

AI IN INDIAN HEALTHCARE STARTUPS: INTEGRATION & IMPACT



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INTRODUCTION

- ⌚ Only about 50,000 doctors are produced in India annually, which is insufficient to meet basic criteria. By 2030 requires 2.3 million doctors to achieve the WHO-recommended minimum doctor-to-patient ratio of 1:1000.
- ⌚ Artificial intelligence (AI) lies at the heart of several concepts, including computing, and software development transfer. AI technology includes machine learning, deep learning, natural language generation, speech recognition, robots, and biometric identification. With new start-ups and significant ICT businesses proposing AI for the country's healthcare concerns, the usage of AI in healthcare in India is growing.
- ⌚ A variety of solutions are being offered by businesses, such as automated medical diagnosis, automated medical tests, disease detection and screening, wearable sensor-based medical equipment and monitoring of patient management systems, predictive healthcare diagnosis, and disease prevention.
- ⌚ The absence of thorough, representative, interoperable, and clean data has been frequently noted as a problem development of these solutions. Access to free databases of medical information and practitioner adoption difficulties.
- ⌚ The study has examined the current usage and implementation of AI in the Indian healthcare start-up industry, about the growth of AI, and its associated risks in India.

ROLE OF AI IN HEALTHCARE



RATIONALE

- **Artificial intelligence (AI) has the potential to speed up the transition from traditional hospital settings to customer-focused care environments such as ambulatory surgical centers, retail clinics, and home care. Dermatology, echocardiography, neurology screening, retinal care, diagnostics, surgery, angiography, and other fields offer easy access to both doctors and patients, as well as input to the medical community for study. AI aids in monitoring, screening, and clinical and medical studies. The inherent strength of AI, on the other hand, poses a danger to businesses, stakeholders, and the industry supply chain. The safety of essential AI systems, the sector, privacy of user data, and social dangers are all risks linked with AI.**
- **This study will examine the current usage and implementation of AI in the Indian healthcare start-up industry, the growth of AI, and its associated risks in a growing country like India.**

METHODOLOGY

Research Objectives --

- **Identify key challenges hindering AI adoption and potential opportunities through qualitative research methods.**
- **Evaluate the potential impact of AI on accessibility, affordability, and efficiency of healthcare delivery in India using a mixed-methods approach.**

Research Question -- How is AI being integrated within Indian healthcare startups, and what are the potential implications for accessibility, affordability, and efficiency of healthcare delivery in India?

Data collection method -- To benefit comprehensive know-how of the topic, a literature evaluation has been carried out by analyzing posted studies papers, journals, and reviews to be had online. This involves synthesizing and integrating the applicable data accessible via these digital assets.

Research Design-- Systematic Literature Review

Research Duration-- 3 months (April-June 2024)

TYPES & USES OF AI ANALYTICS

DESCRIPTIVE

Descriptive AI is the most extensively employed type of AI in healthcare now, and it has the greatest short-term potential. It quantifies previous events and uses this information to get further insights, such as spotting trends and tiny changes that might otherwise go undetected by medical personnel. Such technology, for example, can be used to spot trends in fracture diagnosis and skin diseases. Furthermore, these technologies have been demonstrated to outperform people when it comes to diagnosing minor wrist fractures.

PREDICTIVE

Predictive AI makes predictions using descriptive data. Medical practitioners employ artificial intelligence (AI) to deliver predictive insights and actions. Some examples of how to enhance efficiencies and cut expenses include reducing drudgery and increasing medical productivity by prioritizing patients based on their criticality. Triage is the process of selecting the priority of a patient's treatment based on the severity of their disease. Predictive AI can be employed in this procedure.

PRESCRIPTIVE

Prescriptive AI advances the predictive AI by not just detecting that humans may not be able to but also suggesting treatment o based on nuances in the diagnosis: Prescriptive AI is the most inter contentious use case in the new due of its decision-making capa Prescriptive AI could be used as cognitive agent that mimics the relieve human cognitive strain. most knowledge-intensive busk healthcare. In collaboration with physicians, nurses, and research· powered smart agents may search present, and apply the most cur clinical knowledge, dramatically clinician efficiency and capacity the quality of care.

AI & HEALTHCARE SEGMENTS

HOSPITAL

According to an assessment of solutions used, hospitals in India are using descriptive and predictive AI.

- The Manipal Group of Hospitals, for example, has partnered with IBM's Watson for Oncology to help clinicians diagnose and treat seven different forms of cancer.
- Aravind Eye Care Systems is currently collaborating with Google Brain, having previously assisted Google in the development of their retinal screening system by supplying photos to train its image parsing algorithms.

PHARMACEUTICAL

- Manufacturing, extraction, processing purification, and packaging of chem compounds for use as human or ani pharmaceuticals are among them.
- According to an assessment of solu pharmaceutical companies in India t descriptive and predictive AI, with prescriptive AI prototypes being but tested.
- The most prevalent application of pharmaceuticals is drug discovery, which is used to scan all available literature on certain molecules for a medicine.

DIAGNOSTICS

- In addition to larger corporations such as Google and IBM, India is home to a slew of start-ups focused on using artificial intelligence to identify diseases.
- According to a survey of solutions used, diagnostics in India are using descriptive and predictive AI.

MEDICAL EQUIPMENT

- This category comprises businesses that specialize in the production of medical equipment and supplies, such as dental, orthopedic, and ophthalmologic laboratory tools.
- Companies developing medical equi supplies in India appear to be using descriptive and predictive AI, action survey of solutions used.

MEDICAL INSURANCE

- * Based on a survey of solutions used, it appears that medical insurance companies in India are using descriptive and predictive AI.
- * By analysing large amounts of data in less time, machine learning may automate claims administration, reducing processing time and handling costs while also improving customer experience.
- * Boing, a chatbot that answers client questions about auto and health insurance, is used by Bajaj Allianz General Insurance. ICICI Lombard sells insurance policies through its MyRA chatbot platform.

TELEMEDICINE

- Telemedicine can help address the challenges of healthcare delivery in rural and remote locations, as we perform other duties in the health sector such as education, and trainin' management.
- AI standardizes the quality of care eliminating the human component.

TOP AI START-UP IN INDIA

SIGTUPLE

Tathagoto Rai Dastidar, Apurv Anand, and Rohit Pandey formed SigTuple Technologies in Bengaluru in 2015.

SigTuple's goal is to use AI to automatically examine medical data such as blood samples, urine and semen microscopy, and retinal image analysis.

NIRAMAI

Bengaluru-based Geetha Manjunath and Nidhi Mathur created Niramai Health Analytix in 2016. In contrast to conventional methods like self-examination, the health tech startup Thermalytix combines AI and a high-resolution thermal sensor gadget to detect breast cancer at an early stage.

QUERE.AI

Qure.ai, a Mumbai-based company, was founded in 2016 by Prashant Warier and Pooja Rao. It quickly interprets radiology images and scans, such as chest X-rays, head CT scans, POQUS, chest CT scans, etc., using deep learning algorithms.

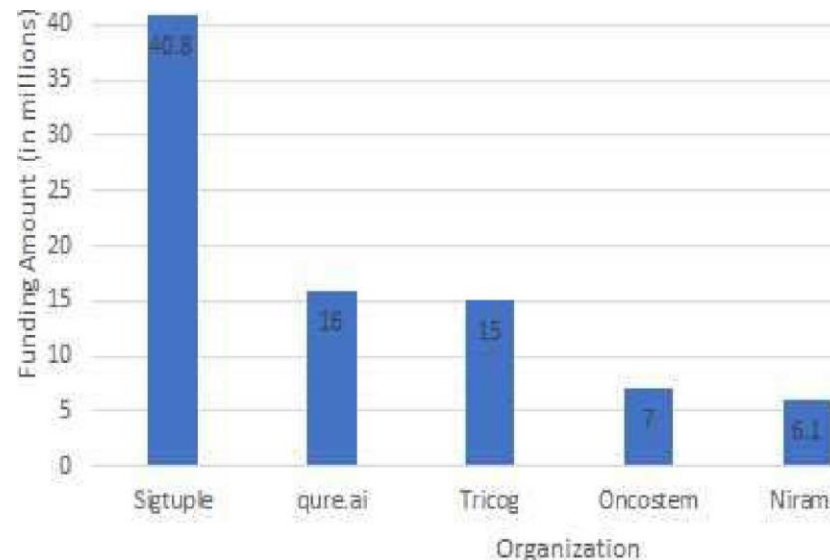
ONCOSTEM

2011-founded, the goal is to determine the characteristics of recurrence risk over five years and evaluate the aggressiveness of tumors, OncoStem Diagnostics combines machine learning algorithms.

TRICOG

InstaECG: the flagship product connected device that helps int< evaluate ECG readings within or minutes.

InstaEcho: Another cardiac proi InstaEcho, helps doctors diagno echocardiography within a few I speed and accuracy.



CHALLENGES

CULTURAL ACCEPTANCE

This is frequently an obstacle in AI's acceptance due to 'trust concerns' that patients may have, such as the desire for doctors to be physically present, or the elderly who are more hesitant to adopt new technologies.

CONSENT

To secure broad social acceptance technologies must perform in an understanding manner, and the out its applications must consist of perceptions of fairness, equality cultural norms.

DATA SAFETY/PRIVACY

Hackers can use artificial intelligence to gather private and sensitive data, such as Electronic Health Records. The Institute of Electrical and Electronic Engineers (IEEE) has created a global initiative towards autonomous and intelligent systems that is morally oriented.

DATA INTEGRITY

Because a vast number of data is unstructured and the population is heterogeneous in India, data requires special attention. Specify biases, such as caste and sexual! the potential to be carried through sets.

As a result, it's critical that the DT input sources used to train AI tell algorithms come from a suitably v diversified population.

DEVELOPMENT

- There is no centralised database for health records in India, and digitization procedures there are subpar, inconsistent, and unstandardized.
- Current AI projects rely on historical information that is only available from a few hospitals or research facilities.

ADOPTION

While a variety of factors are influence adoption, two in part likely to be especially significant the degree of readiness and within established healthcare p and the infrastructural and fine viability of adoption.

DEPLOYMENT

Data breaches may affect a person's right to privacy, dignity, and even employment opportunities because healthcare information is so sensitive.

MISUSE

Banks, for instance, might use Insurance data to assess a borrr eligibility for loans: bad perfect health indicators may be an interpreted sign that the borrower is unable to which increases the risk.

CONCLUSION

❖ **Enhancing Human-Machine Interaction:**

- Focus on improving interfaces for better interaction.
- Ensure robust security measures to protect patient data.

❖ **Studying Legal, Moral, Social, and Cultural Factors:**

- Conduct comprehensive studies to understand implications.
- Adapt strategies based on local contexts and sensitivities.

❖ **Public-Private Partnerships:**

- Foster collaborations to overcome implementation challenges.
- Promote joint readiness programs for all stakeholders.

❖ **Research and Development:**

- Invest in R&D to assess AI's impact on healthcare.
- Address ethical and legal issues through empirical studies.

❖ **Developing AI-Integrated Healthcare Policies:**

- Establish open information frameworks with strict regulations.
- Ensure policies promote safe and effective AI use in healthcare.

❖ **Legal Mechanisms and Certification:**

- Implement specific laws tailored to AI in healthcare.
- Provide certification for AI technologies to ensure quality and safety.

❖ **Collaboration Among Stakeholders:**

- Encourage cooperation between healthcare providers, tech developers, and regulators.
- Facilitate knowledge-sharing and collective problem-solving.

THANK YOU