

THE CURRENT STATE OF AI APPLICATION IN HEALTHCARE START-UPS WITHIN INDIA

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INTRODUCTION

- Only about 50,000 doctors are produced in India each year, which is insufficient to meet basic criteria. By 2030, India will require 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 a number of concepts, including computing, software development, and data transfer. Machine learning, deep learning, natural language generation, speech recognition, robots, and biometric identification are examples of AI technology. With new start-ups and significant ICT businesses proposing AI solutions 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 analysis of medical tests, disease detection and screening, wearable sensor-based medical equipment and monitoring devices, 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 in the development of these solutions. Access to free databases of medical information and practitioner adoption are further difficulties.
- The study has examined the current usage and implementation of AI in Indian healthcare start-up industry, obstacles pertaining to the growth of AI and its associated risks in a India.

ROLE OF AI IN HEALTHCARE



Source: <https://data-flair.training/blogs/ai-in-healthcare-sector/>

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 centres, retail clinics, and home care. Dermatology, echocardiography, neurology screening, retinal care, diagnostics, surgery, angiography, and other fields benefit from AI. It offers easy access to both doctors and patients, as well as input to the medical community for study. AI aids in patient monitoring, screening, and clinical and medical studies. The inherent strength of AI, on the other hand, poses significant dangers to businesses, stakeholders, and the industry supply chain. The safety of essential AI systems, the security and 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 Indian healthcare start-up industry, obstacles pertaining to the growth of AI and its associated risks in a growing country like India.

METHODOLOGY

Aim of Internship

This study will examine the current usage and implementation of AI in Indian healthcare start-up industry, obstacles pertaining to the growth of AI and its associated risks in a growing country like India.

Research Question

What is the current state of AI application in Indian healthcare start-ups within India?

Data collection method

A literature search has been done through published research papers, journals and reports to integrate the material accessible online

Research Objectives

- To understand the different applications of AI and how does it work
- To study the available AI based solution in healthcare start-up industry

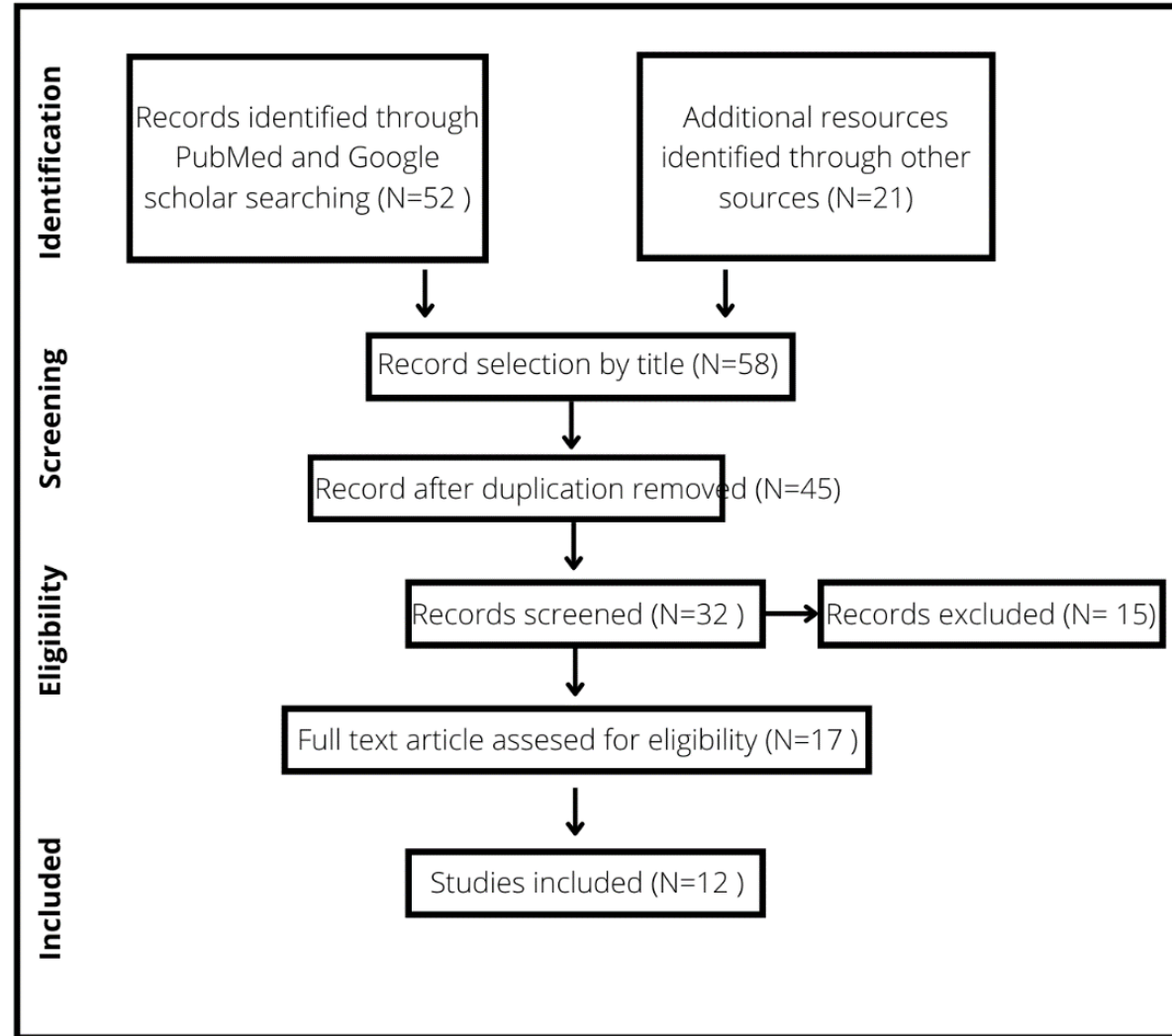
Research Design

Secondary research

Research Design

3 months (March-June 2022)

Data Analysis Plan





AI IN HEALTHCARE



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 about the future 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 prioritising 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 goal of predictive AI by not just detecting trends that humans may not be able to foresee, but also suggesting treatment options based on nuances in the diagnosis. Prescriptive AI is the most interesting and contentious use case in the near future due of its decision-making capabilities. Prescriptive AI could be used as a cognitive agent that mimics the brain to relieve human cognitive strain. One of the most knowledge-intensive businesses is healthcare. In collaboration with physicians, nurses, and researchers, AI-powered smart agents may search, locate, present, and apply the most current clinical knowledge, dramatically enhancing clinician efficiency and capacity, as well as the quality of care.

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.

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 disease.
- According to a survey of solutions used, diagnostics in India are using descriptive and predictive AI.

PHARMACEUTICAL

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

MEDICAL EQUIPMENT

- This category comprises businesses that specialise in the production of medical equipment and supplies, such as surgical, dental, orthopaedic, ophthalmologic, and laboratory tools.
- Companies developing medical equipment and supplies in India appear to be using descriptive and predictive AI, according to a survey of solutions used.

AI & HEALTHCARE SEGMENTS

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 well as perform other duties in the health sector such as education, training, and management.
- AI standardises the quality of care by 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.

ONCOSTEM

2011-founded, goal is to determine the characteristics of recurrence risk over a five-year period and evaluate the aggressiveness of tumours, OncoStem Diagnostics combines ML algorithms.

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.

NIRAMAI

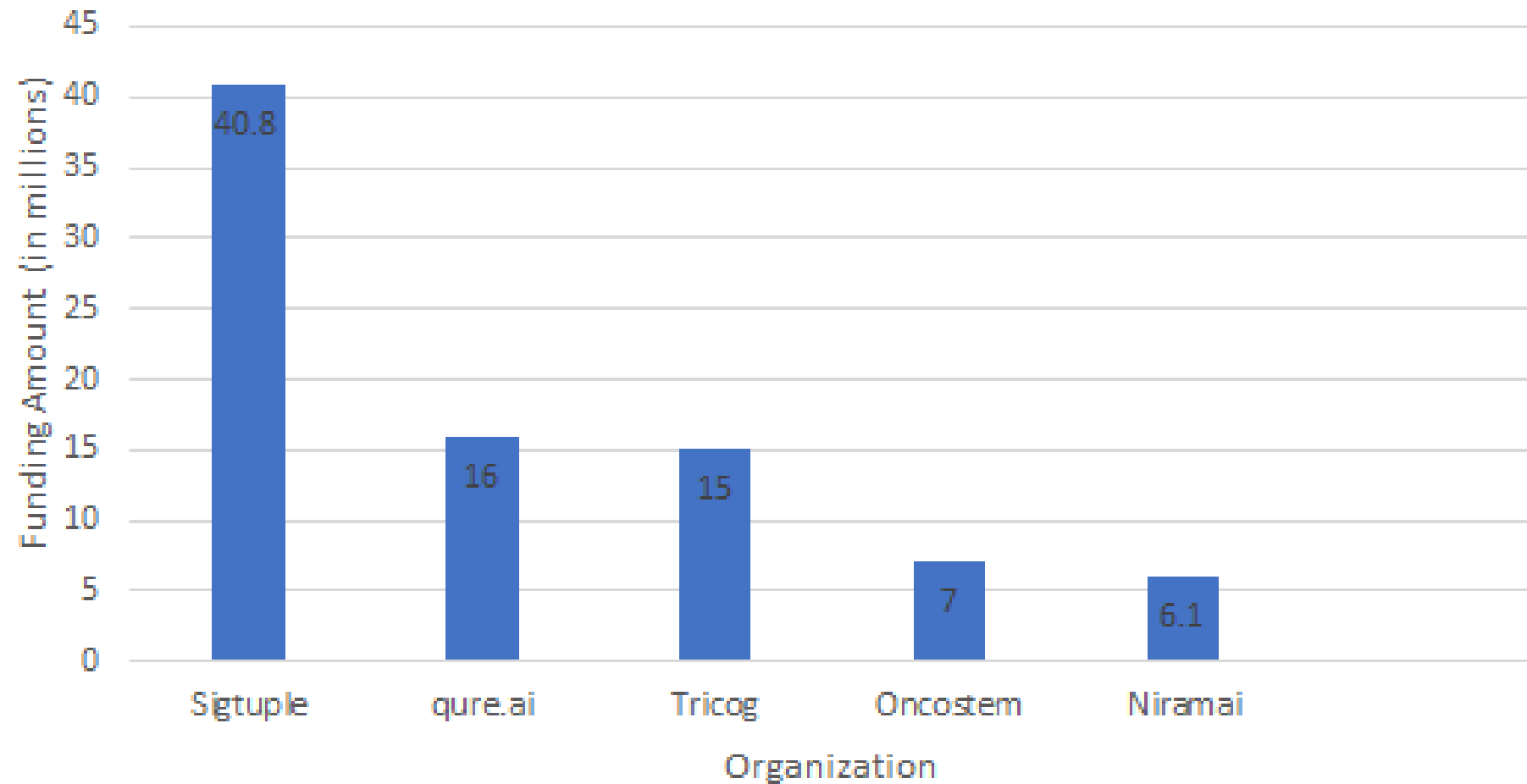
Bengaluru-based Geetha Manjunath and Nidhi Mathur created Niramai Health Analytix in 2016. In contrast to conventional methods like self-examination, the health tech startup Thermalytix combines AI and a high-resolution thermal sensor gadget to detect breast cancer at an early stage.

TRICOG

InstaECG: the flagship product is a cloud-connected device that helps interpret and evaluate ECG readings within only 10 minutes.

InstaEcho: Another cardiac product, InstaEcho, helps doctors diagnose an echocardiography within a few hours with speed and accuracy.

Top 5 AI organizations in Healthcare (India)



Source: <https://innohealthmagazine.com/2020/trends/top-artificial-intelligence-organizations-in-healthcare-in-india/>

CHALLENGES

CULTURAL ACCEPTANCE

This is frequently an obstacle in AI 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.

DATA SAFETY/PRIVACY

Hackers can use artificial intelligence (AI) 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.

CONSENT

To secure broad social acceptance, AI technologies must perform in an easy-to-understand manner, and the outcomes of its applications must be consistent with perceptions of fairness, equality, and local cultural norms.

DATA INTEGRITY

Because a vast number of data sets are unstructured and the population is heterogeneous in India, data integrity will require special attention. Specific cultural biases, such as caste and sexuality, have the potential to be carried through in data sets.

As a result, it's critical that the data and input sources used to train AI technology's algorithms come from a suitably wide and diversified population.

CHALLENGES

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.

DEPLOYMENT

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

ADOPTION

While a variety of factors are expected to influence adoption, two in particular are likely to be especially significant in India: the degree of readiness and acceptance within established healthcare practises, and the infrastructural and financial viability of adoption.

MISUSE

Banks, for instance, might use health insurance data to assess a borrower's eligibility for loans: a bad performance on health indicators may be interpreted as a sign that the borrower is unable to work, which increases the risk of non-payment.

CONCLUSION

AI may surely improve healthcare outcomes in India by bringing new efficiency and quality. Solutions today run the risk of being technology-led rather than problem-driven, and as a result, they frequently ignore certain contextual demands or limitations. The digital divide between users and technology developers, who are often more skilled at using technology than users, makes it difficult to design the appropriate digital interventions. Before AI to deliver safe and equitable healthcare solutions, issues surrounding privacy, misuse, and accountability need to be thoroughly examined. These challenges are only now beginning to come to light.



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THANK YOU



Questions?

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