classify arrythmias, especially atrial fibrillation , as well as cardiac contractile dysfunction , and blood chemistries linked to cardiac rhythm abnormalities . When applied to genomic sequence data, AI time series algorithms appear to be especially effective at detecting functional DNA sequence elements that are indicative of gene splicing , large-scale regulatory elements , and gene function.

Digital data is also a basic prerequisite for the application of emerging artificial intelligence (AI) techniques. Together with deep learning (DL) and machine learning (ML), AI is currently a buzzword across almost all scientific disciplines and has the potential to revolutionize diagnostic approaches in hematology. With the dramatic performance improvements in the last years, AI is at the brink to be introduced into routine diagnostics to enhance diagnostic methods but even more to facilitate disease classification and guidance of treatment. One exciting prospect is the development of digital twins to forecast cancer trajectories and to predict the potential impact of different therapeutic strategies in silico. The evaluation of these simulations might help to select the most promising interventions for each individual patient, minimizing side effects and the risk of complications

Automatic speech recognition

Automatic speech recognition includes a group of methodologies that enable the interpretation of spoken language. Speech-recognition algorithms ingest raw sound waves from human speech and process them to allow the recognition of basic elements of speech including tempo, pitch, timbre, and volume, as well as more complex features of speech including the spoken language, words, and sentences .

Voice command and virtual assistant systems are the major applications of speech recognition. Speech recognition has been successfully applied to the detection of diseases with an obvious influence on speech, notably chronic pharyngitis , and of diseases with a less obvious influence on speech, including Alzheimer's disease , Parkinson's disease , major depressive disorder , posttraumatic stress disorder , and even coronary artery disease . Like imaging, speech recognition can detect potential genetic disorders and inform downstream clinical testing. In addition, speech recognition can be used as a tool to streamline the use of EHRs through automatic transcription, benefitting clinicians and patients and enabling natural language processing (NLP) analysis , as described in the next section.

Pandemic Tools

During the COVID-19 pandemic, artificial intelligence became an essential tool for diagnosis and predicting the spread of the disease.. This machine automatically alerts staff when anyone has a high temperature. This AI tool can even recognize the faces of those infected persons, regardless of whether or not they are wearing a face mask. AI technology will become an essential tool in the diagnosis future pandemics.

ARTIFICIAL INTELLIGENCE IN MEDICAL DATA MANAGEMENT

NCAI - 2023

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Artificial intelligence (AI) has proven to have several benefits across different industries and businesses. One sector that has benefitted from the use of AI is the healthcare industry. This sector is always full of patient information, health records, and other important data crucial to patients and hospitals. Major problems facing healthcare data are cyberattacks, losing the information, and improper handling, leading to mixing up the records. These mistakes always have devastating effects on the healthcare sector as these medical procedures and other treatments are dependent on these data. In addition, there are other procedures outside the health industry that are dependent on these data. Therefore, properly managing healthcare data is fundamental in the healthcare industry. The importance of these data has led to the adoption of AI in hospitals to help in the management. Here are some of the applications of AI in optimizing data management:

- **Convenient Data Transmission**

Health records are constantly subjected to several transfers among patients, hospitals, remote workers, and other legally entitled parties. When transferring this data, there needs to be a convenient and streamlined way to reach all the desired recipients in time. For example, you may opt to use faxing services, like MyFax, and several others to send the faxes digitally without the need for printing and scanning. These modes of data transmission ensure that the records are sent faster and securely. This helps reduce cases of alterations or sending to wrong addresses. With AI, the sharing of information is simplified.

· **Data Security**

Several cyberattacks are lodged on these records during these transfers as criminals try to steal or change the records. These attacks are a major concern for the healthcare sector. Moreover, even when being stored, patient information is always vulnerable to attacks from hackers. Covering all these attack points manually could be next to impossible, considering the amount of data being held by the information system. However, with the application of AI, securing health records against any cyberattacks is promising and fruitful. This is because AI can identify possible entry points for hackers and provide possible solutions for correcting them. Moreover, AI can diagnose the system to identify and correct bugs that would otherwise affect the data management system.

· **Automation Of Data Flow**

When patients enter a medical facility, their records are always taken by the hospital from time to time. Each process of their treatment is dependent on the information from the previous step to avoid any cases of errors. The number of patients in the hospital could be challenging to handle if the data flow is done manually. Moreover, handling data manually can lead to confusion. In contrast, AI automates the data flow from one point to the other, streamlining the whole process. Once the information is entered at the first stage, it becomes accessible for authorized personnel in the hospitals. These records are always entered against a patient's identity, which means very minimal cases of errors. It also becomes easy for return patients to continue their treatment as the complete information is already recorded in the system.

· **Optimizing Data Storage**

Traditionally, health records could be stored in paper works and filed for future references. However, this storage has several disadvantages and limitations. First, once a record is added, deleting or changing is difficult unless new paperwork is filed. Secondly, paper is limited in storage, and very little information can be stored on a piece of paper. Finally, once you lost these records, it would be difficult to retrieve them due to a lack of backups. Fortunately, AI changes all these and optimize data storage in many ways. For example, cloud storage can help hospitals store large quantities of data in only one system. In addition, these cloud services have data backup where you can retrieve any lost information. It's also possible to change any medical data without altering the other record elements when storing it in a system.

· **Data Analysis And Decision Making**

Another important use of AI when handling health data, especially in big data, is analyzing and interpreting the data. With AI, it's possible to deduce important data points from health records, analyze them, and then present them to understand the chart. This can help in decision-making regarding medical procedures or genetic mapping for patients.

Conclusion

The healthcare sector is crucial due to the information stored in the systems and their value. Therefore, there's the need to have an efficient data management system that can ensure information security and streamline any process that depends on these data. Manual handling of these data has some limitations, unlike AI, which has several applications in health data management. It can be used in automating data flow and aiding in crucial decision making among many others. It's safe to say that the application of AI in healthcare will improve.

ARTIFICIAL INTELLIGENCE IN OBSTETRICS AND GYNAECOLOGY

NCAI - 2023

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Artificial Intelligence (AI) is a type of digital computer system that parallels the way the human brain processes information. AI is organized in a similar way that neurons in the brain are arranged with their multiple neural nodes and so are referred to as neural networks.

The rise of AI has led to the subsequent development of artificial neural networks (ANN) which consist of a dependable mathematical system that can interpret multifactorial data. These neurons are connected via multiple synapses and send the data to each other back and forth and by doing so, come up with the most probable answer. Making these multiple connections enables computers to mimic cognitive functions such as reasoning process to identify the most probable answer to a problem. This complex algorithm AI software is now utilized in medicine to analyze large amounts of data which can assist in disease prevention, diagnosing and monitoring patients. Over all AI can aid practitioners in decision making and will help clinicians to make more self-assured decisions.

Herein are the current AI uses in Obstetrics & Gynaecology Nursing

AI in FHR monitoring and pregnancy surveillance:-

AI can give a qualitative and quantitative overview of-

It helps to monitor the FHR rate during labor via analyzing cardiotocographs and estimating possible outcomes. This technology would help to :

- Decrease the discrepancies between different obstetricians interpreting intrapartum monitoring.
- Get a more reliable replicable outcome for each analysis.
- Ultimately reduce the perinatal and maternal complications and morbidity. Perinatal asphyxia is a significant problem worldwide, and by creating an efficient way to monitor FHR would improve care and decrease poor outcomes.

AI in Preterm labor and Ultrasound:-

Machine learning achieved good to excellent prediction of prenatal outcome in asymptomatic pregnant women with short cervical length in the second trimester. Currently the short cervical length is the strongest risk factor for prematurity, however many women with this condition carry their pregnancy to term. Amniotic fluid of the subjects was additionally studied to shed light on potential new biomarkers that might involved in preterm birth. Machine learning displayed good to excellent performance for prediction of preterm birth <34 weeks, delivery within 28 days after amniocentesis and NICU admission.

AI and In vitro Fertilization (IVF):-

AI can be used to predict IVF outcomes by using a learning vector quantizer which allows for enhanced prediction power.

AI in cancer screening:-

We use computer assisted technology in screening woman for cervical cancer. The cells that are collected during a Pap smear are turned into slides by a machine, ensuring higher quality information to review than an image processor helps identify areas on the slide to review under the microscope, reducing screening error by technicians. AI may also be able to perform cervical cancer screening without a Pap smear Researcher are evaluating computerized image analysis of digital photographs of the cervix to advance cervical cancer screening in parts of the world where resources are limited and deaths from cervical cancer is high.

Conclusion:-

AI has a promising future in overcoming diagnostic challenges and improving treatment modalities and patient outcomes in Obstetrics & Gynaecology Nursing. Further studies need to be done to decrease bias when creating algorithms and to increase adaptability in the system enabling the incorporation of new medical knowledge as new technology surfaces Practitioners must also take safely measures to ensure that the analysis is valid and accurate. AI is not meant to replace practitioners bit rather to serve as an adjunct in decision making. Ethically, the use of patient records might bridge patient confidentiality since large amounts of data are required to enable AI systems to have access to the large and varied population statistics which are encountered in clinical settings hence providing realistic and accurate predictions.

ARTIFICIAL INTELLIGENCE IN MENTAL HEALTH NURSING

NCAI - 2023

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INTRODUCTION

Artificial intelligence (AI) technology holds both great promises to transform mental healthcare and potential pitfalls. "How does that make you feel?" is the question that you might be already discussing with an AI chatbot rather than a human therapist. Even more, this virtual assistant might be quite effective at alleviating our symptoms of worry or depression.

PREVALENCE OF MENTAL ILLNESS

Mental health status — The crisis we are in Mental health disorders are on the rise globally. At least 10% of the population is affected, with almost 15% percent of adolescents experiencing a mental health condition and suicide being the fourth leading cause of death among those aged between 15 and 29.

CAN ARTIFICIAL INTELLIGENCE HELP WITH MENTAL HEALTH AND HOW?

AI for mental health is gaining a foothold across clinical practice, already now. In particular, the following technologies have the most potential for an impact:

- Machine learning (ML) and deep learning (DL) that provide greater accuracy in diagnosing mental health conditions and predicting patient outcomes.
- Computer vision for imaging data analysis and understanding non-verbal cues, such as facial expression, gestures, eye gaze, or human pose.

- Natural language processing (NLP) for speech recognition and text analysis that is used for simulating human conversations via chatbot computer programs, as well as for creating and understanding clinical documentation.

However, people do like chatting with chatbots and can even develop an emotional connection with them. We are not talking here about the unsettling intimate bond developed between a lonely man and an AI operating system in the movie Her, but rather about people's willingness to pour their hearts out anonymously to an AI companion. People tend to believe that robots don't judge, are unbiased, and can provide instant answers to health-related questions. Just as important, talking to technology might help. Multiple meta-analyses have confirmed that computer-aided cognitive behavioural therapy (CBT) delivered via desktop or mobile apps is equivalent to or even more effective than standard CBT. The National Institute for Health and Clinical Excellence (NICE) in England first recommended computerized CBT packages for depression, panic, and phobias back in 2006 on the grounds of clinical and cost effectiveness.

EXAMPLES OF HOW ARTIFICIAL INTELLIGENCE IS REVOLUTIONIZING MENTAL HEALTH CARE:-

Let's look closer at how AI technologies are applied in mental healthcare today:

1. Analysing patient data to assess the risk of developing mental health conditions, classify disorders, and optimize treatment plans.
2. Conducting self-assessment and therapy sessions.
3. Enhancing patient engagement.
4. Equipping therapists with technology to automate daily workflows.

BENEFITS OF USING ARTIFICIAL INTELLIGENCE IN MENTAL HEALTH TREATMENT:-

The hopes pinned on artificial intelligence apps and platforms for mental health care can be attributed to the following benefits AI delivers:

AFFORDABILITY.

Artificial Intelligence based and other mental health apps allow users to access therapeutic help anywhere, anytime.

Moreover, they provide help at little or no cost, compared to costs associated with in-person therapy, missed work, the need to make other arrangements, and commute.

ACCESSIBILITY

Artificial Intelligence based apps remove such barriers to mental health treatment as staff shortages across the board and a lack of providers in rural and remote areas.

EFFICIENCY

Artificial intelligence algorithms for mental healthcare have already been proven to be successful in detecting symptoms of depression, PTSD, and other conditions by analysing behavioural signals.

PRIVACY AND EASE TO OPEN UP

Artificial Intelligence based therapists make people feel less self-restrained when they may need to share embarrassing details.

SUPPORT FOR THE RAPISTS.

Artificial Intelligence could be an effective way for clinicians to make the best of the time they have with patients.

CONCLUSION:-

Artificial Intelligence such as DL applications showed promising results on clinical practice, which could lead to profound impact on personalized medicine for mental health conditions. Future studies can improve furthermore by increasing sample sizes and focusing on ethical approvals and adherence for online-therapy.

ARTIFICIAL INTELLEGENCE IN CHILD HEALTH NURSING

NCAI - 2023

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INTRODUCTION: -

Artificial Intelligence [AI] is a way of making a computer, a computer-controlled robot, or a software think intelligently, in the similar manner the human think.

Artificial Intelligence is accomplished by studying how human brain thinks, and how human learn, decide, and work while trying to solve a problem, and then using the outcomes of this study as a basis of developing intelligent software and systems.

The field of AL research was founded at a workshop held on the campus of Dartmouth College during the 1956. Mc Carthy was one of the founders of the discipline of artificial intelligence. He invented the term "Artificial Intelligence" (AI).

APPLICATION OF ARTIFICIAL INTELLEGENCE

There are multiple areas where we can use AI for example in classrooms, Hospital and Medicine, Expert System, Speech Recognition, Intelligent Robots, entertainment and smart virtual Assistants.

AI IN HOSPITALS AND MEDICINES:

AI solutions for handling data in the medical field, such as electronic medical records, medical imaging technology, medical big data, intelligent drug design, and smart health management systems have emerged, which improve the standardization and accuracy of clinical decision making, while providing more dimensions of data accumulation for medical knowledge-based systems. These developments can also support physicians, researchers and health team members in the optimization of treatment plans, and decision making about optimal treatment options.

AI IN CHILD HEALTH NURSING

In the last decade, there has been a rapid increase in research on the use of artificial intelligence (AI) to improve child and youth participation in daily life activities. with applications showing great potential in assisting and improving care.

However, introducing these technologies into nursing can raise concerns related to data bias in the context of training algorithms and potential implications for certain population.

Here discussing some areas in where AI used for improving quality care of Children.

1) DIAGNOSIS OF SEPSIS AND DIFFERENTIATION STANDARDS BY AI:

One research group successfully identified four subtypes of sepsis from 6708 pediatric cases using natural language processing (NLP), deep auto-encoding and unsupervised clustering. Importantly, these four subtypes presented distinctive clinical features, and the testing results coincided accurately with clinical features, which enhanced the rationality and reliability of the clustering results. This model is capable of handling multiple model data lists at the same time, which not only includes structural data such as demographic characteristics and laboratory tests, but also extracts useful information from unstructured data such as medical records and image reports, whose analysis results tally with clinical retrospective research results. This showed better diagnosis of sepsis and differentiation standards.

2) AI USED IN TREATMENT OF CHILD PULMONARY HYPERTENSION

Gomberg-Maitland and Souza (2017) used AI with deep machine learning to improve pediatric pulmonary hypertension (PH) and related diseases, aiming to enable earlier and more accurate diagnosis. The authors used AI technology such as a noisy-OR model, bootstrap modeling and network clustering, which allowed them to reduce the noise and increase the diagnostic validity. The networks were further evaluated by doctors and one investigator. They found that AI not only verified the existing mature subtype classification system, but also identified the uncommon subtypes of child PH.

3) AI IN EARLY DIAGNOSIS OF AUTISM IN CHILDREN

The application of AI technology enabled confirmation of the relationship between early brain changes and autism-related behaviors, and is expected to support the early identification of autism.

4) AI IN EFFECTIVE MONITORING OF NEONATAL JAUNDICE

The application of AI in neonatal daily care is also an important medical scenario, mainly for effective monitoring of newborn jaundice. An information system was established with the help of mobile phones for the purpose of monitoring newborn jaundice, and k-nearest neighbor (KNN), least angle regression (LARS), fusion of Least Absolute Shrinkage and Selection Operator (LARS-Lasso) Elastic Net, ridge regression, random forest support, and vector regression have been applied in machine learning algorithms]. In Aydın *et al*'s neonatal jaundice detection system, at the stage of estimating bilirubin levels, the KNN and support vector regression algorithms are used to regress the feature-extracted data sets.[6] In addition, Hao *et al* proposed an intelligent system for diagnosing newborn jaundice with a dynamic uncertain causality graph model.

5) AI IN CHILDHOOD ASTHAMA

Diagnostic model for childhood asthma was established for early diagnosis which was based on four machine learning models, three of which were found to operate effectively using pre-formed decision trees. Machine learning model was also developed for the diagnosis of childhood pneumonia. 7]

6) AI IN DEEP LEARNING AND GRADING HYDRONEPHROSIS

Subjective assessment of renal ultrasonography images is used to grade the degree of hydronephrosis.Children aged 0–116 months with sagittal renal ultrasonography scans were included in the study.

Artificial intelligence solution The deep learning algorithm correctly graded 94% of the hydronephrosis images.

7) AI IN SPEECH ANALYSIS

Anxiety and depression in children are frequently underdiagnosed. These diseases, if left untreated, are linked to long-term unfavorable effects such as substance abuse and an increased risk of suicide. Children aged between 3 and 8 years and who spoke English fluently were used in study.

Artificial intelligence solution With an accuracy of 80%, a machine learning analysis of a 3-min speech can be used to detect children with anxiety or depression.

8) AI in neonatal mortality

For most poor countries, neonatal mortality is still a major problem. Between 2018 and 2030, an estimated 27.8 million children will die in the 1st month of their birth worldwide.Between 2012 and 2017, all live births in the Municipality of São Paulo, Brazil (N=1,202,843) were analyzed.

Artificial intelligence solution Using only normally gathered data, a machine learning algorithm with an AUC of 0.97 could predict the probability of newborn mortality with a very high accuracy.

9) AI in OBESITY

In the world childhood obesity is increasing at an alarming rate. Obesity in adults has a number of negative health consequences. Preventing childhood obesity could be essential. A total of 7519 children aged between 2 and 10 years with at least one BMI percentile recorded.

Artificial intelligence solution

Machine learning system predicted childhood obesity with good accuracy (85%) and sensitivity (90%). At the same time, the development of AI faces several challenges, such as standardized data collection, quality management, information sharing, privacy protection, regulatory policies, and ethical considerations. More AI medical models are likely to emerge in the next few years. AI-assisted laboratory testing, AI-assisted medical imaging and AI-based decision tree methods for diagnosis and management of different pediatric diseases may develop rapidly. These models, as well as the regulatory framework for value-based healthcare and the development of economic incentives are all reasons for cautious optimism about machine learning in the field of pediatrics. Regardless of how technology evolves, providing optimal management for patients is the core goal of pediatrics.

CONCLUSION:-

This is the time to include the AI in medical and nursing care for the best quality care of the child. But AI can never replace the doctors and nurses. Nurse patient relationship, emotional and spiritual aspect of care can be taken care only by the human being. Being the human touch is only done by human. Machine will always be helper and supporter of healthcare workers with a wide range of duties, namely administrative tasks, clinical documentation, patient outreach, as well as specialized assistance in areas such as image analysis, medical device automation, and patient monitoring.

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ARTIFICIAL INTELLIGENCE IN COMMUNITY HEALTH NURSING

NCAI - 2023

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Over view of Artificial Intelligence: Artificial intelligence in health care is not new. It is currently used in many ways that are relevant to nurse. Artificial Intelligence comprises many health care technologies transforming nurses' role and enhancing patient care.

Artificial intelligence refers to the ability of computers to independently convert data into knowledge to guide decisions or autonomous actions. AI technologies (ie, machine learning, Natural language processing, and AI voice assistants) as well as their proper use in healthcare.

"AI refers to the ability of machines to perform cognitive tasks like thinking, perceiving, learning, problem solving and decision making."**(NITI Aayog, Government of India 2018)**

Why AI is essential for community health Nursing: About 90% of the global rural population live in Asia and Africa and half of theses (45%) live in India 85% million and China 635 million have largest rural population. Doctor to population ratio for India the density of doctors in urban area was 1.1/ 1000 population in whereas that in rural area was 0.45/ 1000 population. According to ILO the global MMR is 29 death/ 10,000live births in rural area as compared with 11 in urban area. In Asia and the pacific region the MMR in rural and urban areas were 1 and 8 death / 10,000 live births. Poor working environment it is difficult to attract and retain high quality health care providers in rural areas Even if physician working in rural areas have sufficient knowledge and skill lack of support of

other health care providers. In such situation will reduce of quality of services.

Aims of Artificial Intelligence Technology in rural areas:

To improving the accessibility and quality of rural healthcare services in developing countries.

AI technology is bringing revolutionary changes across the healthcare field.

Improve doctors' efficiency and the quality of healthcare services, and reduce medical costs.

To train health care providers like village health workers, nurses and paramedical health workers to use this tool to compensate for a lack of doctors.

Why AI is important in rural areas of Developing countries:

To achieve health equity and improving quality of healthcare for vulnerable populations are important social missions, especially in developing countries.

In developing countries, the life expectancies and health status of rural residents are generally worse than those of urban residents.

Limited access to qualified more skilled healthcare is the immediate cause of poor health status.

Poverty, Low public health spending, low coverage of health insurance, a limited benefit package, shortages of health professionals and facilities, lack of training for health workers, transportation difficulties.

Low wages, poor working and living conditions, excessive workloads, shortages of health workers nationwide, and a larger proportion.

Acc. To ICT India Report January 2020: India's state governments have also taken few initiatives, such as establishment of **Centre of Excellence for Data Science and Artificial Intelligence** (CoE-DS&AI) by Karnataka, Safe and Ethical Artificial Intelligence Policy 2020 and Face Recognition Attendance System by Tamil Nadu, AI-Powered System for monitoring driving behaviour by West Bengal, AI System to fight agricultural risks by Maharashtra etc.

Government of India, in collaboration with Bangalore based health Tech startup **Niramai ans** the Indian Institute of Science (IISc), has developed **XraySetu** specifically designed to identify COVID positive patients even from low resolution Chest Xray images sent Whatsapp.

SNEHA AI for Health and Nutrition: stand for **Solution for Nutrition and Effective Health Access** in India is a high propensity of anemia and malnutrition among the women. SNEHA platform developed by centre for study of science Technology and policy. It's aims to provide a range of ICT and AI solutions for managing every aspect of health and malnutrition. SNEHA AI tool kit allows field functionaries such as Anganwadi workers to capture health data accurately and provide evidence of measurement of important health parameters of children and mothers in a minimally intrusive way. This toolkit contains image based height capture, image based Length capture, image based attendance tracking, and image based BMI calculation, Anemia Risk Measurement through photographs.

CSTEP AI for Nutrition: is attempting an innovative artificial intelligence based approach to augment the management information system under implementation. This initiative will help to

identify district wise Anganwadis, workers, and malnourished children. It is comprehensive digital platform for malnutrition management.

ICDS- CAS (Common application software): acc. to NFHS-4 majority of malnutrition cases present in Bihar 48.3%.this is mobile application software help to identify the development of physical health of children. Child growth monitoring app developed in2021 to identify the malnutrition among children.

Acc to Health Economic Times health world report: two lakh anganwadi workers to be trained to use advanced digital tools and electronic health record, pilot application by government of India.

Acc to Mei Chen and Michel Decary report;(2019): Artificial Intelligence mainly into two categories. The **first category** includes machine learning techniques that analyse structured data such as imaging, genetic and electrophysiological data. **Second category** includes natural language processing (NLP) methods that extract information from unstructured data such as clinical notes/ medical journal to supplement.

AI-related technologies, such as computer-assisted diagnosis and mobile clinical decision support systems (mCDSS), on healthcare outcomes in rural areas of developing countries.

Application of Artificial Intelligence in community areas:

Machine learning: has been applied to many data types (such as images, speech, videos, and text) on complex tasks that involve massive data, producing results that are comparable to and sometimes superior to human experts in terms of both accuracy and efficiency.

Acc. To Ram Krishnan (2021) Machine Learning methods have been used to predict PTB, birth weight, and postpartum depression using existing data, whereas predictions about preeclampsia, mortality, hypertensive disorders during pregnancy, labor, and delivery have been made using both real-time and existing data.

Natural language processing: Natural language processing uses computational methods to automatically analyse and represent human languages, mostly in text format. Recently, ML methods have been applied to NLP, achieving impressive results in speech recognition, machine translation, text classification, question answering, sentiment analysis, information extraction, and search engine.

Artificial intelligence voice technology is changing the nature of human-machine communication, making it much easier for people to obtain, understand, use, and store health information. Voice interface has the potential to optimize users' experience, helping them overcome barriers existing in text-based information exchange or complex system operation.

Mobile AI helps health workers

Mobile devices have become commonplace in health care settings, leading to rapid growth in the development of medical software applications (apps) that assist health care providers in community with many ta sks such as information and time management, health record maintenance, communications consulting, patient management and monitoring, clinical decision making, medical education and training.

Artificial intelligence powered health clinic: New Delhi india's first ever Artificial Intelligence powered health clinic, **ZINI has been inaugurated on 7th August 2022**. Its aim to provide timely medical help, genuine expert guidance accessible to everyone and to reach every corner of the country with our clinic bots.

National Digital Health Mission (NDHM): India's 74th Independence Day, the Prime Minister announced the launch of the NDHM. Aims of this mission to create a management mechanism to process digital Health Data and facilitate its seamless exchange develop registries of public and private facilities, health service providers,

laboratories and pharmacies and support clinical decision making as well as offer services like telemedicine. NDHM has the potential to make the health system more evidence based , transparent and efficient. NDHM push by the government to enable patients share their health profiles with providers for treatment and monitoring purposes. In 2019, the United Nations Secretary General's High-Level Panel on Digital Cooperation recommended that "by 2030, every adult should have affordable access to digital networks, as well as digitally-enabled financial and health services, as a means to make a substantial contribution to achieving the SDGs".

Tele health: delivery and facilitation of health and health related services including medical care, provider and patient education, health information services and self-care via telecommunication and digital communication technologies.

Tele medicine: delivery of health care services, where distance is a critical factor by all health care professionals using information and communication technologies for the exchange of information for diagnosis, treatment, and prevention of diseases and injuries through A video- conferencing platform using mobile app, video chat.

Conclusion

Medical AI technology has ability to both improve the availability of healthcare access and healthcare quality within rural areas of developing countries. In India, making healthcare delivery inclusive means ensuring that people have access to the kind of care and information that can help save lives. That's not always easy given the lack of availability of physicians in some of the country's most remote villages. But it was a challenge that needed to be addressed.

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ARTIFICIAL INTELLIGENCE IN NEPHROLOGY

NCAI - 2023

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Introduction:-

Artificial intelligence is playing an increasingly important role in many fields of medicine, assisting physicians in most steps of patients management. In nephrology, artificial intelligence can already be used to improve clinical care, hemo dialysis prescriptions and follow up of transplant recipients. However, many nephrologists are still unfamiliar with the basic principles of medical artificial intelligence.

What is artificial Intelligence:-

"The Science and engineering of making intelligent machine"

"Artificial intelligence is the development of computer systems that are capable of performing tasks that normally require human intelligence, such as decision making, object detection, solving complex problems and so on."

"The team artificial intelligence is used to describe machines that mimic "cognitive" function that humans associate with other human minds such as "learning" and "problem solving".

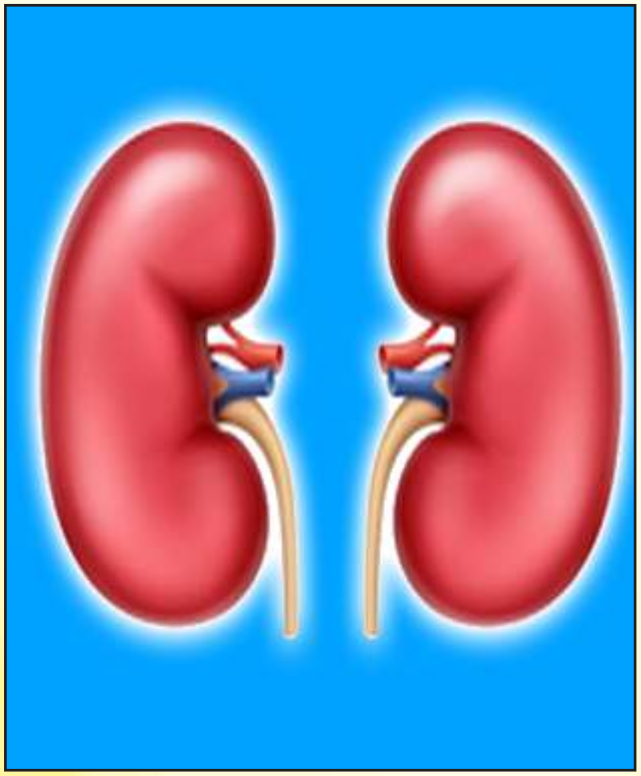
Artificial intelligence has been applied in several settings in clinical nephrology. For instance, it has been proven useful for the prediction of the decline of glomerular filtration rate in patients with polycystic kidney disease and for establishing for progressive IgA nephropathy.

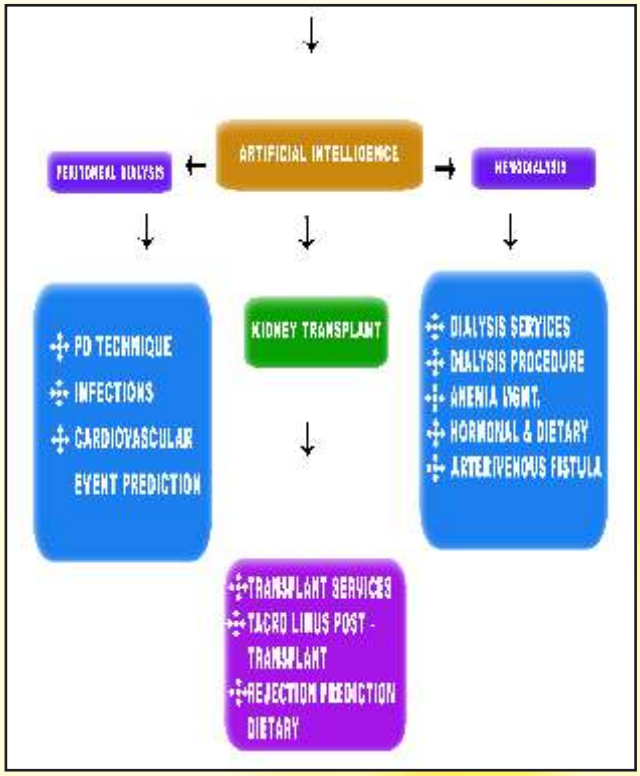
Artificial Intelligence in Acute Kidney Injury:–

Acute Kidney injury is characterized by a sudden decrease in glomerular filtration rate, manifested by an increasement in serum Creatinine Concentration or oliguria. It occurs approximately 20% of hospitalized patients, of whom 10% requires kidney replacement therapy, Artificial intelligence can help doctors identify acute kidney injury at early stage and greatly improve patient's outcome. Therefore, Acute Kidney injury is an ideal candidate for big data and artificial intelligence to improve medical care. Here, we summarized current Studies of artificial intelligence in acute Kidney injury diagnosis and treatment.

It is vital to accurately identify acute kidney injury in early stage. Current research mainly focuses on risk prediction, detection, and automatic alerting. The use of automated electronic alerts (E- alerts) has received considerable attention. England's National Health Service recommended wide adoption of an automated computer software for detecting acute kidney injury. Google has developed the streams program, which many predict acute kidney injury and alerts doctors for early intervention.

The involvement of AI in hemodialysis, peritoneal dialysis, and kidney transplant respectively.





The use of Artificial Intelligence improves health care delivery to Hemodialysis:-

- Artificial Intelligence methods capable of determining risk profiles for unsatisfactory clinical results of hemodialysis session were described.
- Early detection allows for timely correction of risk factors to attain good quality hemodialysis session and favorable outcomes.
- Estimating the patency of AV fistula by artificial intelligence approaches may improve hemodialysis Session outcomes and the patients quality of life.
- Artificial intelligence reduce medical costs by replacing more expensive diagnostic procedures.
- Artificial intelligence can recommend medication dosage for preventing hemodialysis Specific Complications like anemia and hemoglobin fluctuations, mineral imbalance.
- Artificial intelligence was used for predicting mortality and survival in hemodialysis.
- Predicting intra dialytic events allows for flexible adaptations of the hemodialysis process in real time by avoiding hypotension, the variability of heart rate and volumes, thus ensuring the success of the hemodialysis session and overall cost efficiency of interventions.

Challenges and areas which require more studies in artificial intelligence for hemodialysis:-

- Real-time monitoring artificial intelligence systems could achieve personalized treatment with embedded automatic adaptive responses in hemodialysis sessions.
- The more artificial intelligence systems will be deployed in hemodialysis patient care, the larger the scale data will be available. This should compel to the development of stringent regulations concerning data privacy, maintenance, and sharing for safer implementation in public health care.

The use of Artificial Intelligence improve Healthcare delivery to kidney Transplant:-

- Artificial Intelligence was able to detect and report early creatinine courses associated with acute Kidney transplant rejection by identifying abnormal patterns in a Series of laboratory data, thus allowing for rapid intervention and improved aftermath in Kidney transplant patients.
- Various machine learning models accurately predict the tacrolimus stable dose succeeding to improve post-transplant immunosuppressive therapy and prevent tacrolimus toxicity.
- Proper management of immunosuppression can have a significant impact on averting graft loss.
- Machine learning can evaluate the benefits of different types of diets after transplant that can lead to positive impact on quality of life in kidney transplant.
- Artificial intelligence is used to predict graft rejection "delayed graft function and mortality.
- Artificial intelligence algorithm – pre transplant organ- matching tool.
- This allows for the wiser allocation of organs and Overall optimization of the health care management system in kidney transplant.

Challenges and areas which requires more studies in artificial intelligence for kidney transplant :-

- Preventive artificial intelligence tools could certainly be employed in identifying modifiable risks factors for graft rejection and graft loss, offering patients better chances successful kidney transplant.
- Guidelines need to be developed for supporting the use of artificial intelligence in organ allocation or prediction of rejection.
- Prospective evaluation of the real artificial intelligence impact on the care of transplant recipients can be easily accomplished by integrating artificial intelligence into electronic patient registration systems.

Conclusion :-

Although the guidelines are reluctant to recommend the implementations of artificial intelligence in daily clinical practice, there is evidence that artificial intelligence /Machine Learning algorithms can predict better than nephrologists: Volumes, and risk of hypotension and cardiovascular events during dialysis.

There are integrated anemia management artificial intelligence systems, through personalized dosing of iron and hemoglobin modulation. Recent studies employ machine learning algorithms as pre transplant organ-matching tools, thus minimizing graft failure and accurately predicting mortality. Altogether, these trails report a significant impact of artificial intelligence on quality of life. In the coming years, we will probably witness the emergence of artificial intelligence / Machine learning devices that will improve the management of dialysis patients.

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ARTIFICIAL INTELLIGENCE IN GASTROENTEROLOGY

NCAI - 2023

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INTRODUCTION

Recently, artificial intelligence (AI) using deep-learning (DL) has emerged as a breakthrough computer technology, and numerous research studies, using AI applications to identify or differentiate images in various medical fields including radiology, neurology, orthopaedics, pathology, ophthalmology, and gastroenterology, have been published. In the field of gastroenterology, physicians handle large amounts of clinical data and various kinds of image devices such as esophagogastroduodenoscopy (EGD), colonoscopy, capsule endoscopy (CE), and ultrasound equipment. AI has been applied in the field of gastroenterology when making a diagnosis, predicting a prognosis, and analysing images. Previous studies reported remarkable results of AI in gastroenterology. The rapid progression of AI demands that gastroenterologists learn the utility, strengths, and pitfalls of AI. In addition, physicians should prepare for the changes and effects of AI on real clinical practice in the near future.

The term was mentioned for the first time in 1956 by John McCarthy during the Dartmouth Summer Research Project on Artificial Intelligence (DSRPAI) where several scientists decided to meet to look at whether machines could reach intelligence.

DEFINITION ARTIFICIAL INTELLIGENCE (AI)

According to the definition used at Stanford University, it is the science and engineering of making intelligent machines, especially intelligent computer programs. It is related to the similar task of using computers to understand human intelligence, but A.I. does not have to confine itself to methods that are biologically observable. In this context, intelligence means the computational part of the ability to achieve goals in the world.

A narrower definition signalling the most common understanding of A.I. was coined by the European Parliament's Citizens' Rights and Constitutional Affairs Policy Department. According to their term, it is the capability of a computer program to perform tasks or reasoning processes that we usually associate to intelligence in human being. Artificial intelligence (AI) using deep-learning (DL) has emerged as a breakthrough computer technology. The convolutional neural network exhibited outstanding performance in image analysis. AI has been applied in the field of gastroenterology in terms of diagnosis, prognosis, and image analysis.

EXAMPLES OF SOME OF THE ADVANTAGES OF AI IN GI NURSING

- ❖ Uncovering leading clinical practices
- ❖ Reducing research discovery time
- ❖ Streamlining administration
- ❖ Offering new, personalized patient treatment

USE OF AI IN GI NURSING

- ❖ Clinical using artificial intelligence in the upper gastrointestinal field.
- ❖ Recognition of anatomical location of EGD (Esophagostoma duodenoscopy).
- ❖ Diagnosis of gasterophageal reflex disease.
- ❖ Recognition of atrophic corpus gastritis.
- ❖ Analysis of images.
- ❖ Diagnosis of oesophageal cancer (2019)
- ❖ Diagnosis of oesophageal squamous dysplasia (2015)
- ❖ Discrimination of anatomical locations of EGD images.
- ❖ Detection of premalignant and malignant lesions.

CONCLUSION

Since AI was introduced in the 1950s, it has been persistently challenged in terms of statistical or image analyses in the field of gastroenterology. Recent evaluation of big data and computer science enabled the dramatic development of AI technology, particularly DL, which showed promising potential. Now, there is no doubt that the implementation of AI in the gastroenterology field will progress in various healthcare services. To utilize AI wisely, physicians should make great effort to understand its feasibility and ameliorate the drawbacks through further investigation.

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ARTIFICIAL INTELLIGENCE IN NEUROLOGICAL NU

NCAI - 2023

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INTRODUCTION

Artificial intelligence is one of most exciting methodological shifts in our era. It holds the potential to transform health cares as we know it to a system where human and machine work together to provide better treatment for our patients. it is now clear that cutting edge artificial intelligence models in conjunctions with high quality clinical data will improve prognostic and diagnostic model in neurological disease, facilitating expert level of clinical decision across healthcare setting. Despite the clinical promise at artificial intelligence, particularly core concept of artificial intelligence, particularly contemporary deep-learning methods to give clinician and neurosciences researcher an appreciation at how artificial intelligence can be support clinical decision.

Modern clinical practice requires the integration and interpretation of ever-expanding volume of clinical data. Artificial neural networks and other forms of machine learning algorithm are likely to be increasingly encountered in clinical practice. Recent advances in artificial intelligence and the development of sophisticated machine learning algorithm offer a potential mean to use these data more efficiently and effectively.

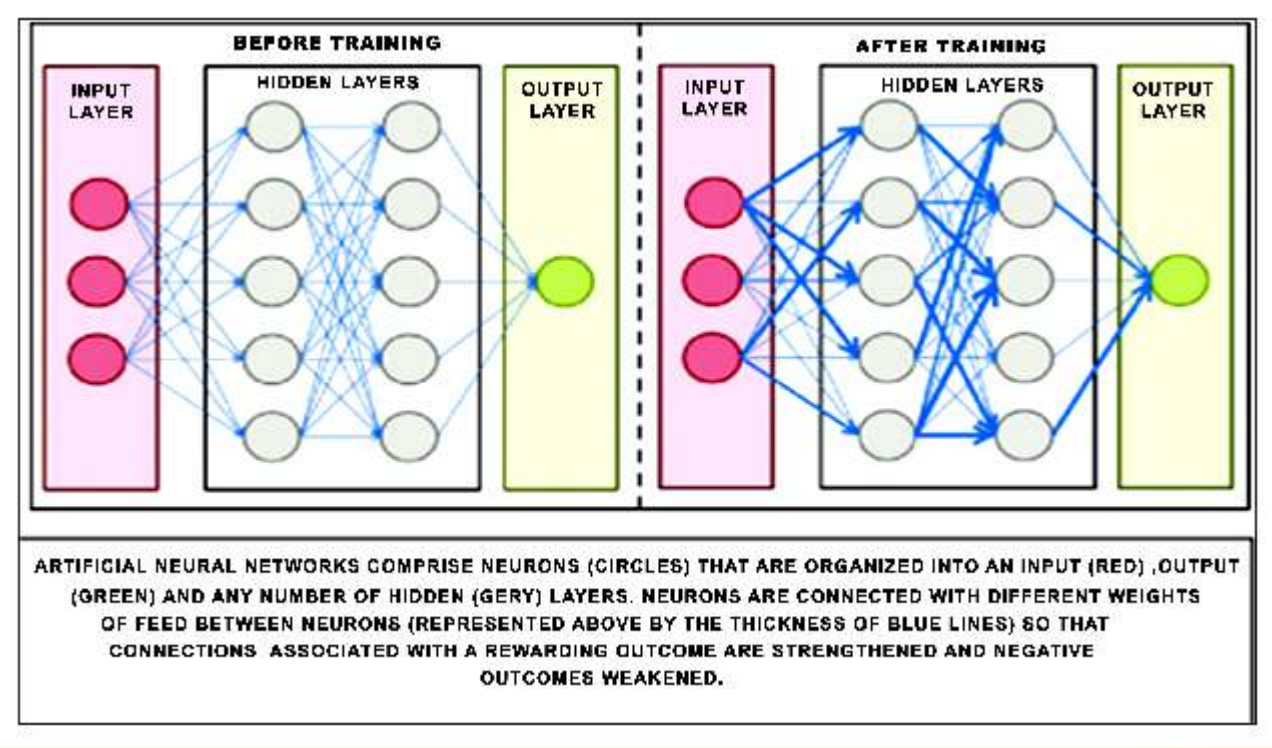
Artificial Intelligence (AI)

AI covers the field of computer science that is focused on stimulating intelligent human behaviour and computational processes within the brain. Other term, such as “machine learning" and “deep learning” are sometime used as synonyms of AI

ARTIFICIAL NEURAL NETWORKS

Artificial neural network refers to a structure of algorithm that loosely mimic their biological counterpart.

They are constructed of three types of neurons: Input layer (analogous to primary sensory neuron) whose neuron 'feed forward' into any number of 'hidden layer 'which in turn feed forward to an 'output layers'.



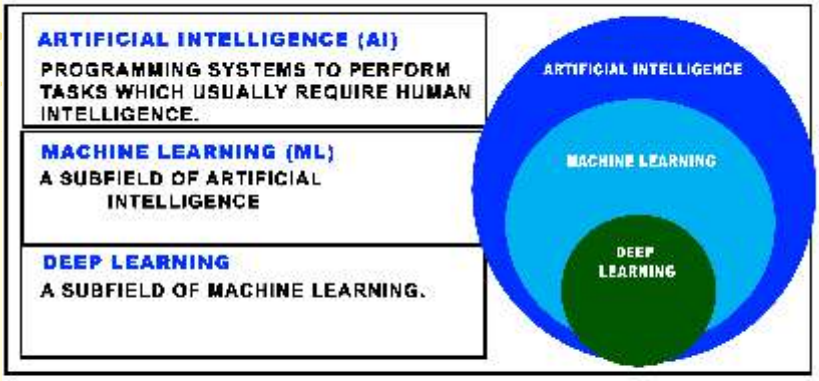
ARTIFICIAL NEURAL NETWORKS COMPRISE NEURONS (CIRCLES) THAT ARE ORGANIZED INTO AN INPUT (RED) ,OUTPUT (GREEN) AND ANY NUMBER OF HIDDEN (GERY) LAYERS. NEURONS ARE CONNECTED WITH DIFFERENT WEIGHTS OF FEED BETWEEN NEURONS (REPRESENTED ABOVE BY THE THICKNESS OF BLUE LINES) SO THAT CONNECTIONS ASSOCIATED WITH A REWARDING OUTCOME ARE STRENGTHENED AND NEGATIVE OUTCOMES WEAKENED.

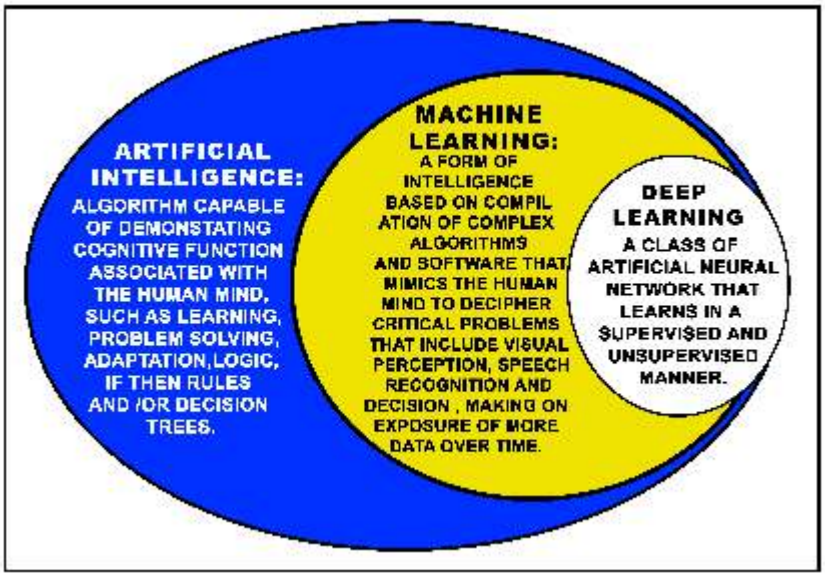
DEEP LEARNING

A class of artificial neuron networks that learn in a supervised and unsupervised manner.

USE OF AI IN NEUROLOGICAL NURSING

- Research from Heidelberg University Hospital and the German cancer Research Centre have trained a machine learning algorithm using approximately 500 magnetic resonance imaging (MRI) Scan of patients suffering from brain tumours.
- There is evidence that a combination of multiple deep-learning algorithms could be used to analysed EEG traces and identified personalised signature of a pre ictal brain state up to an hours before a seizure.
- This could have important implication for identifying and mitigating a seizure before it produces symptoms.
- Machine learning is particular useful when working with very long dataset (e.g EEG, EMG and, most form of imaging).





ADVANTAGE OF AI IN NEUROLOGICAL NURSING

- Reduction of human error
- Zero risk.
- 24x7 availability
- Digital assistance
- New intervention
- Unbiased decision
- Daily Application

CURRENT USE OF AI IN NEUROLOGICAL NURSING: -

A recent study found that AI can transform a person brain wave recorded during speech production into real text.

CONCLUSION

Artificial intelligence is methodology which has potential to transform healthcare to provide better treatment to patients. Recent advances in artificial intelligence and the development of sophisticated machine learning algorithm offer a potential mean to use these data more efficiently and effectively.

KEY WORDS:

AI (Artificial intelligence), Artificial neural network, Digital assistance.

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ARTIFICIAL INTELLIGENCE IN CARDIAC NURSING

NCAI - 2023

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ABSTRACT

Artificial intelligence (AI) essential for cardiac Nursing. It is a transformation technology that will affect all health care providers. This article is offers an overview of basic AI concepts and the role of Nurses in embracing this technology in healthcare settings. It is essential for nurses to have basic understanding of AI concepts and the role of nurses in incorporating it into the health care setting.

AI FUNDAMENTALS

AI is defined as the theory and development of computer system able to complete tasks that typically require human intelligence such as visual perception speech recognition, decision making and or language translation, computer vision and natural language processing technologies.

Nurses should understand how AI is utilized in patient care. Some transformational uses of the technology include accelerating innovation, improving decision making, automating and spending up process and saving overall costs.

AI CHANGING THE CARE OF NURSING

It has been predicted that artificial intelligence will change the way of Nursing. New trends are being introduced in Nursing care every day. The most important element that powers artificial intelligences in healthcare is data, software powered by machine learning will never outperform the quality of its training dataset.

USE AI IN CARDIAC NURSING

1. Providing user centric experiences :- Using large dataset and machine learning healthcare organizations can find insights faster and more accurately with AI, enabling improved satisfaction both internally and with those they serve.

2. Improving efficiency in Operations :- By examining data pattern AI technologies can help cardiac nurses make the most of their data, assets and resources increasing efficiency and improving performance of clinical and operational workflows process and financial operations.

3. Connecting disparate health care data :- Nurses can connect disparate data to get a more unified picture of the individuals behind the data.

4. By supplementary labor - Intensive image scanning and care triage. AI solution used in medical imaging enable cardiologist and cardiac nursing and radiologist by surfacing relevant insights that can help them identify critical cases first, make more accurate diagnosis and potentially avoid errors while taking advantage of the breath and complexity or electronic health records. Such as :-

ECG records (Electrocardiogram). Continuous cardiac monitor or pulse oxymeter can help to assess the cardiac patients conditions. This will also helps to nurses who working in ICCU (Intensive cardiac care unit) to assess the clients conditions.

5. Visual Recognition :- It is helping cardiac nursing care by computing physical images. The main goal is to identify and diagnosis the problem, patients breathing pattern and observed.

6. Voice Assistance :- Just like Siri (Application for iPhone, is an easy way to make calls, sent texts, use apps and get things done with just your voice). These AI powered apps can retrieve any data which is being accrued at that time. It can collect information at any moment. Can be used to assist patient by scheduling their tests and procedure.

Eg :- Cardiac catheterization, planning angiography, angioplasty surgery. Nurses will no longer be doing hectic tasks to gather data from patient's histories.

7. Machine Learning :- The algorithms used in machine learning are the same in the nursing sector. It completes tasks automatically and can make a plan chart of patient care.

CONCLUSION

With the involvement of machines, new techniques and sets will be required by nurses to contribute to Nursing care. Nurses will be going to be the main influential factor in the development of AI in nursing care. AI technology is partnering with nursing care to assess clinical data of the cardiac patient, utilize the essential and assist with clinical decision and improve the cardiac patient experiences. These technologies are offering immense and massive opportunities to improve nursing care of the cardiac patient. Fusing the trends with AI and educating nurses will improvise and provide unlimited solutions for cardiac nursing care. Nurses should be the vaguard and embrace the use of AI in health care settings.

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ARTIFICIAL INTELLIGENCE IN NEONATAL NURSING

NCAI - 2023

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Neonatal AI application

The use of AI in neonatal care has huge potential, especially with the increasingly complex intensive care provided for high-risk infants. AI should be viewed as a tool within the healthcare professionals' (HCPs') armoury, alongside blood investigations and imaging, to support shared clinical decision making, provide efficient personalised neonatal care and reduce avoidable errors.

AI application in large neonatal clinical datasets

Prediction of neonatal mortality and morbidity:-The establishment of high quality, validated, multi-dimensional neonatal datasets have led to the development of prediction models for neonatal mortality or morbidity using deep learning approaches. A good example is preterm survival without bronchopulmonary dysplasia (BPD), an important preterm birth research priority with significant respiratory and neurological problems into adulthood.

Identifying hidden patterns within data:-Deep learning approaches have been deployed in large clinical datasets to identify hidden data patterns. An example of such application is exploring the variation of neonatal nutritional practices and their association with clinical outcomes .This could identify "optimal" nutritional practices as well as improve the understanding of the underlying pathophysiology and impact of nutritional practices on neonatal outcomes.

AI application in real-time routinely recorded neonatal intensive care vital signs:-

Continuous monitoring of vital signs is an essential component of cardiorespiratory care of infants admitted to the neonatal intensive care unit. The abundance of data, generated

by multiple sensors, can offer insight into the infant's clinical status. Pre-set alarm thresholds in bedside monitors can alert HCPs about an acute change in the infant's condition. The application of machine learning (ML) algorithms on monitoring data has been shown to improve the selection of alarms requiring immediate intervention, providing earlier recognition for pre-emptive clinical action, and directing care towards a more efficient, individualized approach. Many NICU's are have already implemented the continuous visualization of monitoring data into their electronic medical record, enabling HCPs to look for specific patterns in the combined data. Many NICU's are still dependent on infrequent, usually hourly, snapshots of vital signs, often manually registered in the patient's medical record, leaving the majority of abundantly available digital data unutilized. Linking these data-rich measures from fetal monitoring, care in the delivery room, through to the NICU and early home monitoring, with longer-term outcomes could help advance the understanding of optimal early life care and improve the outcomes of high-risk infants.

AI application in neuroimaging and neurophysiological investigations

Magnetic resonance Imaging (MRI):-The past five years have seen enormous strides in the use of AI for improving value and inference from brain MRI. In the clinical realm, AI is enabling innovation in 3 key areas: defining neuroanatomic phenotypes, predicting outcome, and facilitating scale-up of imaging studies. Preterm birth is closely associated with a phenotype that includes atypical brain development, and subsequent intellectual disability, cerebral palsy, autism spectrum disorder, attention deficit hyperactivity disorder, psychiatric disease and problems with language, behavior and socioemotional functions. Structural, diffusion and functional MRI have each provided fundamental insights about alterations to structural and functional networks that are common in infants born preterm.

Continuous electroencephalography: - EEG provides real-time information about brain activity and is now considered essential for the diagnosis and effective treatment of seizures in neonates. EEG is needed very soon after birth particularly for infants with hypoxic-ischemia encephalopathy (HIE) as seizures can emerge within the first 24 h. As neonatal seizures are a neurological emergency, they require prompt treatment. Up to 85% of neonatal seizures may have no obvious clinical signs, particularly in infants with HIE, making recognition very difficult. The only way to recognize and promptly treat all seizures is to use continuous EEG monitoring.

AI application in image recognition:-Deep learning techniques such as convolutional neural networks (CNNs) and computer vision approaches can address the challenges of the potentially small and skewed datasets that often characterize neonatal image

recognition tasks. These rely on a two-stage technique: automated segmentation of image or scene of interest followed by identification of the outcome of interest. Examples include the estimation of the gestational age of infants at birth using images of newborn infants; analyzing videos of clinical procedures, such as newborn resuscitation, and assessment of pain. Gestational age at birth often guides treatment delivered by HCPs. Early dating prenatal ultrasound scan is the gold standard for assessing the gestational age of an infant.

AI application in predicting response to neonatal treatment

Premature infants are commonly diagnosed with respiratory distress syndrome, requiring intubation and mechanical ventilation (MV). MV of preterm infants presents several challenges, including specific oxygenation targets and minimizing ventilator-induced lung injury (VILI). Personalised treatment requires rapid and frequent interventions based on changes in the patient's state that are often not achievable within current NICU constraints. For example, oxygen saturation targets in mechanically ventilated neonates were achieved only 40% of the time, something AI techniques could potentially address.

Future: -

AI is likely to become an indispensable part of the neonatal care toolkit to support HCPs and parents/carers in providing improved, efficient and safer neonatal care. For this to become a reality, two crucial steps need to be taken. Firstly, the digital literacy among HCPs in understanding AI's principles and limitations needs to be improved. This enables HCPs to appraise newly developed AI tools and monitor their safety and appropriate use in clinical practice. Secondly, there is a need for cross-disciplinary, international collaborations that includes data and computer scientists, HCPs, lawyers and policymakers to design and apply AI tools that will overcome the challenges highlighted.

Conclusion: -

AI will be an integral part of the data-rich environment of neonatal care and this review highlights important areas of its application under investigation. These include mortality and disease prediction, image analysis and clinical decision support tools. However, current AI application is lagging behind adult specialties and a concerted effort is needed to accelerate neonatal AI research and translation into meaningful clinical application.

ARTIFICIAL INTELLIGENCE IN FORENSIC NURSING

NCAI - 2023

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Introduction:-

Artificial Intelligence (AI) has a Considerable present and future influence on health care Nurses representing the largest proportion of health care workers are set to immensely benefit from this technology. A total of 18 quantitative. qualitative, mixed methods and review related to AI Nursing were retrieved from the CINAHL and EMBASE databases using a Boolean search presently the concept of AI in nursing is immature. The characteristics and preconditions and outcomes on the use of AI in nursing are mixed between and within each other As for boundaries they can be more distinguished between robots, sensors and clinical decision support system but these lines can become more blurred in the future.

The world has been continuously experiencing social, economic, political, cultured and technology change AI is currently making worldwide headlines, being a significant influence in a select few nursing contexts.

Concept:-

Analysis AI in forensic Nursing Language is an essential component of the human experience and serves as the sole medium to communicate our thoughts and ideas concept can be formally defined as a complex mental formulation of empirical experience

The examination and analysis of concepts have the potential to determine the state of the science a concept analysis has not been conducted on the use of AI in Nursing, a few relatable and relevant concept analysis have been conducted .

Definition:-

Forensic Nursing is defined as the application of the Nursing process to public or legal proceeding and the application of forensic healthcare in the scientific investigation of trauma and/or/death related to as use violence , criminal activity liability and accidents. A more complex definition of AI is "multiple technologies that can augment human activities in the form of machine learning to process and learn with raw data and deep learning to stimulate decision making using complex artificial neural networks

Machine definition is the most common definition of AI is mentioned in 13 of the 18 article one definition of machine learning that is not too simple machine learning, neural networks and decision trees are seen as applications of AI which is the global term covering machine mimicking human intelligence.

As an application of AI derived from mathematical models of the brain used for forecasting and meant to detect complex nonlinear relationship between dependent and independent variables.

Different role of forensic Nurse

- Clinical forensic Nurse
- Forensic Nurse Investigation
- Sexual Assault Nurse Examiner
- Forensic psychiatric Nurse
- Legal Nurse consultants
- Nurse Attorney
- Nurse corner

Conclusion:-

Knowledge synthesis, and theorizing furthermore this concept analysis highlights the importance of differentiating robots, CDSS, and Al and proposes the evaluation of Nursing AlS according to its patient nurse and organizational-level outcomes. it is determined that the concept of the use of Al in nursing is presently immature.

There are numerous outcomes as a result of the use of AI in forensic Nursing namely on the patient, nurse, and organization level However there is no Al with significant and direct outcomes at each level

For the patient level main outcomes is increased awareness of patient conditions usually this would involve prediction, such as determining which patient is most at risk for falls as using the EMR to assess which discharged patients are most likely to be readmitted. This increased awareness of patient issues results. In tangible patient outcomes such as faster Identification of patient mortality rate. evaluated the use of home sensors and remote patient monitoring by an Al and noted that the Sense of privacy increased because there are less in person visits by the nurse. The outcomes at the nurse level are closely related to patient-level- outcomes. The positive outcomes from both the patient level (reduced patient mortality) and staff (more documentation time saved) level result in greater Organizational efficiency and significant cost savings.

ARTIFICIAL INTELLIGENCE (AI) IN GERIATRIC NURSING

NCAI - 2023

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Introduction:-

Artificial Intelligence (AI) integration and adaption is shown to have the most significant potential for boosting empathy and compassion in elder care were seeing how Al Can work effectively with health care professionals to create improved patient outcomes for the aged. The ageing population has led to a surge in the adaption of artificial intelligence (Al) technologies in elderly health care worldwide. The scoping review aimed to provide a comprehensive overview of Al technologies in elderly health care by exploring the types of Al technologies employed and identifying their roles in elderly health care based. The Al devices utilized in geriatric Nursing were summarized, as robots, exoskeleton devices and intelligent homes. AI enabled health smart application and wearable's voice activated devices and virtual reality.

Definition of Geriatric Nursing-

Nursing care of the aged patient given in the home the hospital or special institutions such as nursing homes psychiatric institutions etc.

Role of AI in Geriatric Nursing

1. **Communications will increase-**

   It is essential to keep constant communication about the elders in the family. The introduction of AI- enabled technologies, such as Alexa in mobile IoT (Internet of

Things)devices or apps will empower family members and the care team to increase the level of communication among them regarding better care for their elder dear ones. It's especially crucial for elders who are being cared for athome for example in emergencies there is so manydevices that will immediately inform all the care team members.

2. **AI chatbots can provide companionship to elders :–**

   Today's fast-paced environment is where everyone needs to run to survive Working takes most of our time and providing companionship to our elders loved ones usually takes backseat. AI chatbots can provide this companionship that the elders very much need. These are called social robots whose include reminding them when to take their medicines, their doctor's appointments, or even when they are supposed to eat. Some of them can also remind elders.

3. **AI devices can predict and prevent falls :-**

   Elders who live alone always fear that they may fall and no one can help them immediately. Fortunately there's an emerging wearable AI technology that can predict or even prevent falls. So it's an excellent opportunity for older people to be confident even to go outside.

4. **AI sensors can notify emergency services :-**

   Installing AI-powered sensors at home can also identify if an elders has fallen or has encountered an accident. It will then automatically send signals tothe emergency services for help Its another way of reassurance and confidence for older people living alone at home.

5. **Helps collect more in depth health data :-**

   Patient health data is the back bone of any health care provider. Using AI health care companies can automate several repetitive and tedious tasked such as scheduling and billing many of the AI apps on smartphones available today could monitor health data such as daily activities diet and even the elders life style, in a less intrusive way they could even perform a more in depth scanning of the person's blood pressure of even electrocardiogram monitoring In such cases, it could help in anticipating and therefore preventing any passible hypertension or irregulars heart rate (Artificial fibrillation).

6. **Wearable's and Implants can provide continuous monitoring :-**

   We will consistently see technology and artificial intelligence drive continuous health care for older adults through wearable, implants and another form of sensor.

7. **GPS can track the movements of the elders :-**

   GPS is also powered by AI and you can use it to track older people's movements, machine learning programs could use this data to alert the elders care team and family members when there are changes with his or her activities.

Conclusion:-

With the growing numbers of the aging population we may be able to leverage technology like Artificial intelligence to assist us in caring for our elderly. Many believe that Al may replace humans in the future it need not be the personal touch is still the most critical aspect when it comes to elder health care. So AI and other innovation such as machine learning and deep learning must be viewed as a supplement to people rather than a complete replacement.

ARTIFICIAL INTELLIGENCE IN SURGERY

NCAI - 2023

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Introduction

Advances in surgery have made a significant impact on the management of both acute and chronic diseases, prolonging life and continuously extending the boundary of survival. Complex surgical navigation and planning are made possible through the use of both pre- and intra-operative imaging techniques such as ultrasound, Computed Tomography (CT), and Magnetic Resonance Imaging

For recent advances in medicine, AI has played an important role in clinical decision support since the early years of developing the MYCIN system. AI is now increasingly used for risk stratification, genomics, imaging and diagnosis, precision medicine, and drug discovery. The introduction of AI in surgery is more recent and it has a strong root in imaging and navigation, with early techniques focused on feature detection and computer assisted intervention for both pre-operative planning and intra-operative guidance. With recent successes of AlexNet, deep learning methods, especially Deep Con- volutional Neural Network (DCNN) where multiple convolutional layers are cascaded, have enabled automatically learned data-driven descriptors, rather than ad hoc hand-crafted features, to be used for image understanding with improved robustness and generalizability. AI is set to transform the future of surgery, through the development of more sophisticated sensorimotor functions with different levels of autonomy that environment, leveraging the parallel advances in medicine in early detection and targeted therapy.

We first introduce the application of AI in pre- operative planning and this is followed by AI techniques for intra-operative guidance, a review of AI in surgical robotics, as well as conclusions and future outlook.

Pre-operative planning where surgeons plan the surgical procedure from existing medical records and imaging is essential for the success of a surgery. X-ray, CT, ultrasound and MRI are the most common ones used in practice. Routine tasks based on medical imaging

Endoscopic Navigation

In surgery, there is an increasing trend towards intra-luminal procedures and endoscopic surgery driven by early detection and intervention. Navigation techniques have been investigated to guide the manoeuvre of endoscopes towards target locations. To this end, learning-based depth estimation, visual odometry and Simultaneous Localization and Mapping (SLAM) have been tailored for camera localization and environment mapping with the use of endoscopic images.

3D reconstruction and localization

Due to the dynamic nature of tissues, real-time 3D reconstruction of the environment and localization are vital prerequisites for navigation. SLAM is a widely studied research topic in robotics, in which the robot can simultaneously builds the 3D map of surrounding environments and localizes the camera pose in the built map. Endovascular interventions have been increasingly used to treat cardio- vascular diseases. However, visual cameras are not applicable inside vessels, for example, catheter mapping is commonly used in Radiofrequency Catheter Ablation (RFCA) for navigation .

Augmented Reality (AR)

AR improves surgeons' intra-operative vision through a prevision of a semi-transparent overlay of pre-operative imaging on the area of interest. Wang et al used a projector to project the AR overlay for oral and maxillofacial surgery. The 3D contour matching was used to calculate the transformation between the virtual image and real teeth.

With the development of AI techniques, surgical robots can achieve superhuman performance during MIS. The objective of AI is to boost the capability of surgical robotic systems in perceiving the complex in vivo environment, conducting decision making, and performing the desired task with increased precision, safety, and efficiency.

Instrument segmentation and tracking

The instrument segmentation task can be divided into three groups: seg- mentation for distinguishing the instrument and background, multi-class seg- mentation of instrument parts, i.e., shaft, wrist, and gripper, and multi-class segmentation for different instruments. The advancement of deep learning in segmentation has significantly improved the instrument segmentation accuracy from the exploitation of SVM for pixel-level binary classification to more recent popular DCNN architectures, e.g., U-Net, TernausNet-VGG11, TernausNet-VGG16, and LinkNet based on ResNet architecture, for both binary segmentation and multi-class segmentation .

Algorithms for solving tracking problems can be summarized into two categories: tracking by detection and tracking via local optimization. Previous works in this field mainly relied on hand-crafted features, such as Haar wavelets, color or texture features, and gradient-based features.

A representative example of tool-tissue interaction during surgery is suturing. In this task, the robot needs to recover the 2D or 3D shape of thread from 2D images in real-time. The estimation of the interaction force between surgical instruments and tissues can provide meaningful feedbacks to ensure a safe manipulation. Due to the limited size of surgical tools for MIS, the high precision and minia- turized force sensors are still immature. Recent works have incorporated AI techniques in the field of Vision-based Force Sensing (VBFS), which can accurately estimate the force values from visual inputs.

System Modelling and Control Learning from human demonstrations

Learning from demonstration (LfD), also known as programming by demonstration, imitation learning, and apprenticeship learning. This paradigm is beneficial for complicated automation tasks such as surgical procedures, for which surgical robots can autonomously execute specific motions or tasks simply through learning from surgeons' demonstrations without tedious programming procedures. The robots could reduce surgeons' tedium as well as providing superhuman performance both fast speed and smoothness.

Reinforcement learning

In many surgical tasks, RL is another popular machine learning paradigm to solve the problem that is difficult to analytically model and explicitly ob- serve, e.g., control of the continuum robot, soft tissue manipulation, cutting gauze tensioning, tube insertion,

etc.. In the learning process, the controller of autonomous surgical robot, known as an agent, tries to find the optimized policies that yield highly accumulated reward through itera- tive interaction with the surrounding environment. The environment of RL is modelled as a Markov Decision Process (MDP). To efficiently reduce the learning time, the RL algorithm can be initialized with the learned policies from human expert demonstrations Recently, DRL with advanced policy search methods endows robots to autonomously execute a wide range of tasks. However, it is unrealistic to repeat the experiments on the surgical robotic platform for over a million times

Human-Robot Interaction

Human-Robot Interaction (HRI) is a field that integrates knowledge and techniques from multiple disciplines to build an effective communication be- tween human and robots. With the help of AI, surgical task-oriented HRI allows surgeons to cooperatively control the surgical robotic systems with touchless manipulation. Interaction mediums between surgeons and intelli- gent robots are usually through surgeons' gaze, head movement, speech/voice, and hand gesture. By understanding the intention of human, robots can then perform the most appropriate actions that satisfy surgeons' needs.

Robots have the potential to interpret humans' intentions or commands through voice commands, but for assisting robotic surgery, it still remains challenging due to the noisy environment in the operation room. With the development of deep learning in speech recognition, the precision and the accuracy of speech recognition have been significantly improved . This improvement leads to a more reliable control of the surgical robot. The advancement in AI has been transforming modern surgery towards more precise and autonomous intervention for treating both acute and chronic symptoms

Conclusion

Artificial Intelligence (AI) is gradually changing the practice of surgery with the advanced technological development of imaging, navigation and robotic intervention. In this article, the recent successful and influential applications of AI in surgery are reviewed from pre-operative planning and intra-operative guidance to the integration of surgical robots.

ARTIFICIAL INTELLIGENCE IN PHARMACOLOGY

NCAI - 2023

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The use of artificial intelligence (AI) has been increasing in various sectors of society, particularly the pharmaceutical industry. In this review, we highlight the use of AI in diverse sectors of the pharmaceutical industry, including drug discovery and development, drug repurposing, improving pharmaceutical productivity, and clinical trials, among others; such use reduces the human workload as well as achieving targets in a short period of time. We also discuss crosstalk between the tools and techniques utilized in AI, ongoing challenges, and ways to overcome them, along with the future of AI in the pharmaceutical industry.

AI in the lifecycle of pharmaceutical products:

Involvement of AI in the development of a pharmaceutical product from the bench to the bedside can be imagined given that it can aid rational drug design ; assist in decision making; determine the right therapy for a patient, including personalized medicines; and manage the clinical data generated and use it for future drug development . E-VAI is an analytical and decision-making AI platform developed by Eularis, which uses ML algorithms along with an easy-to-use user interface to create analytical roadmaps based on competitors, key stakeholders, and currently held market share to predict key drivers in sales of pharmaceuticals thus helping marketing executives to allocate resources for maximum market share gain, reversing poor sales and enabled them to anticipate where to make investments.

AI in drug discovery:

The virtual chemical space is enormous and suggests a geographical map of molecules by illustrating the distributions of molecules and their properties. The idea behind the illustration of chemical space is to collect positional information about molecules within the space to search for bioactive compounds and, thus, virtual screening (VS) helps to select appropriate molecules for further testing. Several chemical spaces are open access, including PubChem, ChemBank, DrugBank, and ChemDB.Numerous *in silico* methods to virtual screen compounds from virtual chemical spaces along with structure and ligand-based approaches, provide a better profile analysis, faster elimination of nonlead compounds and selection of drug molecules, with reduced expenditure . Drug design algorithms, such as coulomb matrices and molecular fingerprint recognition, consider the physical, chemical, and toxicological profiles to select a lead compound

AI in designing drug molecules:

Prediction of the target protein structure

While developing a drug molecule, it is essential to assign the correct target for successful treatment. Numerous proteins are involved in the development of the disease and, in some cases, they are overexpressed. Hence, for selective targeting of disease, it is vital to predict the structure of the target protein to design the drug molecule. AI can assist in structure-based drug discovery by predicting the 3D protein structure because the design is in accordance with the chemical environment of the target protein site, thus helping to predict the effect of a compound on the target along with safety considerations before their synthesis or production . The AI tool, AlphaFold, which is based on DNNs, was used to analyze the distance between the adjacent amino acids and the corresponding angles of the peptide bonds to predict the 3D target protein structure and demonstrated excellent results by correctly predicting 25 out of 43 structures.

AI in advancing pharmaceutical product development

The discovery of a novel drug molecule requires its subsequent incorporation in a suitable dosage form with desired delivery characteristics. In this area, AI can replace the older trial and error approach . Various computational tools can resolve problems encountered in the formulation design area, such as stability issues, dissolution, porosity, and so on, with the help of Quantitative structure property relationship (QSPR) . Decision-support tools use rule-based systems to select the type, nature, and quantity of the excipients depending on the physicochemical attributes of the drug and operate through a feedback mechanism to monitor the entire process and intermittently modify it.

AI in clinical trial design

Clinical trials are directed toward establishing the safety and efficacy of a drug product in humans for a particular disease condition and require 6–7 years along with a substantial financial investment. However, only one out of ten molecules entering these trials gain successful clearance, which is a massive loss for the industry . These failures can result from inappropriate patient selection, shortage of technical requirements, and poor infrastructure. However, with the vast digital medical data available, these failures can be reduced with the implementation of AI .

The enrolment of patients takes one-third of the clinical trial timeline. The success of a clinical trial can be ensured by the recruitment of suitable patients, which otherwise leads to 86% of failure cases . AI can assist in selecting only a specific diseased population for recruitment in Phase II and III of clinical trials by using patient-specific genome–exposome profile analysis, which can help in early prediction of the available drug targets in the patients selected. Preclinical discovery of molecules as well as predicting lead compounds before the start of clinical trials by using other aspects of AI, such as predictive ML and other reasoning techniques, help in the early prediction of lead molecules that would pass clinical trials with consideration of the selected patient population .

Drop out of patients from clinical trials accounts for the failure of 30% of the clinical trials, creating additional recruiting requirements for the completion of the trial, leading to a wastage of time and money. This can be avoided by close monitoring of the patients and helping them follow the desired protocol of the clinical trial. Mobile software was developed by AiCure that monitored regular medication intake by patients with schizophrenia in a Phase II trial, which increased the adherence rate of patients by 25%, ensuring successful completion of the clinical trial.

AI in quality control and quality assurance

Manufacturing of the desired product from the raw materials includes a balance of various parameters . Quality control tests on the products, as well as maintenance of batch-to-batch consistency, require manual interference. This might not be the best approach in each case, showcasing the need for AI implementation at this stage . The FDA amended the Current Good Manufacturing Practices (cGMP) by introducing a 'Quality by Design' approach to understand the critical operation and specific criteria that govern the final quality of the pharmaceutical product

Cpnclusion

The advancement of AI, along with its remarkable tools, continuously aims to reduce challenges faced by pharmaceutical companies, impacting the drug development process along with the overall lifecycle of the product, which could explain the increase in the number of start-ups in this sector . The current healthcare sector is facing several complex challenges, such as the increased cost of drugs and therapies, and society needs specific significant changes in this area. With the inclusion of AI in the manufacturing of pharmaceutical products, personalized medications with the desired dose, release parameters, and other required aspects can be manufactured according to individual patient need. Using the latest AI-based technologies will not only speed up the time needed for the products to come to the market, but will also improve the quality of products and the overall safety of the production process, and provide better utilization of available resources along with being cost-effective, thereby increasing the importance of automation

ARTIFICIAL INTELLIGENCE IN EPIDEMIOLOGY

NCAI - 2023

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The applications of AI can be found in many disciplines and industries in modern society, and healthcare is not an exemption. The rapid growth of AI-based techniques and tools in healthcare are addressing complex problems such as identifying previously undiscovered relationships in patient phenotypes

AI algorithms have the potential to interpret biomedical and healthcare data particularly for tasks where conventional statistical methods are less efficient. The algorithms are even more suitable for datasets of large scale and high dimensions.

Epidemiology and information:

*Epidemiology is the **study** of the **distribution** and **determinants** of **health-related states or events** in **specified populations,** and the **application** of this study to the control of health problems*

Information communication technology (ICT) based health information systems (HISs) are expected to transform health system functionality. The present study was aimed to evaluate HISs in India with a focus on primary health care (PHC).

Application In epidemiology

Applications of artificial intelligence to fight against PANDEMIC are huge, it helped scientists to fight against the disease. To manage every step of a crisis and its aftermath, including detection, prevention, reaction, and recovery, as well as to speed up research, AI tools and technologies can be used to support efforts made by policymakers, the medical community, and society at large.

1. Old and new medications or treatments that may treat diseases can be predicted with the aid of AI and deep learning algorithms. Several institutes are utilizing AI to find therapies and create vaccination prototypes.
2. AI techniques can be used to track wider economic effects and track pathogen transmission chains. Numerous instances have shown that AI technologies can infer epidemiological data more quickly than traditional reporting of health data.
3. Developing drugs and vaccines is just one example of the pandemic-driven solutions found in the article 'Accelerating Research: Open Data Initiatives and Distributed Computing.'
4. Early warnings from AI-powered early warning systems can supplement syndromic monitoring and other healthcare networks and data flows by detecting epidemiological patterns by mining mainstream media, web content, and other information channels in different languages.
5. To prevent infection and comprehend the course of the condition, rapid diagnosis is essential. AI could assist in making a quick diagnosis of cases when applied to photos and symptom data. To ensure scalability and accuracy, care must be taken to collect data that is representative of the entire population.
6. Locating, identifying, and getting in touch with high-risk, vulnerable people. To identify Medicaid patients most at risk from disease based on the risk of respiratory problems and social isolation, Medical Home Network, a non-profit organization with headquarters in Chicago, has deployed an AI platform.
7. Automation in service: In hospitals, semi-autonomous robots and drones are being used to meet urgent demands like delivering food and medications, cleaning and sterilizing, assisting doctors and nurses, and making equipment deliveries.
8. Social networks and search engines are utilizing tailored AI information and tools and relying on algorithms to discover and remove problematic material on their platforms to combat misinformation .

ARTIFICIAL INTELLIGENCE IN NURSING ADMINISTRATION

NCAI - 2023

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The Artificial intelligence (AI) is often described as new electricity. Just as the invention of electricity transformed the way we live, work and play, AI is poised to transform the world we live. By 2025, research predicts that global AI healthcare spending will equal $36.1 billion.

With technology investments of this magnitude and extensive government programs to advance AI, health care teams will be significantly impacted innovations such as intelligent robots are launched into healthcare and administration in nursing. Now more than ever, high quality nursing care defends on instantaneous processing and decisive action when interacting with abundant volumes of data. With this new standard, artificial intelligence (AI) offers a promising road ahead for the practise of nursing. AI has applications in virtually all specialities and nursing work settings, so learning how to productively engage with this technology, presents huge opportunity.

Throughout the last two decades, nurses have learned to adapt their workload and practise to the influx of data that has resulted from the introduction of clinical information systems, outcomes based on the identification of trends and surface answers to questions that are waiting to be asked in some cases.

Nurses welcome these new technological solutions as collaborators and the newest non-human contributing member to the patient care team.

There lies the opportunity for nursing: the ability to argument existing clinical intelligence by quickly processing through multiple sources of information to make recommendations, forecast results and assists with decisions.

ARTIFICIAL INTELLIGENCE IN OPTHALMOLOGY

NCAI - 2023

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Artificial intelligence is very useful in ophthalmology. On- going research aim, with the help of computer programming to diagnosed disease early as possible to avoid complication and help doctor to minimize work load. In ophthalmology, most widely used computer programming for detection of pathophysiology and to treat the patient with the help of Photography study, Corneal topography and tomography, OCT profile.

AI assisted computer screening and diagnosis of the common disease in ophthalmology may ultimately help maximize the doctor's role at the clinic. Outside the clinic, where an ophthalmologist is not available their AI platforms provide more medical circumstances and subsides barrier to access for an eye care. DL has shown important work in the field of ophthalmology clinically detecting retinal disorders such as diabetic retinopathy, retinopathy of prematurity, ARMD, Glaucoma etc. Application of AI make great support to remote area patient by contributing information in limited resources. Al also be applied in clinics to decreased the number of patient's referral in higher centre for further management.

These may help in early detection and appropriate treatment of eye diseases are of great significance to prevent vision loss and promote living quality: conventional diagnoses methods are tremendously depends on physicians professional experience and knowledge. which lead to high misdiagnosis rate and huge waste of medical data. Deep Integration of ophthalmology and artificial intelligence has the potential to revolutionize current disease diagnose pattern. and generate a significant clinical impact. Some current

studies based on machine learning have achieved a satisfactory preliminary outcome. For example, the image identification of non proliferative diabetic Retinopathy (NPDR) & proliferative diabetic Retinopathy (PDR) attract most of the attention.

The average rate of diagnosis for these disease can reach 91.3%. Compared with professional graders, they conclude that their system can achieve relative high sensitivity specificity and specificity.

Conclusion:-

In ophthalmic point of view, AI has capability. towards patient access to clinical examinations, diagnosis, managements and affordable particularly in low socioeconomic country. However, Al based screening merge in clinical practices is more important to solve legal and duplicate issues.

FUTURE OF NURSING IN ARTIFICIAL INTELLIGENCE

NCAI - 2023

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Advancements in science and technology have significantly impacted the healthcare industry. Robotic machines help doctors perform surgeries, epidemiologists have access to advanced tools and systems to help them better understand diseases, and even simple things like online patient portals and telehealth services help practitioners keep better track of patient care and give patients more accessible access to the information and support they need.

For nursing, advancements in artificial intelligence (AI) drastically change nurses' day-to-day lives and capabilities. In a single day or shift, nurses have to juggle any number of tasks from general patient care and monitoring to administering medications and treatments to communicating with doctors. They also have to stay on top of administrative tasks like charting patient records, interacting with insurance providers, and handling other types of paperwork.

A new era in health care and in nursing has begun. Global spending on health technologies powered by AI is predicted to exceed $36 billion by 2025.This trend is due in part to growing consumer demand for increased use of digital health technologies in clinical practice.

Let's take a look at some of the many ways nurses can partner with AI to ease their workload and provide better care in a transformed manner:

Improved Data

Nurses have used clinical information and other digital support systems to input clinical data and collect helpful information for a while. However, with the

implementation of AI into these systems, nurses can now gather data on a whole new level. AI computer processes can now evaluate data to provide more accurate answers to questions and provide predictions on patient outcomes by identifying trends or patterns in the data that normal humans often miss.

Optimized Workloads

There are many ways AI tech can be implemented in the healthcare setting. AI-powered voice assistance systems, for example, can help nurses perform tasks more quickly and keep them on schedule and better informed. They can ask systems for information using voice commands, such as retrieving information on patients or policies and having systems verbally remind them of their schedule and tasks they need to perform.

Machine learning processes and systems can also make decisions and take care of tasks for you, which can lighten a nurse's workload. For instance, AI systems can use patient information that is inputted into the system to identify when they need to come in for their next appointment or be scheduled for a treatment or test, and it can go ahead and prepare those things for them. It can also automatically send results and notifications about tests, appointments, and treatment plans to the patient and their care team.

Better Patient Care and Treatment

Expert AI-powered systems used to find anomalies and solve problems can better identify and diagnose diseases and conditions in patients. Visual recognition software, for example, can help nurses identify and catch issues that they might not have noticed themselves. This can include assessing and diagnosing wound integrity, monitoring breathing patterns, and even identifying non-verbal cues for pain.

Nurse often have to run back and forth all day checking on patients, but with AI systems that can monitor and alert them if anything is wrong, they can stress less and provide better-focused care. An AI system can monitor a patient's hormone levels, for example, and **notify the nurse if their testosterone levels drop too low or go too high** is something simple that an overworked nurse could miss but could now better keep track of with the help of an AI monitoring device.

Machine learning systems can also identify patterns and trends to alert nurses to patients at increased risk for infection, falls when getting out of the hospital bed, sepsis, and relapse. On the administrative side, AI can help nurses identify patients experiencing hardship and might need financial assistance to afford care. It can predict the cost of care that the patient may need based on the condition they are being treated for.

INTERNET OF THINGS (IoT) OF Medical Devices

IoT, such as IoT medical devices and wearables, is essentially smart devices that can connect to the internet to gather, share, and process data. These devices enable nurses to collect real-time patient data, receive alert notifications, and help with patient monitoring. Instead of running around the hospital checking on patients one by one, they can receive the information they need directly to their phone, a computer, or a wearable device like a smart wristband or smartwatch, closed loop (automated)insulin delivery,connected inhailers etc.

OTHER TECHNOLOGIES THAT ARE CHANGING NURSING PRACTICES

- WIRELESS communication systems
- Real time location services
- Wireless patient monitoring in seeing hand hygiene compliances,increasing security (patient and staff identification system).
- Point of care technology
- Smart TV's
- Automated equipments e.g IV pumps.
- SMART stethoscope, smart beds
- Robotics
- Virtual ICU (v ICU)
- Telehealth and apps.

HOW TECHNOLOGY WILL CHANGE NURSING IN FUTURE

1. According to the Beareau of Labor Statistics ,Registered nursing is one of the top occupation expected to grow by 12percent. (much faster than average)
2. The BLS reports 371500 new RN jobs will be added by year 2028.
3. The field of health informatics will become more in the main stream.

INTO THE FUTURE

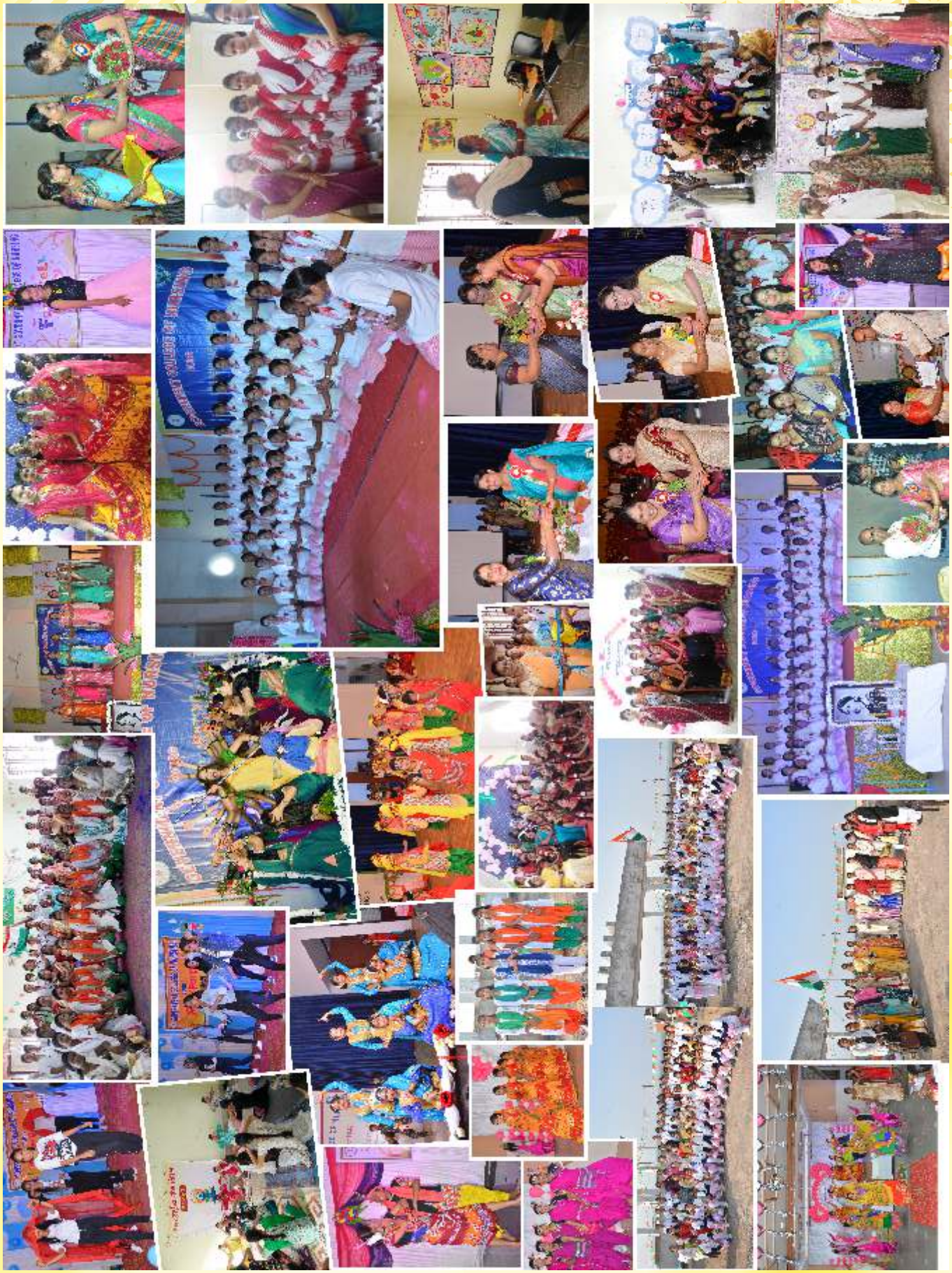
Nursing will be impacted as new AI technologies assume some tasks performed by nurses today. Technology will change how nurses spend time delivering patient care, but the need for nurses will remain.

Nursing experience, knowledge, and skills will transition to learning new ways of thinking about and processing information—the nurse will become the information integrator, health coach, and deliverer of human caring, supported by AI technologies, not replaced by them.

Shaping the future of care AI has the potential to help nurses improve the quality and efficiency of care, benefiting patients and clinicians. Feeling some angst during the expansion of AI is natural and reasonable, but as AI continues to mature, nurses will need to participate in ongoing open dialogue about its development and use in healthcare. Nurses will be the key to helping organizations implement and adapt to AI technology transformations as they participate in the development and evaluation of new applications that will shape the future of patient care.

CONCLUSION

While AI cannot replace healthcare workers entirely, it can significantly improve their daily lives and the lives of their patients. IoT (Internet of things) technology is especially crucial as it reduces the chances of errors or mistakes by helping nurses better manage their workload and monitor their patients.Sometimes, nothing is better than the human touch, and patients will generally benefit from still having face-to-face interactions with their nurses and the care and attention that they give them. But AI can lighten their load and complement what they already do, enabling them to provide more focused and attentive care.

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