

Artificial Intelligence and Nursing

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Introduction

Artificial intelligence is the process through which machines, particularly computer systems, simulate the functions of human intellect. Computer algorithms, language processing, voice recognition, and machine vision are some of the specific AI processes.

How did artificial intelligence originate?

Humans have been attracted by the possibility of building devices that resemble the human brain at least since the very first century BCE. John McCarthy first sought out the phrase artificial intelligence (AI) in 1955. The "Dartmouth Summer exploration on AI" conference was arranged by McCarthy and others in 1956. The development of machine literacy, profound literacy, prophecy analytics, and now conventional analytics was sparked by this morning. Data wisdom, a brand-new area of research, was also born from it.

Why is artificial intelligence important?

Moment, the amount of data produced by both people and robots significantly exceeds our capacity to comprehend, understand, and form sophisticated judgments based on that data. The future of all sophisticated decision-making is artificial intelligence, which serves as the foundation for all computer literacy. The paradigm of corporate decision-making is built on deep literacy and artificial intelligence (and its logical extension of machine literacy).

How AI is Affecting Nursing Education ?

Although technology has always been crucial to education, the prevalence of smart devices and web-based instruction has made it more pervasive than ever. There are many various ways artificial intelligence is being used in education to aid students in learning. The idea is that as AI educational outcomes continue to evolve, it may assist close the gaps in reading and tutoring while also enabling seminaries of preceptors to advance more than before. In order to provide preceptors giving time and flexibility to impart knowledge and rigidity—two distinctively human characteristics where computers would struggle—AI can promote efficacy, personalisation, and expedite administrative procedures. The future of artificial intelligence in education envisions preceptors and robots cooperating to produce scholars with fashionable outcomes. Because the scholars of today will have to work in a world where artificial intelligence is the norm, it's critical that modern educational institutions expose students to and engage with the technology.

- Three cognitive abilities—learning, reasoning, and self-correction—are the main topics of AI programming.

- **Learning processes.** •This area of AI programming is concerned with gathering data and formulating rules on how to transform it into valuable knowledge. The guidelines, also known as algorithms, provide computer equipment detailed instructions on how to carry out a certain activity.
- **Reasoning processes.** •This area of AI programming is concerned with selecting the best algorithm to achieve a given result.
- **Self-correction processes.** This feature of AI software is to continuously improve algorithms and make sure they provide more precise results.
- Three cognitive abilities—learning, sensing, and tone-correction—are the main topics of AI programming.
- **Knowledge processes:**•This area of AI programming is concerned with gathering data and formulating the rules that will allow the data to be transformed into useful knowledge. The guidelines, also known as algorithms, provide calculating bias with detailed instructions on how to carry out a certain activity.
- **Sense processes:** •This area of AI programming is concerned with selecting the best algorithm to achieve a desired outcome.
- **Tone-correction processes:** •This feature of AI design is to continuously fine-tune algorithms to make sure they provide the best accurate outcomes.

Types of Artificial Intelligence Learning Models

We may employ knowledge and feedback, two of the fundamental components of human literacy processes, to comprehend the many sorts of AI literacy models. Learning models may be categorized from a knowledge viewpoint based on how input and output data items are represented. AI literacy models may be categorized in terms of feedback based on how they interact with outside environments, drug users, and other external variables.

AI Learning Models Knowledge- Grounded Bracket

AI literacy models may be divided into two primary categories based on how they represent knowledge: inductive and deducible.

- **Inductive literacy:** •The foundation of this kind of AI illiteracy model is the inference of a basic guideline from datasets of input-affair dyads. A wonderful example of this kind of AI literacy style are algorithms that are akin to know grounded inductive literacy (KBIL). KBIL focused on using prior knowledge to test inductive hypotheses against a dataset.
- **Deducible literacy:** This kind of AI literacy begins with a set of rules and then deduces additional rules that are greater useful in the context of a particular AI system. The terms "explanation-grounded literacy" (EBL) and "applicability-based literacy" (RBL) are examples of deducible approaches. EBL "generalizes" the explanation in order to get general laws from exemplifications. In RBL, the emphasis is on linking qualities and deducible notions from straightforward examples.

AI Learning Models Feedback- Grounded Bracket

AI literacy models may be categorized as supervised, unsupervised, semi-supervised, or corroborated according on the feedback features.

- **Unsupervised literacy:** Without any outside input, unsupervised models focus on discovering patterns in the input data. A well-known example of unstructured literacy models is clustering.

- **Supervised Learning:** Supervised illiteracy models use outside criticism to enhance learning processes that collaborate on inputs for affair compliances. In such models, the outside environment serves as the AI algorithms' "schoolteacher."
- **Semi-supervised Learning:** Semi-supervised literacy attempts to infer new markers qualities on fresh data sets using a collection of selected, labeled data. A good compromise between supervision and unsupervised models of literacy is the semi-supervised approach.
- **Underpinning Learning:** Underpinning literacy approaches use opposing forces like discipline and price in order to " support " various forms of knowledge This kind of learning is becoming more common in cutting-edge AI outcomes.

Artificial Intelligence in Education: Pros and Cons

Pros of Artificial Intelligence

1. Organized Information

Nowadays, it's uncommon for teachers and academics to search the book for any accessory. Currently, websites like Quizlet may assist students by providing the information they need. They eliminate the guesswork required in creating individualized study regimens by providing the pertinent study tools.

2. Individualized literacy

There is a maximum number of students that teachers may address directly in a classroom. Instead, these AI outcomes may gather information about students' abilities with their guardians' consent.

3. More for scholars with Special Needs

AI is essential to improving the lives of people with disabilities. Offering better resources to the disabled is one region where AI truly shines, similar to how it can improve substantiated literacy. Students who struggle to write or have limited mobility might benefit from speech recognition software like Nuance that can assist them type words.

4. Immersive literacy

The use of AI in the classroom may provide a dynamic literacy environment when combined with Vr and Ar.

Cons of Artificial Intelligence

1. Cost

As clever as AI is, but it has a steep price. Along with the high product price, there is also a high cost for shape and preservation.

2. No particular Connection

The interaction between tutors and learners and how interpersonal relationships affect conduct make up a significant portion of school. We risk becoming totally reliant on technology instead of improving the efficiency of education. The interaction between teachers and students, as well as how certain links might stoke behavior, plays a significant role in academia. We could become totally reliant on technology rather than improving instruction.

3. Severance

Although the software industry may be flourishing, AI may soon replace many academy employees. AI can handle any task, from administrative management to teaching. The class sizes for online literacy are unrestricted. And AI may be the last blow that causes significant job losses in the education industry.

4. Information in Wrong Hands

Nowadays, there is no other option except to digital information. However, the scholar's data might also be vulnerable to hackers, just like any other technology. However, seminaries always face the risk of specific information being misused if it ends out in the wrong hands.

Artificial intelligence in nursing field

Nurses need to be aware of how AI is used in patient care. Expediting innovation, refining decision-making processes, accelerating workflows, and reducing expenses overall are some transformative applications of technology. Only 15 to 20 out of the end users of AI in healthcare are really utilizing it to alter how patient care is delivered, despite the fact that it is often seen as an implied solution for managing large increases in complicated medical data. Increasingly advanced AI is transforming a variety of professional domains, such as tone-driving buses and verified announcements. AI is being promoted in the healthcare industry to help healthcare personnel provide high-quality treatment more effectively and fairly. As an example, AI may assist less-educated healthcare personnel with limited resources to still provide high-quality treatment by using literacy from earlier eras (e.g. identification of rare complaint symptoms through massive database quests). Exemplifications of AI operations in the nursing setting show the potential influence these technologies may have on nursing practice. For instance, machine literacy is used to create a system to support nurses in using streamlined technologies by instantaneously suggesting the most appropriate terms to use based on the syllabus written by the nanny. Speech recognition techniques can also speed up and improve nursing attestation. Other activities include textbook mining, in which AI tools are used to comb through millions record nursing notes in search of cases with a history of falls or illnesses related to alcohol and medication usage in order to enhance care coordination and case threat identification. In the not too distant future, Ai will be fit to assist nurses in providing accurate and tailored evidence-based treatment that adheres to cases' expectations and precedents. AI technology will also assist nurses in integrating many kinds of relevant data (such as environmental, genetic, health, and socio-demographic data), enhancing their ability to provide comprehensive care. Additionally, a recent review paper emphasized that there is still plenty of opportunity to investigate nurses' use of AI within primary care, given the majority of research on healthcare-related artificial intelligence has focused on secondary as tertiary healthcare.. These examples show that nurses are not exempt from the growth of artificial intelligence (AI) in healthcare systems, despite the fact that AI is typically promoted as a technology that may revolutionize the delivery of healthcare and solve health problems.

There are three types of analytics:

- **Clinical analytics** induce perceptivity and ameliorate treatment and issues. Among the numerous exemplifications of AI for clinical analytics are clinical pathway vaticination, complaint

progression vaccination, health threat protection, prophetic threat scoring, and virtual sidekicks bedded in clinical systems for workflow advancements.

- **Functional analytics** ameliorate the effectiveness and effectiveness of systems that give and manage care processes. The capability to prognosticate functional issues and track safety criteria , maintain outfit, cover the force chain, and identify fraud are exemplifications of AI in healthcare. Other functional advancements include attestation rendering to reuse claims and new platform interfaces to acclimate claims automatically for payment in profit cycle operation.
- **Behavioral analytics** examine consumer behaviour patterns that inform healthcare delivery. The technology also increases the probability of conduct taken to ameliorate the relinquishment of recommended practices. It leverages AI for patient engagement, well- being, and readmissions and health.

How are nurses using data generated by smart algorithms? AI applications in nursing

The following chart depicts a selection of AI technologies and the associated opportunities they present within the nursing profession.

AI TECHNOLOGY	OPPORTUNITIES IN NURSING
Visual Recognition computes physical images and streamed videotape to identify and diagnose conditions.	<ul style="list-style-type: none"> • Assess and diagnose skin and wound integrity. • Examine breathing patterns. • Identify nonverbal cues for pain, anxiety or depression.
Voice Assistance uses voice commands to identify the most applicable information for the moment.	<ul style="list-style-type: none"> • Recoup information about current nursing programs. • Answer patient questions similar as when a forthcoming test is listed. • Set timers and reminders for nursing care tasks.
Machine literacy processes information using complex algorithms also improves automatically grounded on learned experience.	<ul style="list-style-type: none"> • Identifies a case's course on their plan of care trip also initiates and completes tasks automatically similar as scheduling follow up movables or transferring results to watch platoon members who need to be notified.
Expert Systems break complex problems by logic through multiple sources to process opinions as accurate and hastily than mortal experts.	<ul style="list-style-type: none"> • Prognosticate the cost of care grounded on the inventories used and the services handed. • Can anticipate at- threat case populations for cascade, sepsis, readmission, relapse, fiscal difficulty or increased length of stay.
Virtual Reality a computer-generated image, terrain or experience to interact with a putatively real way.	<ul style="list-style-type: none"> • Case support through virtual companions and educational assistive incorporations. • Nanny education and simulation for mock literacy exercises.

How are robots changing the nursing profession?

Robots are everywhere, from knowledge creation to the first sanitarium, where they are revolutionizing healthcare. The majority of the time, these robots behave more like R2D2 of Star Wars than they do creatively, yet they have a significant influence on the medical industry. Robots in medicine aid by freeing up medical staff from mundane chores that divert their attention from more essential obligations and by enhancing the safety and affordability of medical operations. They can also move hazardous materials and conduct precise surgery in tight spaces. Numerous applications of robotic technology have a direct impact on patient care. They could be employed to disinfect operating rooms and case flats, lowering risks for patients and the medical workforce. They do sample collection, transportation, dissection, and storage tasks in labs. This is particularly encouraging news if you've ever had blood taken by a technician who struggled to obtain a "good tone" the first time. With less discomfort and concern for the patient, the robotic lab assistant can find that artery and take the blood sample. In pharmaceutical laboratories, bots also produce and distribute medicines. In bigger systems, robotic carts ride elevators and pass through mechanized doors as they transport bed linens or rather reflections from top to bottom. Additionally, there are "gears and cables" robotic companions that may provide physical therapy and assist paraplegics in moving. Whether automation will displace people from work in the healthcare industry is the key issue. The machines won't take the place of their mortal counterparts for a number of reasons. First of all, the majority of hospitals have less than 300 beds. They are unable to keep up with technology. The placement of navigation bias across the installations and a dedicated corridor or bottom track are features of autonomous guided vehicles. Other wagons function with the aid of an internal laser-drawn schematic of the sanitarium that includes elevators, turns, and automatic entrances. That procedure is likewise very priceless. However, robotic companions will ultimately fall short of first-person human touch. Indeed, the employment of robots is altering healthcare and will continue to change it in ways we only can fathom, even if the technology is valuable and sometimes prevents its use.

Challenges and limitations

In the past, AI was used in healthcare. It may be used for functional advances, patient involvement, complaint management, and clinical decision support. Most organizations will employ it by 2025 as long as this technology is made widely accessible to everyone. That However, when they start to use AI, healthcare associations may run across a number of difficulties. One problem is the absence of mature knowledge estates to act as a basis for AI plans, despite the fact that significant amounts of healthcare data remain siloed and unshaped. In order to gather and store data in its original format, data estates are crucial. Functional databases, information storages, & data lakes are all parts of contemporary data estates. Healthcare professionals will undergo a considerable transformation as a result of the paradigm shift toward AI. A.i. is still developing, is always changing, and has yet to advanced.

Conflict of Interest

The authors certify that they have no involvement in any organization or entity with any financial or non-financial interest in the subject matter or materials discussed in this paper.

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