Genesis Journal of surgery and Medicine

Genesis-GJSM-3(1)-26
Volume 3 | Issue 1
Open Access

Artificial Intelligence in Medicine, General Review

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Citation: York D, Dhaliwal JS. Artificial Intelligence in Medicine, General Review. Genesis J Surg Med. 3(1):1-18.

Received: March 12, 2024 | **Published:** April 06, 2024.

Abstract

Medical AI is here to stay and help both doctors and patients Imagine in Congo in a remote area where there is no hospital on a range of 500 miles how nice is to have this competent tool at our fingertips Imagine prof Stark, our greatest robotic Surgeon saving lives with robotic surgery from Germany to Afghanistan. The settings of my Photo Biomodulation device I have it is prepared with all the parameters for use, for each procedure That is AI We should not be afraid of it and it is there to stay Remember, someone programs all that AI Behind it is a human being and we can always pull the plug

Keywords

Artificial intelligence; Medicine laser; Diagnostic; Laser; Photo biomodulation

Introduction

AI technology is widely used throughout industry, government and science.

Some high-profile applications:

1. Advanced web search engines (like Google Search)
2. Recommendation systems (used by YouTube, Amazon, and Netflix)
3. Understanding human speech (such as Google Assistant, Siri, and Alexa)
4. Self-driving cars (Waymo)
5. Generative and creative tools (ChatGPT and AI art)
6. Analysis in strategy games such as chess and go etc.

Artificial intelligence was found as an academic discipline in 1956. The field went through multiple cycles. of optimism, followed. by disappointment and loss of funding, 2012, when “deep learning” surpassed all previous AI techniques, there was a vast increase in funding and interest [Figure 1, Figure 2 and Figure 3].

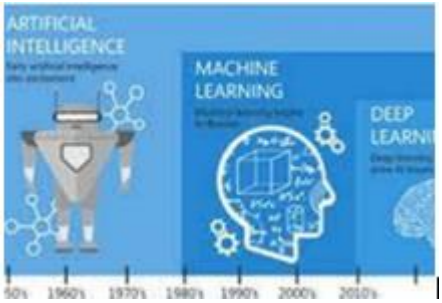

Figure 1: The computer becomes a machine that is learning on its own.

Figure 2: Allan Turing, the father of AI.

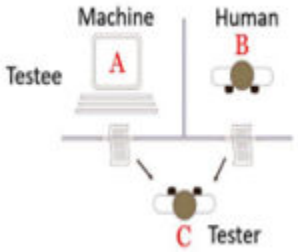

Figure 3: He organized a test, computer vs. human, the computer won (Wikipedia)

The 1980s and 1990s brought the proliferation of the microcomputer and new levels of network connectivity - There is the desire that an AI system must be built for the doctors to help the collection of data in healthcare. Approaches involving fuzzy set theory, Bayesian networks, and artificial neural networks, have been applied to intelligent computing systems in healthcare [Figure 4].

Figure 4: The very first AI device computer**.**

Materials and Methods

Medical and technological advancements occurring over this half-century period have helped growth if AI application for the hospitals and private offices. Improvements in computing power resulting in faster data collection and data processing. Growth of genomic sequencing databases Keeping the records with the AI for health care providers. Improvements in natural language processing and computer vision, creating computers that imitate human behavior Enhanced the precision of robot-assisted surgery. Create models for a data-based learning to create prediction in automatic answers- 3 options. Improvements in deep learning techniques and data logs in rare diseases, AI is used to analyze data for disease prevention diagnosis. Medical institutions such as The Mayo Clinic, Memorial Sloan Kettering Cancer Center and the British National Health Service, have developed AI algorithms for their departments. Large technology companies such as IBM and Google, have also developed AI algorithms for healthcare. hospitals – check on the ways to reduce cost on data saving, patients support, safety of the stuff and replace workforce with AI nurses. Currently, the United States government is investing billions of dollars to progress the development of AI in healthcare.

Technologies are developed to manage healthcare management to improve by
1. increasing utilization,
2. decreasing patient boarding,
3. reducing the length of stay and
4. optimizing staffing levels.

Google's Deep Mind

1. The platform is being used by the UK National Health Service to detect certain health risks through data collected via a mobile app.
2. Detection of Cancerous lesions by the computer vision may save lives.
3. Tencent is working on several medical systems and services. AI Medical Innovation System "(AIMIS)", AI-diagnostic WeChat Intelligent Healthcare & Tencent Doctor work *Intel's.* AI for detection of -risk patients and create options of care.

Elon Musk

1. He created a device: Neural ink brain chip.
2. Neural ink has come up with a next generation periprosthetic that intricately interfaces.
3. When a ship of the size of a quarter insert in the skull, in the chunk.

Natural Language Processing

It lets programs write and read and communicate in English or other language. Problems: Synthesis of speech, recognition of speech, translation, retrieval of information, answering questions. Early work, based on Noam Chomsky's generative grammar and semantic networks, had difficulty with word-sense disambiguation unless restricted to small domains called "micro-worlds" (due to the commonsense knowledge problem.

Modern Deep-Learning Techniques

For NLP include word embedding (representing words, typically as vectors encoding their meaning), transformers (a deep learning architecture using an attention mechanism), and others.

In 2019, generative pre-trained transformer (or "GPT") Text start to be generated with language and in good shape. Models that give the correct text to alive to human level scores for examinations like SAT GRE and other applications. Speech recognition and visual perception together with translation possibilities and decision making are the desire programs development of computer system.

1. It is all about the brain
2. all about the knowledge.

Influential AI Researchers

John McCarthy

1. Is the creator of the term 'artificial intelligence'.
2. The first AI laboratory at MIT.
3. He also developed the programming language Lisp, which became widely used in AI research [Figure 5].

Figure 5: John McCarthy.

Marvin Minsky

1. He was a pioneer of AI and cognitive science and co-founded the MIT AI Laboratory with John McCarthy.
2. He also wrote influential books and papers on AI, such as The Society of Mind and Perceptron [Figure 6].

Figure 6: Marvin Minsky.

Alan Turing

He is widely regarded as the father of theoretical computer science and artificial intelligence. He proposed the Turing test, a criterion for judging whether a machine can exhibit intelligent behavior, and contributed to cryptography, logic, and philosophy.

Popular AI languages and frameworks

Python

Python is a general-purpose, high-level, and versatile programming language that supports multiple paradigms, such as object-oriented, functional, and procedural. Python is widely used for artificial intelligence because of its simplicity, readability, large standard library, and rich ecosystem of libraries and frameworks that facilitate data analysis, machine learning, deep learning, natural language processing, computer vision, and other AI tasks. Some examples of popular Python libraries and frameworks for AI are TensorFlow, Porch, Kera's, Scikit-learn, NLTK, and OpenCV.

Java

Java is a compiled, object-oriented, and platform-independent programming language that emphasizes performance, reliability, and portability.
Use for Java program for artificial intelligence:

1. Networking
2. Strong support for competition business information
3. Distribution

Java also has a large and mature collection of libraries and frameworks for AI, such as Weka, Deeplearning4j, Apache Spark, Apache Mahout and Stanford Cornel.

R

R is an interpreted, domain-specific, and statistical programming
language that is AI Screenwriter.

AI Screenwriter

1. AI Screenwriter is your ultimate writing companion!
2. AI program for Writers is putting together information it makes the best informative, creative, smart tool to help.

AI Comedian

AI programs go gather data to help with jokes. The multitude of jokes you might have on one subject the AI stand-up comedian!

AI Chat

It is the AI that writes text. Chat or Chatbox uses

1. write stories
2. messages
3. code
4. Teaching tool for any subject.

History of artificial intelligence

The idea of 'a machine that thinks' dates to ancient **Greece**. 1950: **Alan Turing** publishes Computing Machinery and Intelligence. Turing was known for breaking the code, in the second world war, the code "ENIGMA" against the Nazi s. Turing Test it determine the difference between a computer and a human intelligence. The value of the Turing test has been debated ever since. "Can a machine think? "is a famous question he place.

1956: **John McCarthy** coined the term 'artificial intelligence' at the first-ever AI conference at Dartmouth College. (McCarthy would go on to invent the Lisp language.) Logic Theorist, created by Allen Newell, J.C. Shaw, and Herbert Simon is the first-ever AI.

1967: **Frank Rosenblatt** builds the Mark 1 Perceptron, the first computer based on a neural network that 'learned' through trial and error. Just a year later, **Marvin Minsky** and **Seymour Paper** published a book titled Perceptron, which became both the landmark work on neural networks and, at least for a while, an argument against future neural network research projects [Figure 7].

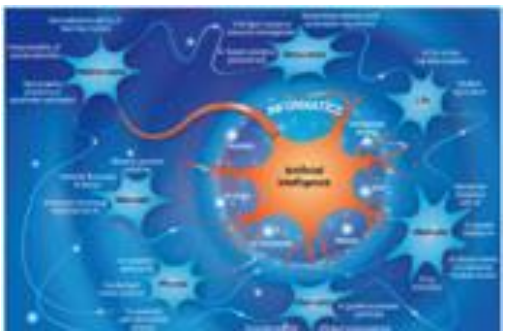

Figure 7: Algorithm.

The 1980s: **Neural networks** that use a backpropagation algorithm to train themselves become a special kind of deep neural network called a rate of accuracy than the average human.

2016: **DeepMind's AlphaGo** program, powered by a deep neural network, beats **Lee Sodol**, the world champion **Go** player, in a five-game match [Figure 8].

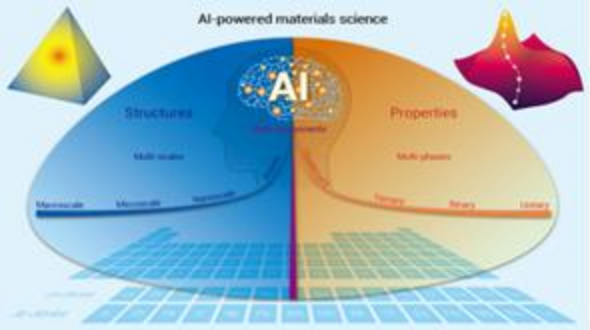

Figure 7: Layers and layers data to create reason just like a brain.

The victory is significant given the huge number of possible moves as the game progresses (over 14.5 trillion after just four moves!). Google buys DeepMind. Now they do **NANO** and **probe** 2023: so much of AI models (or LLMs) got very popular, like ChatGPT That create an enormous change in the performance of AI and its potential to drive enterprise value with these new generative AI practices, deep-learning models can be pre-trained on vast amounts of raw, unlabeled data used in AI applications.

1997: IBM's Deep Blue The computer win against the champion chess player Garry Kasparov beats then world chess champion Garry Kasparov, (and at the rematch).
widely 2011: IBM Watson beats champions Ken Jennings and Brad Rutter at Jeopardy!
2015: Baidu's Minwa supercomputer uses a convolutional neural network to identify and categorize images with a higher - Artificial intelligence leverages computers and machines to mimic the problem-solving and decision-making capabilities of the human mind.

Research Gate however did not do much on the subject and the first article found was this one: Some countries use AI to manipulate and control the information that the population receive. Phyton has been taught by Harvard, Java by IBM. The way of controlling the population is there: like blocking info on WhatsApp in the Middle East and China and promoting Islamic law. Phyton has been taught by Harvard, Java by IBM. We learn lots of AI from the film. The way of controlling the population is there: like the info of WhatsApp in the Middle East and China and, the promotion of Islamic law. GPS- Waze and Lucy or Tom-tom. At one time my colleague Prof. Enemata told me how he loved the GPS Lucy's wife “She never raised the voice.

All this technology makes us stay in solitude:

1. See movies: Upgrade, Download, Matrix, M3gan, Finch
2. Alexa – is in all our homes now.

Figure 8: The machine is there to help us: the skills a machine has: Language, Vision, Dialog, Data, and learning, all that by improving the many layers of software, by putting more algorithms in we give to the machine-human

qualities: memory, perception, anticipation, problem-solving, decision making.

Results

Artificial intelligence applications:

1. Speech recognition: It is also known as automatic speech recognition (ASR), computer speech recognition, or speech-to-text, is a capability that uses natural language processing (NLP) to process human speech into a written format. Many mobile devices are incorporated. Speech recognition into their systems to conduct voice searches— Siri—or provide more accessibility around texting.
2. Customer service: Online virtual agents are replacing human agents along the customer journey. The FAQs answers are programed by choosing the most common answers. Different options for with personalized advice in layers of programing.
   Cross selling, advertising to create desire for projects, social platforms. E-commerce use robot automatic answers with virtual message and virtual voice assistance.
3. Computer vision: This AI technology enables computers and systems to derive meaningful information from digital images, videos, and other visual inputs, and based on those inputs, it can act.
4. This ability to provide recommendations to distinguish it from image recognition tasks. photo tagging in social media, radiology imaging in healthcare and nursing.
5. Self-driving cars within the automotive industry.
6. Recommendation engines: Using past consumption behavior data, AI algorithms can help discover data trends that can be used to develop more effective cross-selling strategies.
7. Trading Stock: made to create a “portfolio” that would not require any human presence. Crazy! Classes for cybersecurity are often now offered by the university.
8. Now in 2023 we welcome Bard from Google.
9. Medical AI is used to make the hospital life.
10. The robotic surgery at the distance.

Figure 9: Surgical robot that can be used in one country to operate in another.

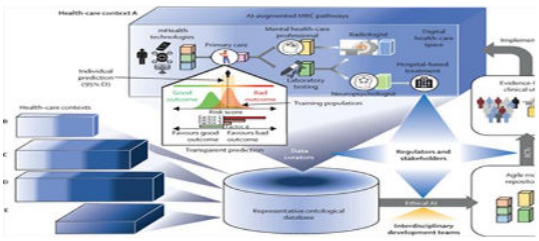

Figure 10: In the Hospital the use in the modern world become vital and automatic, data storing, charting, patient records, chat, messaging with doctors, billing, you name it. Paper-free practice. Thank comes the

diagnostic read by AI and then verified and signed by a doctor.

Figure 11: X-rays are verified and diagnosed by the computer before getting to the radiologist for the conclusion.

The help of computers in diagnostics evaluation has become common and would be wonderful no matter where in the world without an operator. Laser Therapy and Periodontal Bone Growth. The light frequency and power within the specified done, infrared, cause this photo biomodulation … it is proved. Now there is a computer where a researcher puts in the settings and there is a button and a title of the procedure. Everybody can use it.

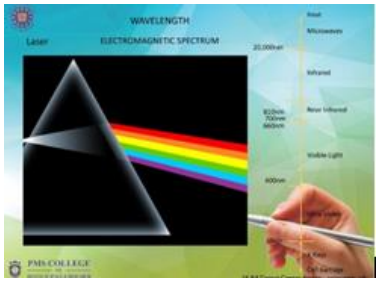

Figure 12: In the spectrum of light and electromagnetic spectrum, measured in nanometers, from Xray and cell damage on one end to microwave and heat in the other. Transparent light in between approximately 780 nm – to 1070 nm is the infrared, the invisible light that heals and regenerates.

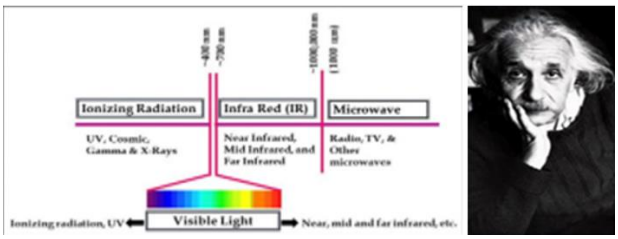

Figure 13: In the spectrum of light, there is a safe area where miraculously there is found. Biomodulation with biological effects causes anti-inflammatory and pain relief effects. In the long term, regeneration happened. It's amazing, just like in Star Trek – Star Wars.

Figure 14: The first laser ever made by Maiman.

Figure 15: There are many types of biomodulation devices invented.
In 32 years of practice, I have discovered the benefits of photo biomodulation in full practice, in a daily routine. So … we studied the mechanisms and put them up in a summary.

In 1967, Dr. Endre´ Mester (Hungary) wondered if the new ruby lasers (red light at 694 nm) would cause cancer. He shaved off the hair of mice and irradiated one group, and not the other. The irradiated mice did not get cancer, but their hair grew back more quickly than did the hair of the unirradiated mice. He is credited with discovering laser. Photo biomodulation is safe. Does not have side effects. Think of that time you go to the sea and enjoy the sun. In 32 years of practice, I have discovered the benefits of photo biomodulation in full practice, in a daily routine. So, we studied the mechanisms and put them up in a summary: The medical field is not enthusiastic about using it now. They think only 23 % can increase clinical outcomes, only 19 % think can improve operational performance, 17 % for system efficiency, only 13 % think might improve administrative performance 12 % financial outcome, and 12 % consumer engagement.

Conclusion

Advantages and Disadvantages

Embrace Artificial Intelligence just …Be afraid of evil people who might not have good intentions remember – it is all finally programmed by somebody. It is still artificial even if somebody made a superb program and we can always pull the plug. If I were in a hospital, I would like to have around me all the artificial intelligence help I can get, for diagnosis, the robot nurse, the handyman carrier, the dermatology detector, and the bio meridian testing to detect intolerance. The StarTreck Phototherapy that heals and regenerates. Let there be light in medicine to embrace and accept AI, especially in more areas of the world.

Figure 16: Naomi is one of the children in the orphanage in cibo village in Tanzania, the closest hospital is far. AI is is there to be used for her comfort.

Figure 17: Himba Tribe in Namibia wears no clothes, either winter or rain. There is so much to discover about this world. Information is key to save beauty.

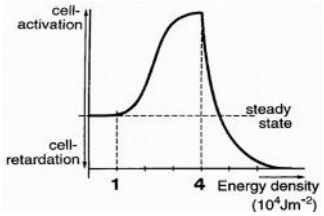

Figure 18: The probe of Inhibition and activation of cells as a reaction of the photo biomodulation leads in the short term to anti-inflammatory effects and in the long term to regeneration.

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