AI in Healthcare: Uses, Examples and Benefits

From faster diagnoses to robot-assisted surgeries, the adoption of AI in healthcare is advancing medical treatment and patient experiences.

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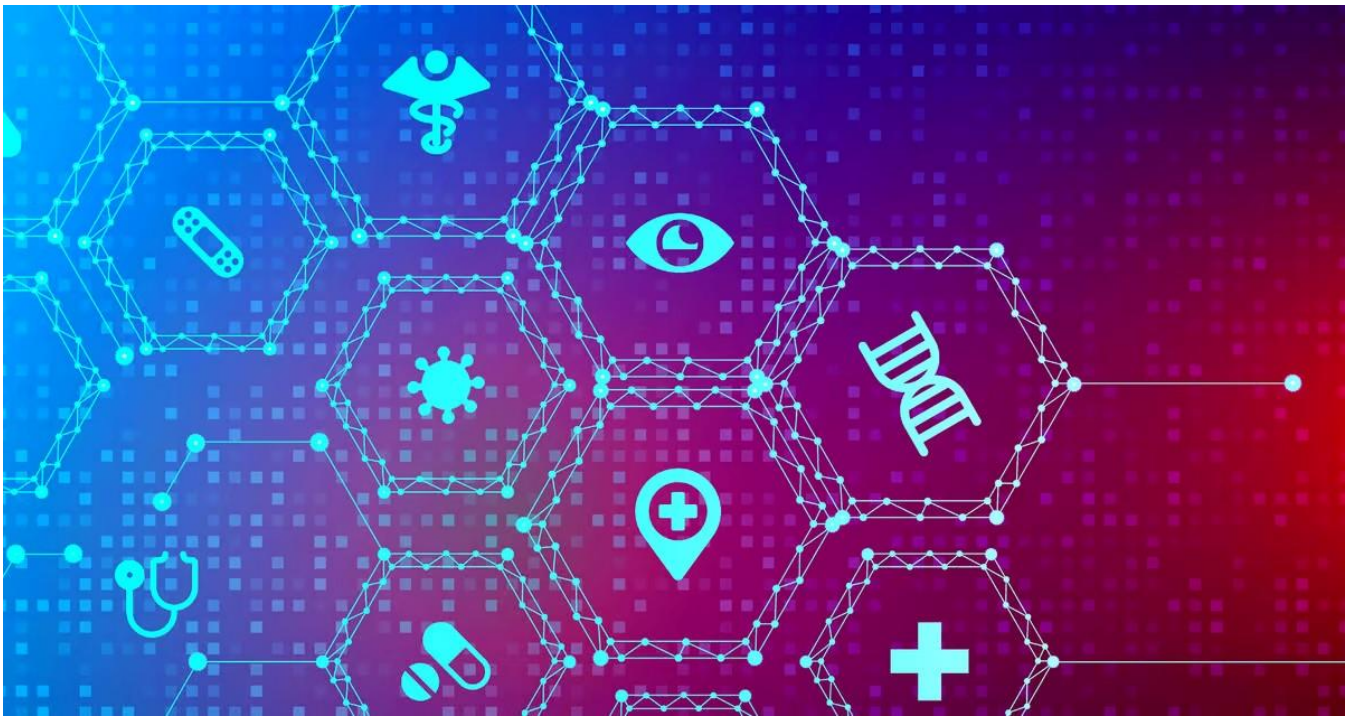

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Artificial intelligence simplifies the lives of patients, doctors and hospital administrators by performing tasks that are typically done by humans, but in less time and at a fraction of the cost.

AI in healthcare shows up in a number of ways, such as finding new links between genetic codes, powering surgery-assisting robots, automating administrative tasks, personalizing treatment options and much more.

AI in Healthcare Applications

- Improving medical diagnosis
- Speeding up drug discovery
- Transforming patient experience
- Managing healthcare data
- Performing robotic surgery

Put simply, AI is reinventing — and reinvigorating — modern healthcare through machines that can predict, comprehend, learn and act.

What Is AI in Healthcare?

AI in healthcare refers to the use of machine learning, natural language processing, deep learning and other AI technologies to enhance the experiences of both healthcare professionals and patients. The data-processing and predictive capabilities of AI enable health professionals to better manage their resources and take a more proactive approach to various aspects of healthcare.

With these technologies, doctors can then make quicker and more accurate diagnoses, health administrators can locate electronic health records faster and patients can receive more timely and personalized treatments.

Examples of AI in Healthcare

To give you a better understanding of the rapidly evolving field, we rounded up some examples and use cases of AI in healthcare.

AI in Medical Diagnosis

Every year, roughly 400,000 hospitalized patients suffer preventable harm, with 100,000 deaths. In light of that, the promise of improving the diagnostic process is one of AI's most exciting healthcare applications. Incomplete medical histories and large caseloads can lead to deadly human errors. Immune to those variables, AI can predict and diagnose disease at a faster rate than most medical professionals.

AI in Drug Discovery

The drug development industry is bogged down by skyrocketing development costs and research that takes thousands of human hours. Putting each drug through clinical trials costs an estimated average of $1.3 billion, and only 10 percent of those drugs are successfully brought to market. Due to breakthroughs in technology, AI is speeding up this process by helping design drugs, predicting any side effects and identifying ideal candidates for clinical trials.

AI in Patient Experience

AI can be used to support digital communications, offering schedule reminders, tailored health tips and suggested next steps to patients. The ability of AI to aid in health diagnoses also improves the speed and accuracy of patient visits, leading to faster and more personalized care. And efficiently providing a seamless patient experience allows hospitals, clinics and physicians to treat more patients on a daily basis.

AI in Healthcare Data Management

Highly valuable information can sometimes get lost among the forest of trillions of data points. Additionally, the inability to connect important data points slows the development of new drugs, preventative medicine and proper diagnosis. Because of its ability to handle massive volumes of data, AI breaks down data silos and connects in minutes information that used to take years to process. This can reduce the time and costs of healthcare administrative processes, contributing to more efficient daily operations and patient experiences.

AI in Robotic Surgery

Hospitals use AI and robots to help with everything from minimally invasive procedures to open heart surgery. Surgeons can control a robot's mechanical arms while seated at a computer console as the robot gives the doctor a threedimensional, magnified view of the surgical site. The surgeon then leads other team members who work closely with the robot through the entire operation. Robotassisted surgeries have led to fewer surgery-related complications, less pain and a quicker recovery time.

Companies Using AI in Healthcare

These are some of the companies paving the way for healthcare innovation by applying AI technology.

Regard

Location: Los Angeles, California

Regard uses AI technology to diagnose patients. The company describes its automated system to be the clinical "co-pilot" to electronic medical records (EMRs). The data from EMRs is synthesized to discover a diagnosis. Additionally, healthcare providers receive specific recommendations about patient care. The system also updates patient documents automatically to reduce burnout among healthcare workers.

Buoy Health

VIEW PROFILE→

Location: Boston, Massachusetts

Developed by a team out of Harvard Medical School, Buoy Health is an AI-based symptom and cure checker that uses algorithms to diagnose and treat illness. Here's how it works: a chatbot listens to a patient's symptoms and health concerns, then guides that patient to the correct care based on its diagnosis.

Beth Israel Deaconess Medical Center

VIEW PROFILE→

Location: Boston, Massachusetts

Beth Israel Deaconess Medical Center used AI for diagnosing potentially deadly blood diseases at an early stage. Doctors developed AI-enhanced microscopes to scan for harmful bacteria like E. coli and staphylococcus in blood samples at a faster rate than is possible using manual scanning. The scientists used 25,000 images of blood samples to teach the machines how to search for bacteria. The machines then learned how to identify and predict harmful bacteria in blood with 95 percent accuracy.

Augmedix

We are hiring!

VIEW PROFILE→

Location: San Francisco, California

Augmedix offers a suite of AI-enabled medical documentation tools for hospitals, health systems, individual physicians and group practices. The company's products use natural language processing and automated speech recognition to save users time, increase productivity and improve patient satisfaction.

AKASA

We are hiring!

VIEW PROFILE→

Location: South San Francisco, California

AKASA's AI platform helps healthcare providers streamline workflows by automating administrative tasks to allow staff to focus where they're needed. The automation can be customized to meet a facility's particular needs and priorities, while maintaining accuracy for managing claims, payments and other elements of the revenue cycle.

Vicarious Surgical

VIEW PROFILE→

Location: Waltham, Massachusetts

Vicarious Surgical combines virtual reality with AI-enabled robots so surgeons can perform minimally invasive operations. Using the company's technology, surgeons can virtually shrink and explore the inside of a patient's body in detail. Vicarious Surgical's technology concept prompted former Microsoft chief Bill Gates to invest in the company.

EliseAI

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Location: New York, New York

EliseAI specializes in conversational AI solutions. In the healthcare space, EliseAI offers AI-powered technology that can automate administrative tasks like appointment scheduling and sending payment reminders. Its AI capabilities engage patients across SMS, voice, email and web chat formats.

Cohere Health

Location: Boston, Massachusetts

Cohere Health uses AI and machine learning to revolutionize prior authorization processes to ensure patients can access care swiftly. Cohere aligns patients, healthcare providers and health plans.

Healthee

VIEW PROFILE→

Location: New York, New York

Healthee uses AI to power its employee benefits app, which businesses rely on to help their team members effectively navigate the coverage and medical treatment options available to them. It includes a virtual healthcare assistant known as Zoe that offers Healthee users personalized answers to benefits-related question

Enlitic

VIEW PROFILE→

Location: Fort Collins, Colorado

Enlitic develops deep learning medical tools to streamline radiology diagnoses. The company's deep learning platform analyzes unstructured medical data — radiology images, blood tests, EKGs, genomics, patient medical history — to give doctors better insight into a patient's real-time need

Babylon

VIEW PROFILE→

Location: Austin, Texas

Babylon is on a mission to re-engineer healthcare The platform features an AI engine created by doctors and deep learning scientists that operates an interactive symptom checker, using known symptoms and risk factors to provide the most informed and up-to-date medical information possible.

Butter y Network, Inc.

VIEW PROFILE→

Location: Burlington, Massachusetts

Butterfly Network designs AI-powered probes that connect to a mobile phone, so healthcare personnel can conduct ultrasounds in a range of settings. Both the iQ3 and IQ+ products provide high-quality images and extract data for fast assessments. With the ability to create and analyze 3D visualizations, Butterfly Network's tools can be used for anesthesiology, primary care, emergency medicine and other areas.

CloudMedx

VIEW PROFILE→

Location: Palo Alto, California

CloudMedX uses machine learning to generate insights for improving patient journeys throughout the healthcare system. The company's technology helps hospitals and clinics manage patient data, clinical history and payment information by using predictive analytics to intervene at critical junctures in the patient care experience. Healthcare providers can use these insights to efficiently move patients through the system.

Biofourmis

VIEW PROFILE→

Location: Boston, Massachusetts

Biofourmis connects patients and health professionals with its cloud-based platform to support home-based care and recovery. The company's platform integrates with mobile devices and wearables, so teams can collect AI-driven insights, message patients when needed and conduct virtual visits.

Corti

VIEW PROFILE→

Location: Copenhagen, Denmark

Corti's platform leverages AI to improve the operations and practices of emergency medical services personnel. A suite of Corti features automatically summarizes emergency calls, speeds up documentation and tracks employee performance. By compiling and analyzing this data, Corti can deliver insights to help teams pinpoint inefficiencies, offer employees tailored feedback and update any call guidelines as needed.

Freenome

We are hiring!

VIEW PROFILE→

Location: South San Francisco, California

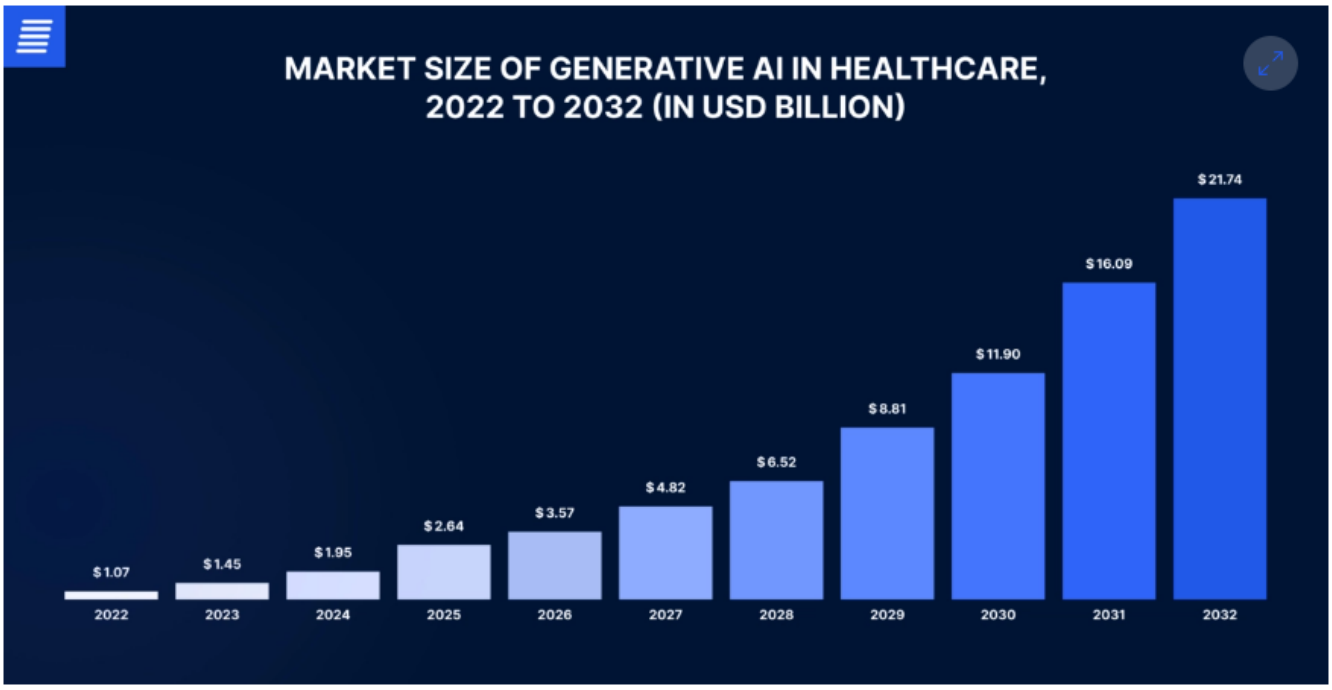
Freenome uses AI in screenings, diagnostic tests and blood work to test for cancer. By deploying AI at general screenings, Freenome aims to detect cancer in its earliest stages and subsequently develop new treatment

IBM

VIEW PROFILE→

Location: Armonk, New York

Once known as a Jeopardy-winning supercomputer, IBM's Watson now helps healthcare professionals harness their data to optimize hospital efficiency, better engage with patients and improve treatment. Watson applies its skills to everything from developing personalized health plans to interpreting genetic testing results and catching early signs of disease.



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Electronic health records

Electronic health records (EHR) are crucial to the digitalization and information spread of the heal
medical practices use EHR, the next step is to use artificial intelligence to interpret the records and provi

One application uses natural language processing (NLP) to make more succinct reports that limit the va
similar medical terms.[12] For example, the term heart attack and myocardial infarction mean the same
over based on personal preferences.[12] NLP algorithms consolidate these differences so that larger datas
identifies phrases that are redundant due to repetition in a physician's notes and keeps the relevant info
applications use concept processing to analyze the information entered by the current patient's do
physician remember to include all relevant details.[13]

Beyond making content edits to an EHR, there are AI algorithms that evaluate an individual patient's r
on their previous information and family history.[14] One general algorithm is a rule-based system tha
use flow charts.[15] This system takes in large amounts of data and creates a set of rules that c
diagnoses.[15] Thus, the algorithm can take in a new patient's data and try to predict the likeliness that they will have a certain condition or disease.[15] Since the algorithms can evaluate a patient's information based on collective data, they can find any outstanding issues to bring to a physician's attention and save time.[14] One study conducted by the Centerstone research institute found that predictive modeling of EHR data has achieved 70–72% accuracy in predicting individualized treatment response.[16] These methods are helpful due to the fact that the amount of online health records doubles every five years.[14] Physicians do not have the bandwidth to process all this data manually, and AI can leverage this data to assist physicians in treating their patients.[14]

Machine learning (**ML**) is a field of study in artificial intelligence concerned with the development and study of statistical algorithms that can learn from data and generalize to unseen data and thus perform tasks without explicit instructions. Recently, artificial neural networks have been able to surpass many previous approaches in performance.

Healthcare Innovation

25 Ways To Use Generative AI in Healthcare

August 27, 2024

In the ever-evolving landscape of healthcare, professionals are continually seeking innovative tools to enhance patient care, streamline administrative processes, and conduct in-depth research. BastionGPT, a generative AI assistant tailored specifically for healthcare professionals, offers a multitude of applications that can transform everyday tasks and improve overall efficiency. We speak with customers every day to understand and optimize their needs. Below are 30 use cases where our customers have told us they are using our service to help them get more done in the day.

1. Medical Documentation Assistance

Example:

A physician needs to document a detailed patient visit.

Capabilities:

• Create templates for different types of medical documentation.

Detailed Example:

A general practitioner uses BastionGPT to draft a detailed note for a patient visit, summarizing the patient's symptoms, the physical exam findings, diagnostic tests ordered, and follow-up instructions. This draft can be reviewed and edited before being finalized in the electronic health record (EHR).