Liderança Visionária
Estratégias Executivas para a Transformação Digital dos Hospitais

Felipe Cezar Cabral

Gerente Médico de Saúde Digital
Hospital Moinhos de Vento

Diretor de Relações Institucionais
Associação Brasileira dos CIOs em Saúde

FC
CONSULTORIA E PALESTRAS

“Cada frase minha não pode ser entendida como uma afirmação, **mas como uma pergunta**”.

Niels Bohr
Pai da Física Quantica

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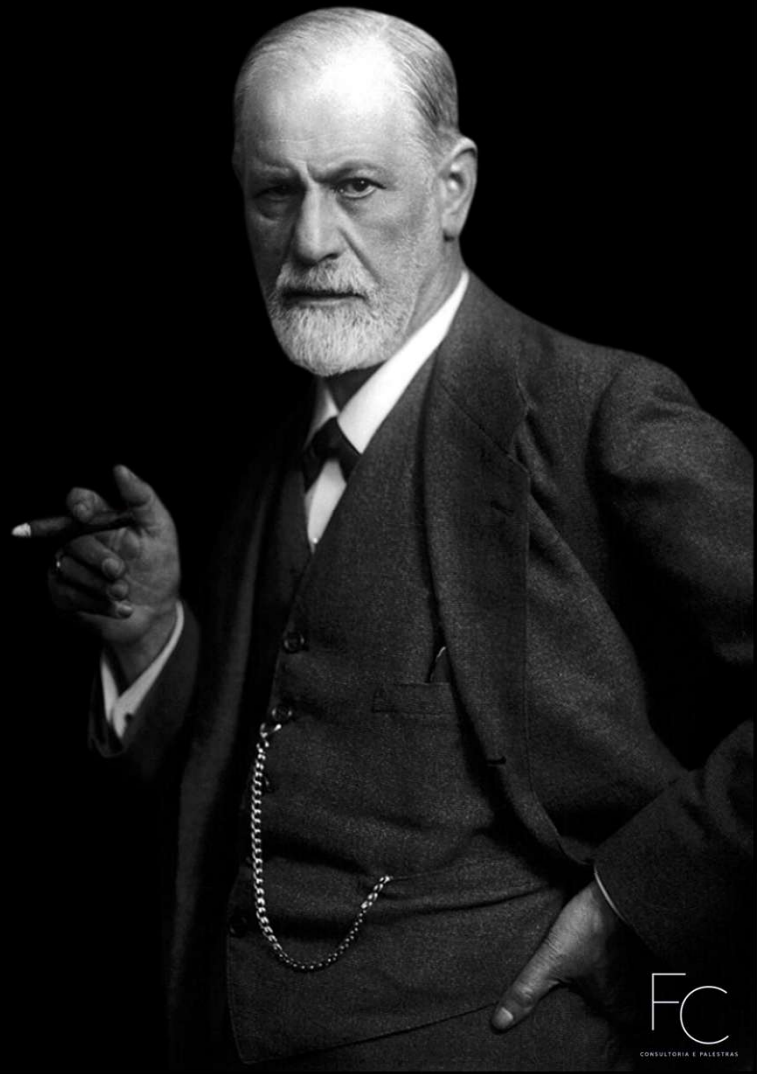
Narciso de Caravaggio
(1597-1599)



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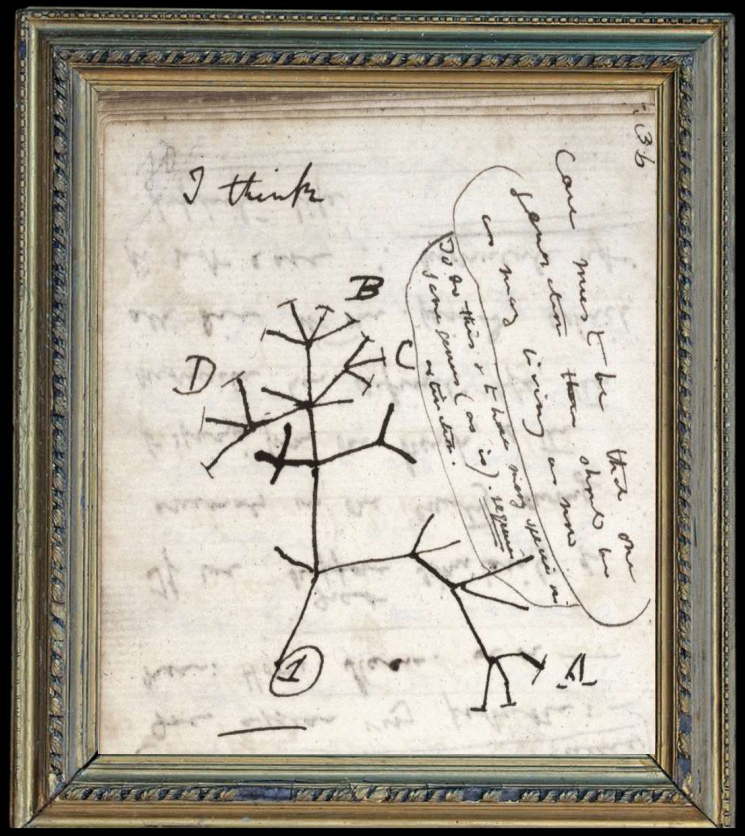
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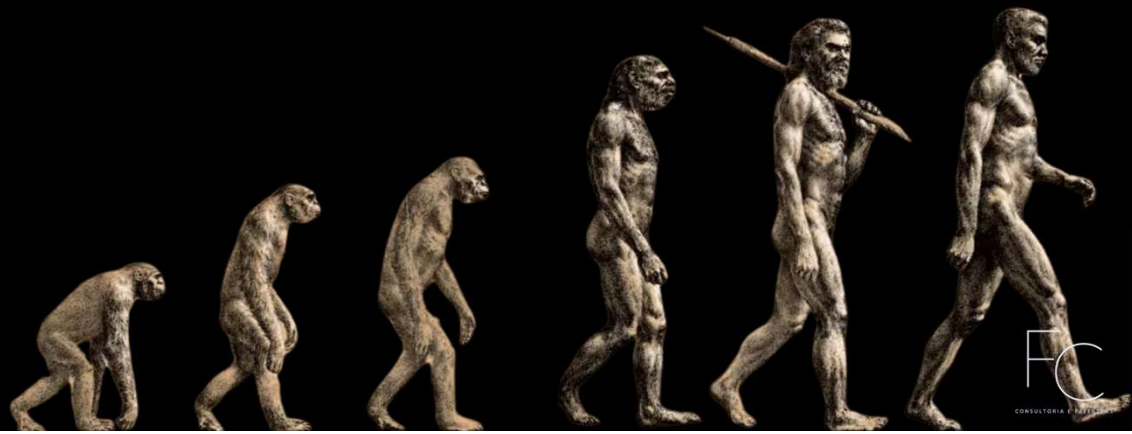

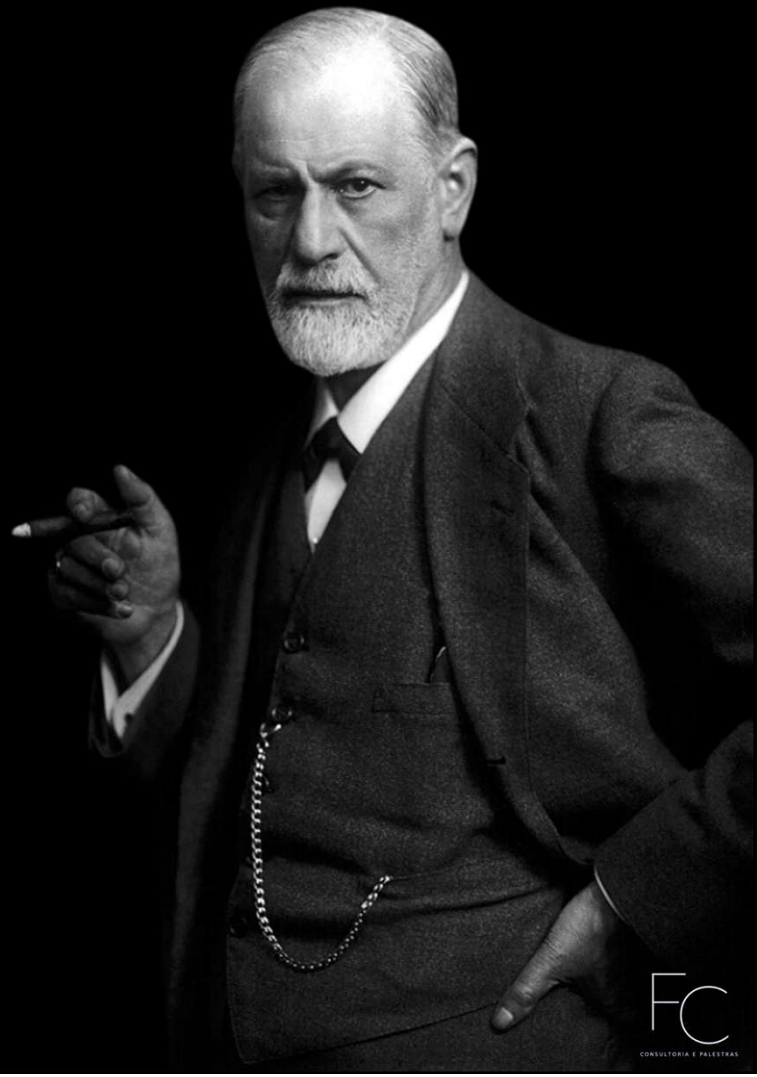

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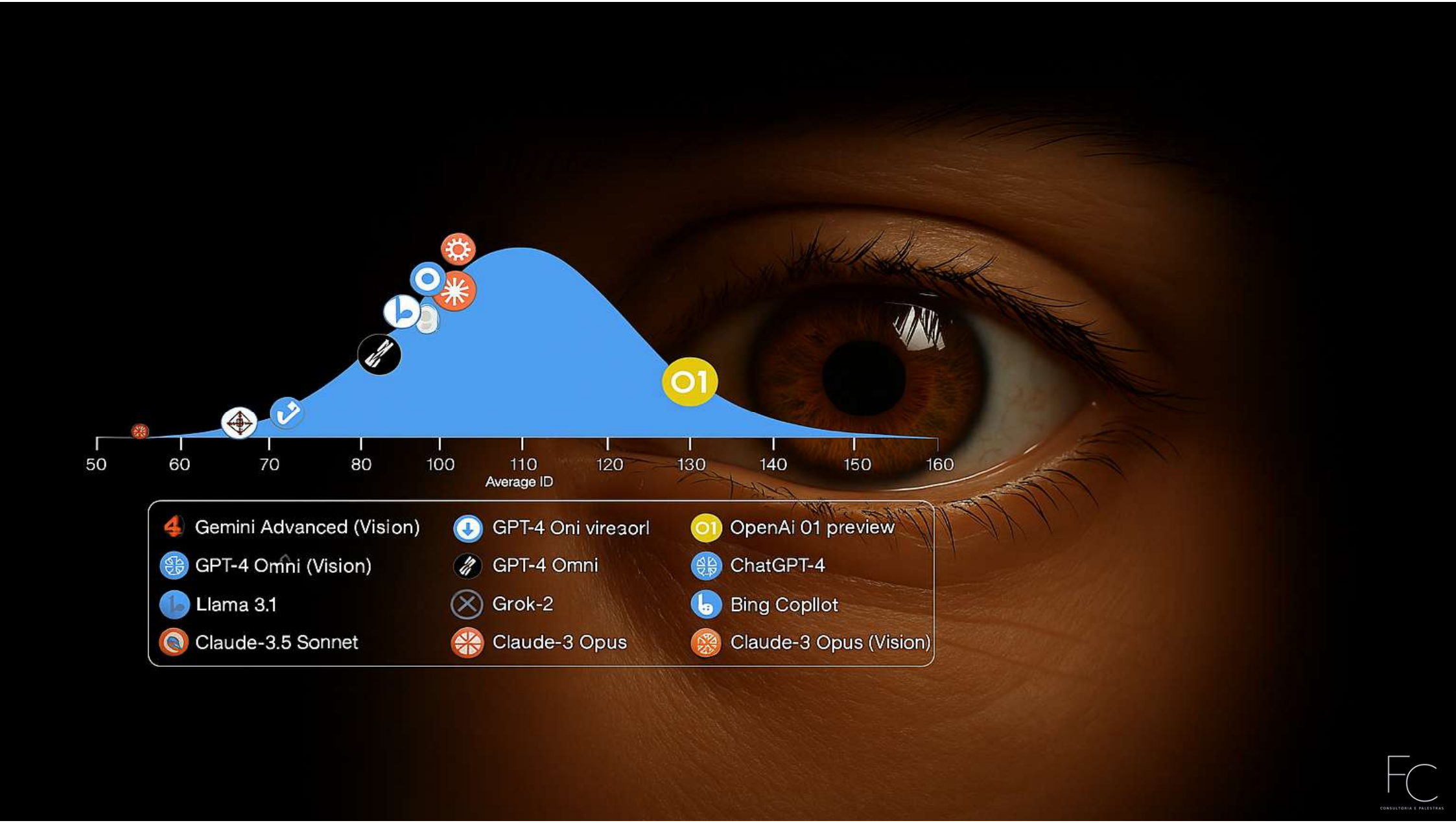
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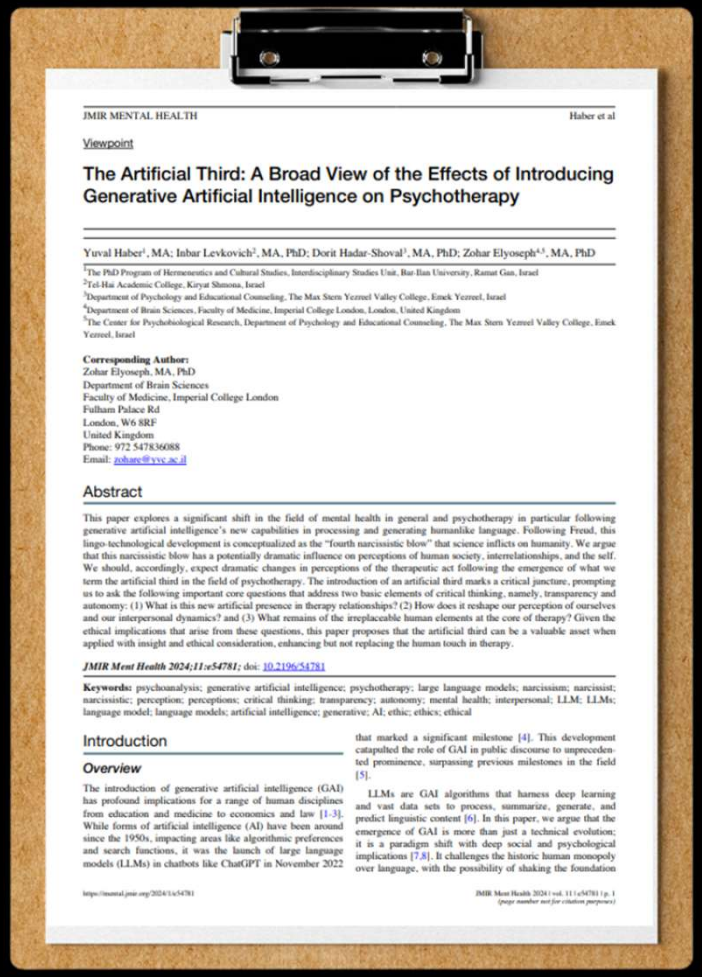
Gemini Advanced (Vision)
GPT-4 Omni (Vision)
Llama 3.1
Claude-3.5 Sonnet
GPT-4 Oni vireaorl
GPT-4 Omni
Grok-2
Claude-3 Opus
OpenAi 01 preview
ChatGPT-4
Bing Copllot
Claude-3 Opus (Vision)

IQ Test Results

Uplete Lated: 08:44BFM ESST On February 3, 2025

Score refiects average of last 7 tests given

- GPT4 Omni (Vision)
- Claude-3.5 Sonnet
- Gemini Advanced
- Llama-3.2 (Vision)
- OpenAI 01 (Vision)
- OpenAI o3 mini high
- DeepSeek V3
- GPT4 Omni
- Grok-2
- Claude-3 Opus (Vision)
- Llama-3.3
- OpenAI 01 PRO
- OpenAI o3 PRO
- DeepSeek R1
- ChatGPT-4
- Gemini Advanced (Vision)
- Bing Copilot
- Claude-3 Opus
- OpenAI o1 preview
- OpenAI o3 PRO
- OpenAI o1 PRO (Vision)



Viewpoint

The Artificial Third: A Broad View of the Effects of Introducing Generative Artificial Intelligence on Psychotherapy

Yuval Haber[1], MA; Inbar Levkovich[2], MA, PhD; Dorit Hadar-Shoval[3], MA, PhD; Zohar Elyoseph[4,5], MA, PhD

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[2]Tel-Hai Academic College, Kiryat Shmona, Israel
[3]Department of Psychology and Educational Counseling, The Max Stern Yezreel Valley College, Emek Yezreel, Israel
[4]Department of Brain Sciences, Faculty of Medicine, Imperial College London, London, United Kingdom
[5]The Center for Psychobiological Research, Department of Psychology and Educational Counseling, The Max Stern Yezreel Valley College, Emek Yezreel, Israel

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Faculty of Medicine, Imperial College London
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London, W6 8RF
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Email: zohare@yvc.ac.il

Abstract

This paper explores a significant shift in the field of mental health in general and psychotherapy in particular following generative artificial intelligence's new capabilities in processing and generating humanlike language. Following Freud, this lingo-technological development is conceptualized as the "fourth narcissistic blow" that science inflicts on humanity. We argue that this narcissistic blow has a potentially dramatic influence on perceptions of human society, interrelationships, and the self. We should, accordingly, expect dramatic changes in perceptions of the therapeutic act following the emergence of what we term the artificial third in the field of psychotherapy. The introduction of an artificial third marks a critical juncture, prompting us to ask the following important core questions that address two basic elements of critical thinking, namely, transparency and autonomy: (1) What is this new artificial presence in therapy relationships? (2) How does it reshape our perception of ourselves and our interpersonal dynamics? and (3) What remains of the irreplaceable human elements at the core of therapy? Given the ethical implications that arise from these questions, this paper proposes that the artificial third can be a valuable asset when applied with insight and ethical consideration, enhancing but not replacing the human touch in therapy.

JMIR Ment Health 2024;11:e54781; doi: 10.2196/54781

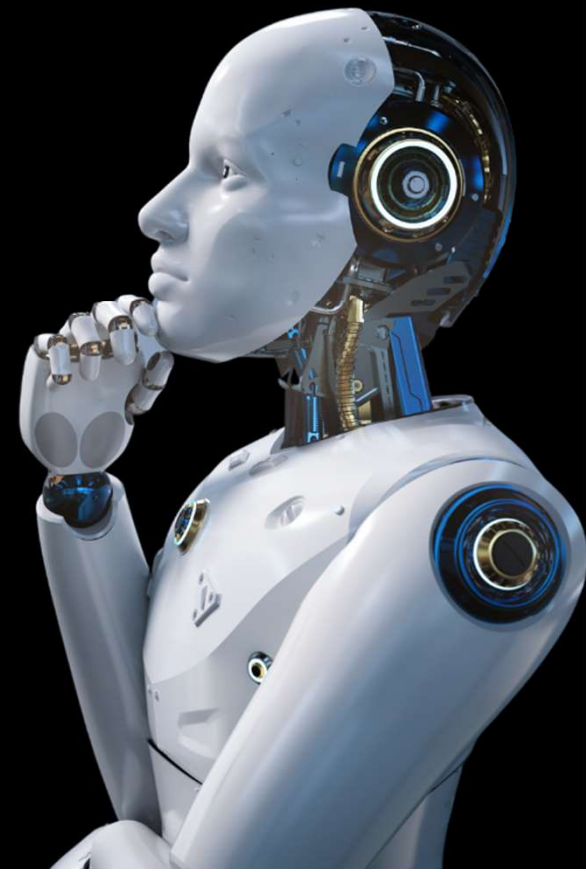
Keywords: psychoanalysis; generative artificial intelligence; psychotherapy; large language models; narcissism; narcissist; narcissistic; perception; perceptions; critical thinking; transparency; autonomy; mental health; interpersonal; LLM; LLMs; language model; language models; artificial intelligence; generative; AI; ethic; ethics; ethical

Introduction

Overview

The introduction of generative artificial intelligence (GAI) has profound implications for a range of human disciplines from education and medicine to economics and law [1-3]. While forms of artificial intelligence (AI) have been around since the 1950s, impacting areas like algorithmic preferences and search functions, it was the launch of large language models (LLMs) in chatbots like ChatGPT in November 2022 that marked a significant milestone [4]. This development catapulted the role of GAI in public discourse to unprecedented prominence, surpassing previous milestones in the field [5].

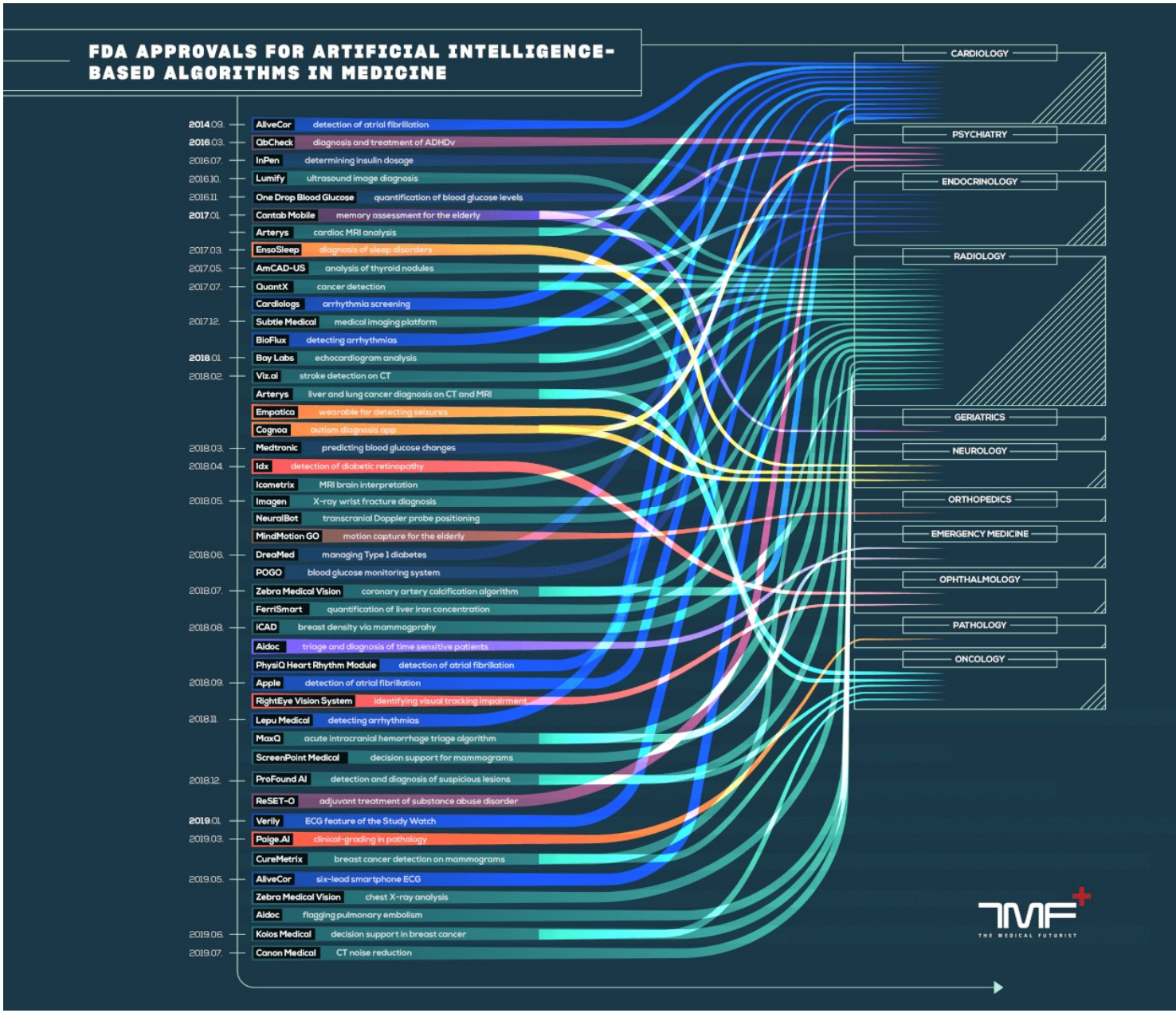
LLMs are GAI algorithms that harness deep learning and vast data sets to process, summarize, generate, and predict linguistic content [6]. In this paper, we argue that the emergence of GAI is more than just a technical evolution; it is a paradigm shift with deep social and psychological implications [7,8]. It challenges the historic human monopoly over language, with the possibility of shaking the foundation



IA em Saúde

This article has not been updated since 2019

Dr. Bertalan Mesko, PhD
6 June 2019



Humanity´s greatest advances are not in its discoveries but in how those discoveries are applied.

Bill Gates

- **Fragmentação e complexidade do setor**
- **Modelo de negócios ambíguo**
- **Lealdade à marca local**
- **Tempo necessário para provar eficácia**
- **Inexperiência em transformação**

Mudança de Mindset

- Integração de tecnologias digitais em todos os aspectos dos serviços de saúde


BLOCKBUSTER
VIDEO RENTAL


HOTEL


65% das crianças hoje no ensino fundamental vão exercer uma função que ainda não existe.
fonte: Fórum Econômico Mundial
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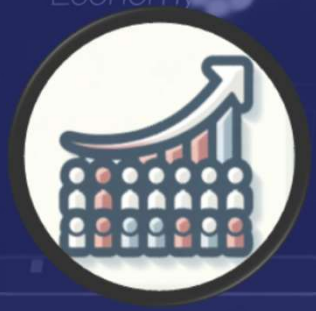
Desafios da Saúde Atual:

Envelhecimento populacional

Desigualdade no Acesso aos Cuidados de Saúde



Demanda por serviços de saúde

Resistência a Antibióticos e Novas Ameaças à Saúde

Custos Crescente

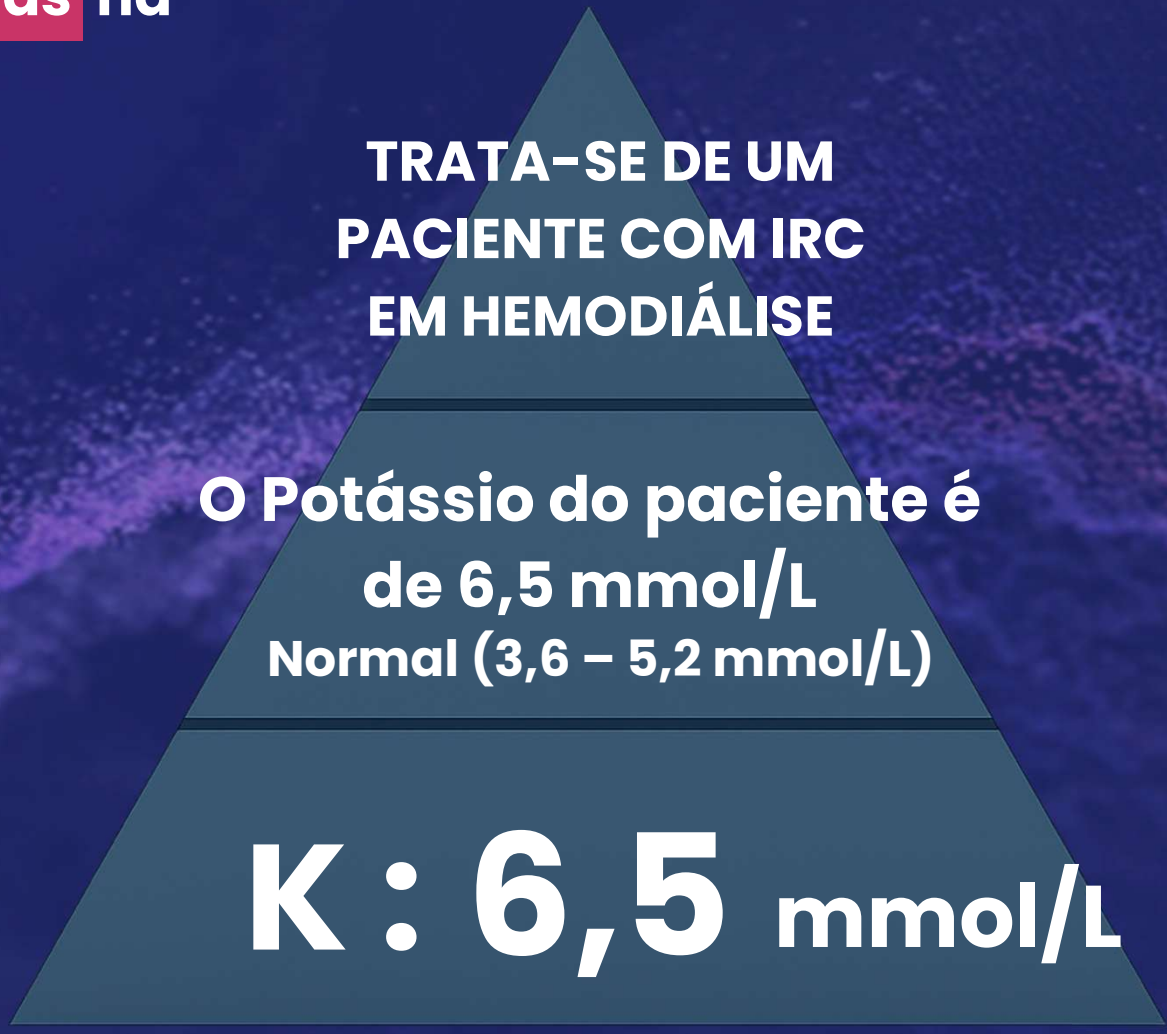
Eric Schmidt
Ex-CEO da Google

DADOS

"A cada dois dias geramos um volume de dados equivalente ao que criamos do início da civilização até 2003."

Revoluções Digitais Necessárias na
Transformação Digital

A Base



Revoluções Digitais Necessárias na Transformação Digital

A Base

Revoluções Digitais Necessárias na Transformação Digital

Revoluções Digitais Necessárias na Transformação Digital

Revoluções Digitais Necessárias na Transformação Digital

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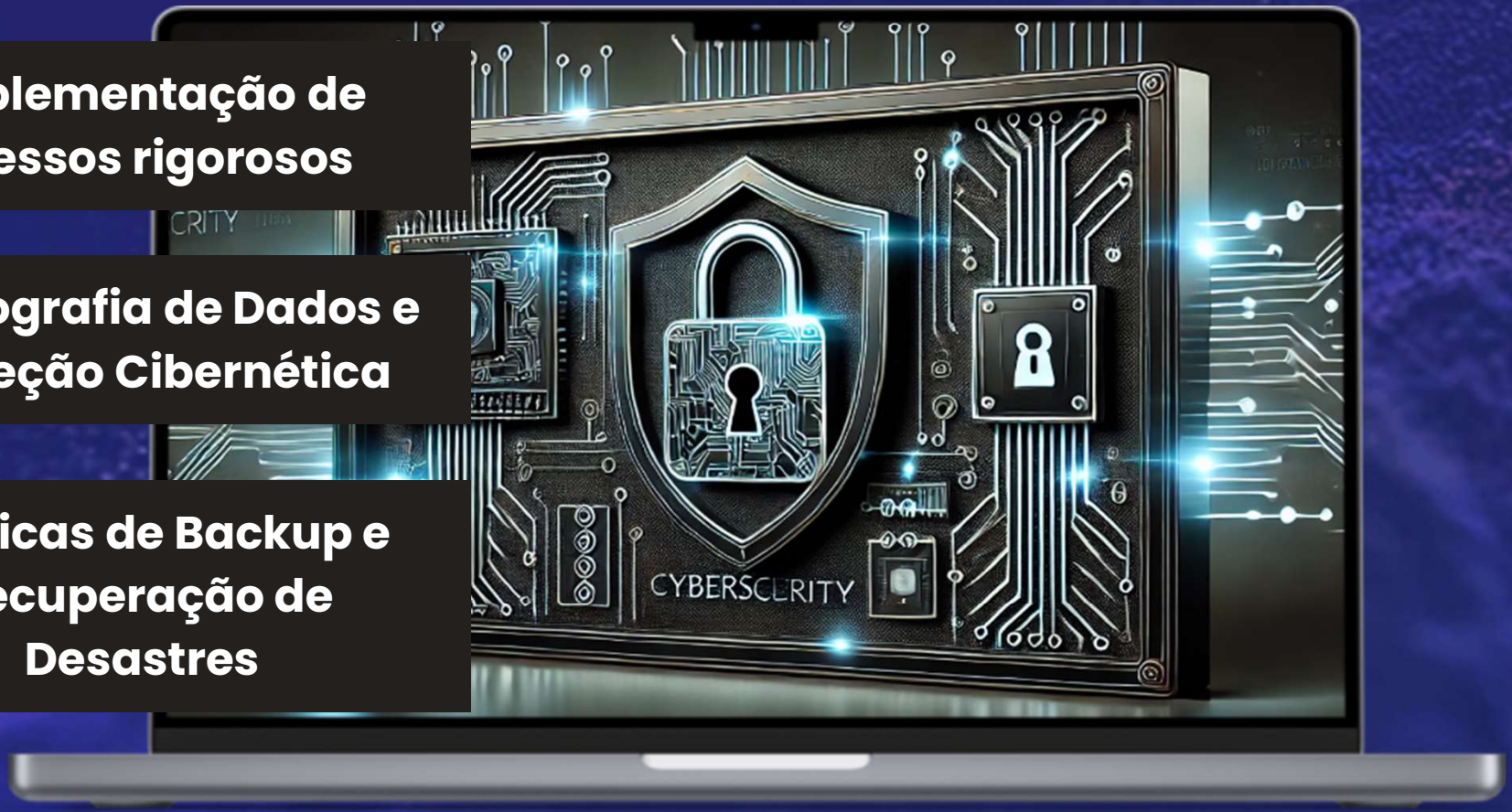
Revoluções Digitais Necessárias na Transformação Digital

Implementação de acessos rigorosos

Criptografia de Dados e Proteção Cibernética

Políticas de Backup e Recuperação de Desastres



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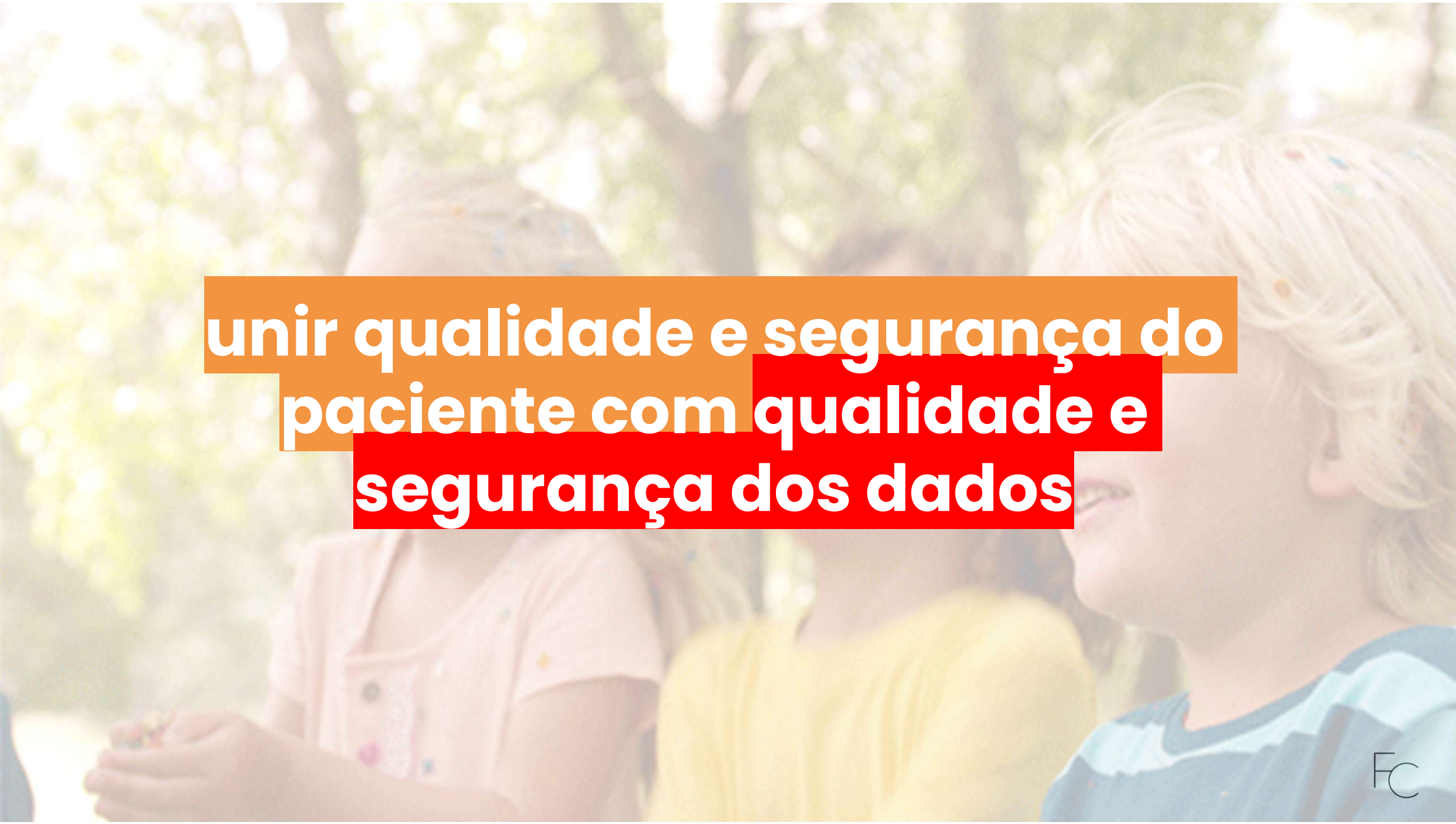
Revoluções Digitais Necessárias na Transformação Digital

Treinamento e Conscientização dos Funcionários


unir qualidade e segurança do paciente com qualidade e segurança dos dados

Revoluções Digitais Necessárias na Transformação Digital

Investimento

HIMSS Analytics

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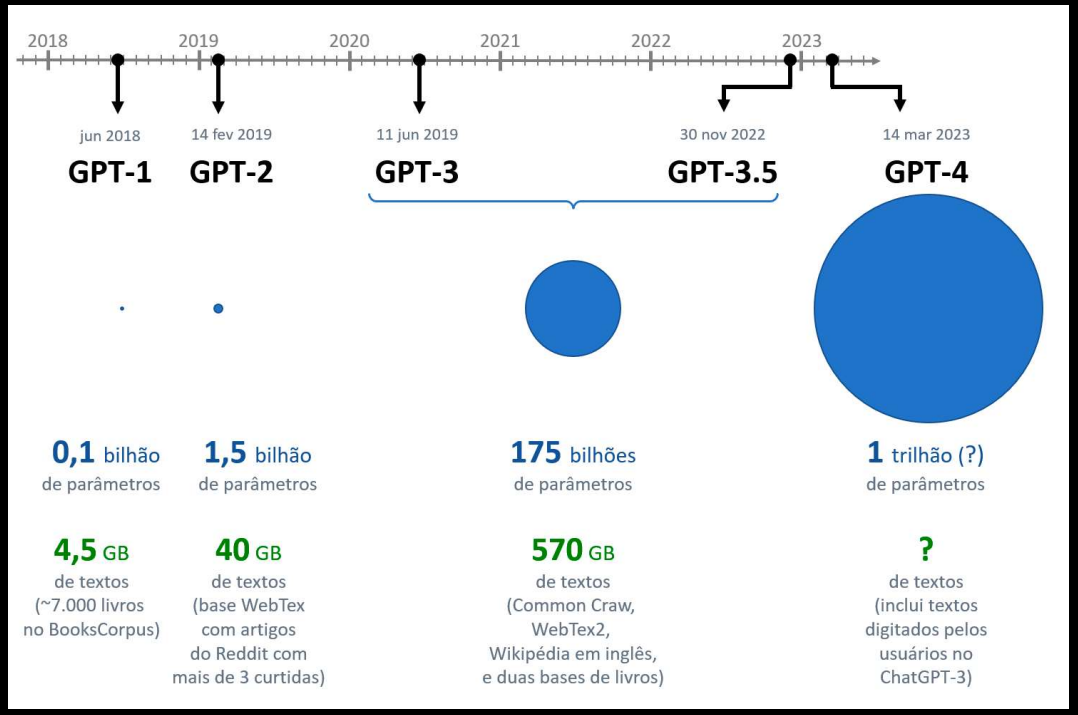
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jun 2018
14 fev 2019
11 jun 2019
30 nov 2022
14 mar 2023
GPT-1
GPT-2
GPT-3
GPT-3.5
GPT-4
0,1 bilhão
de parâmetros
1,5 bilhão
de parâmetros
175 bilhões
de parâmetros
1 trilhão (?)
de parâmetros
4,5 GB
de textos
(~7.000 livros
no BooksCorpus)
40 GB
de textos
(base WebTex
com artigos
do Reddit com
mais de 3 curtidas)
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de textos
(Common Craw,
WebTex2,
Wikipédia em inglês,
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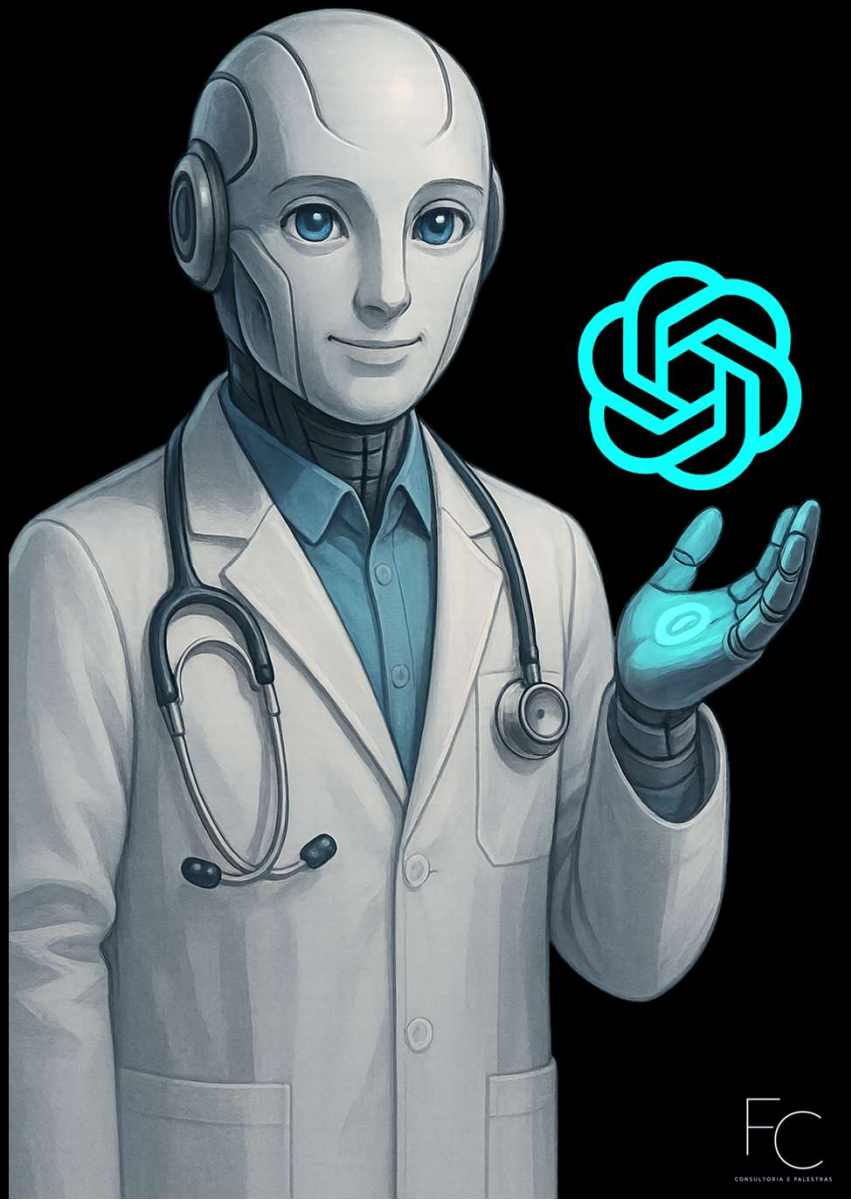
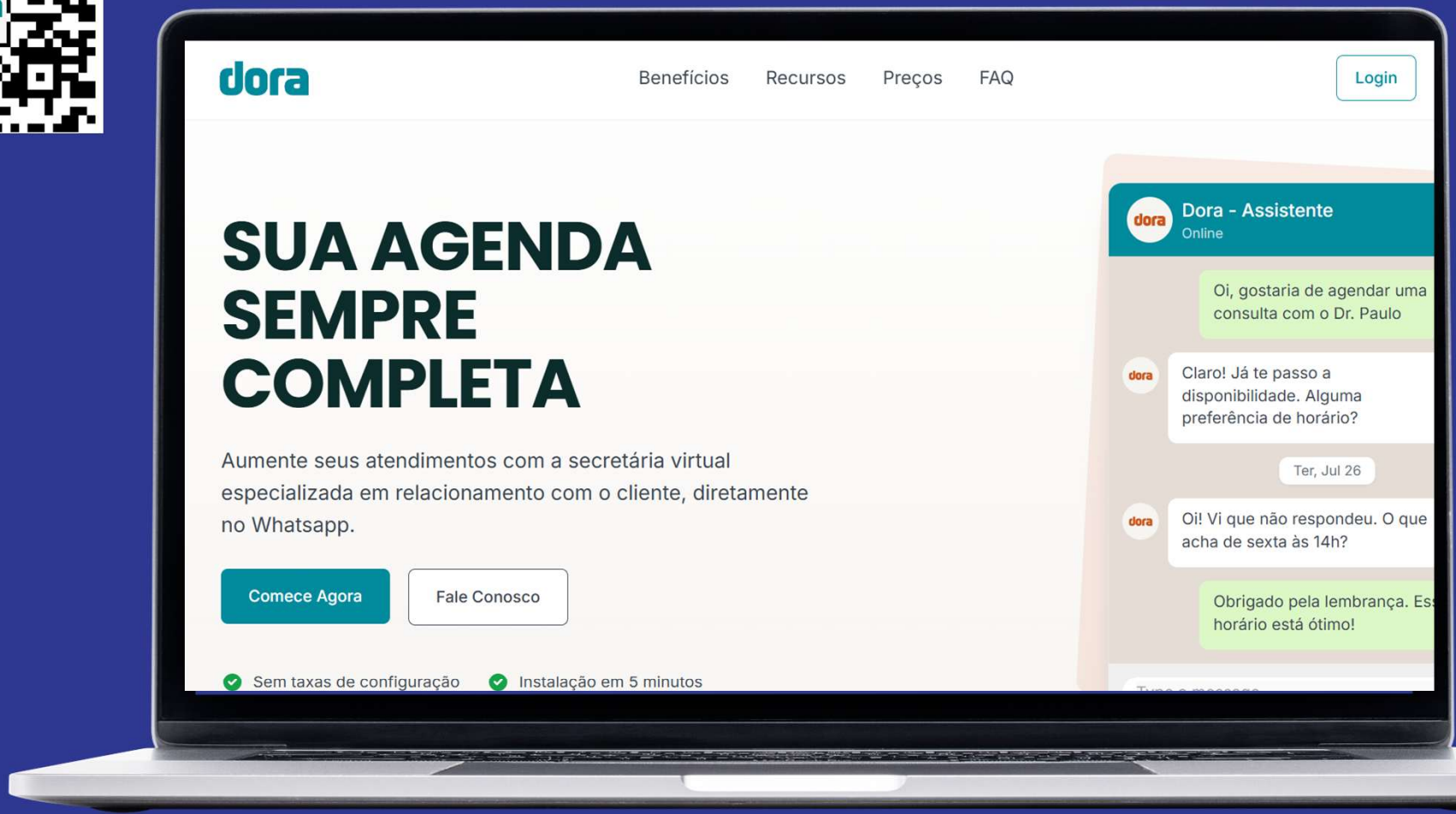
digitados pelos
usuários no
ChatGPT-3)

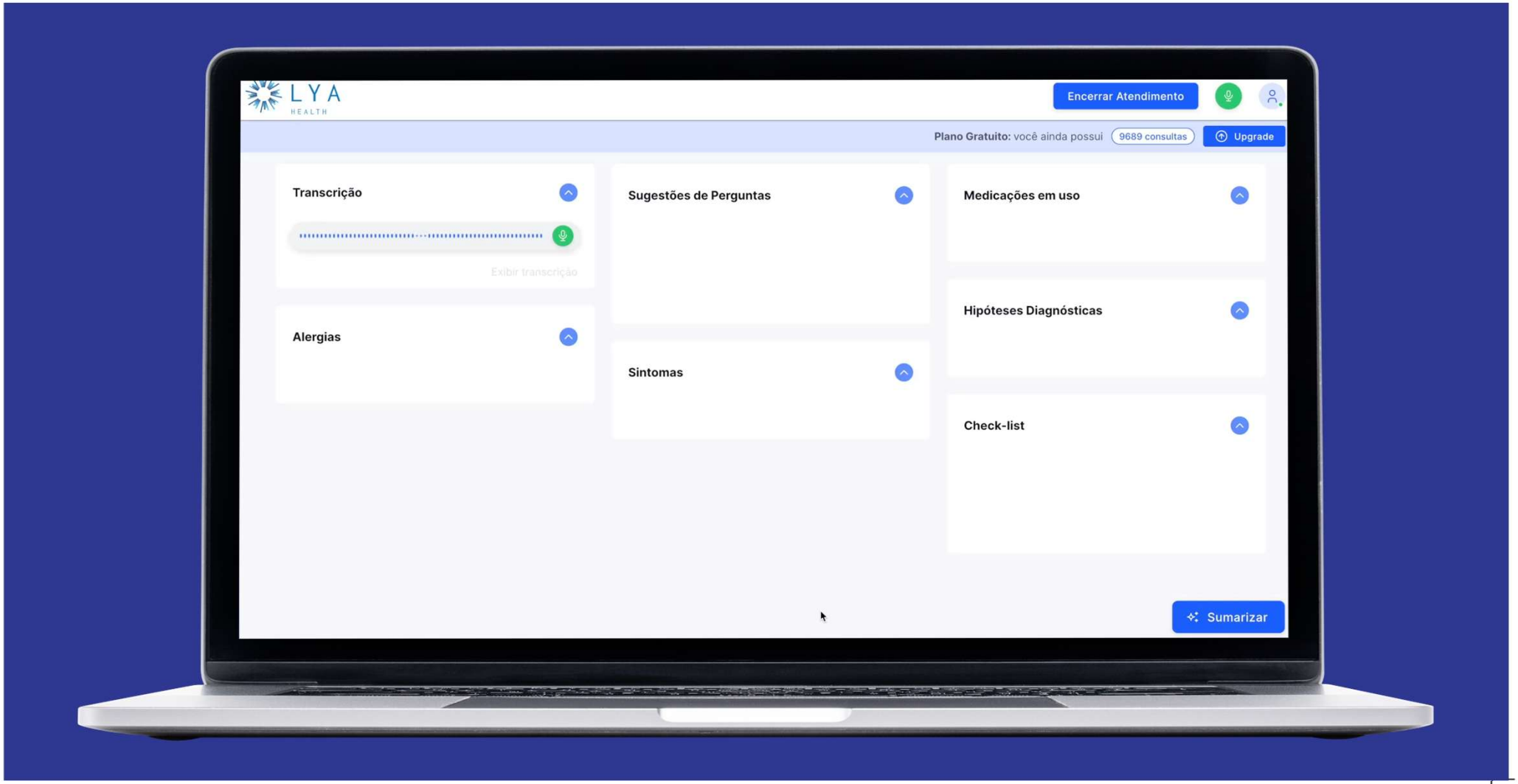


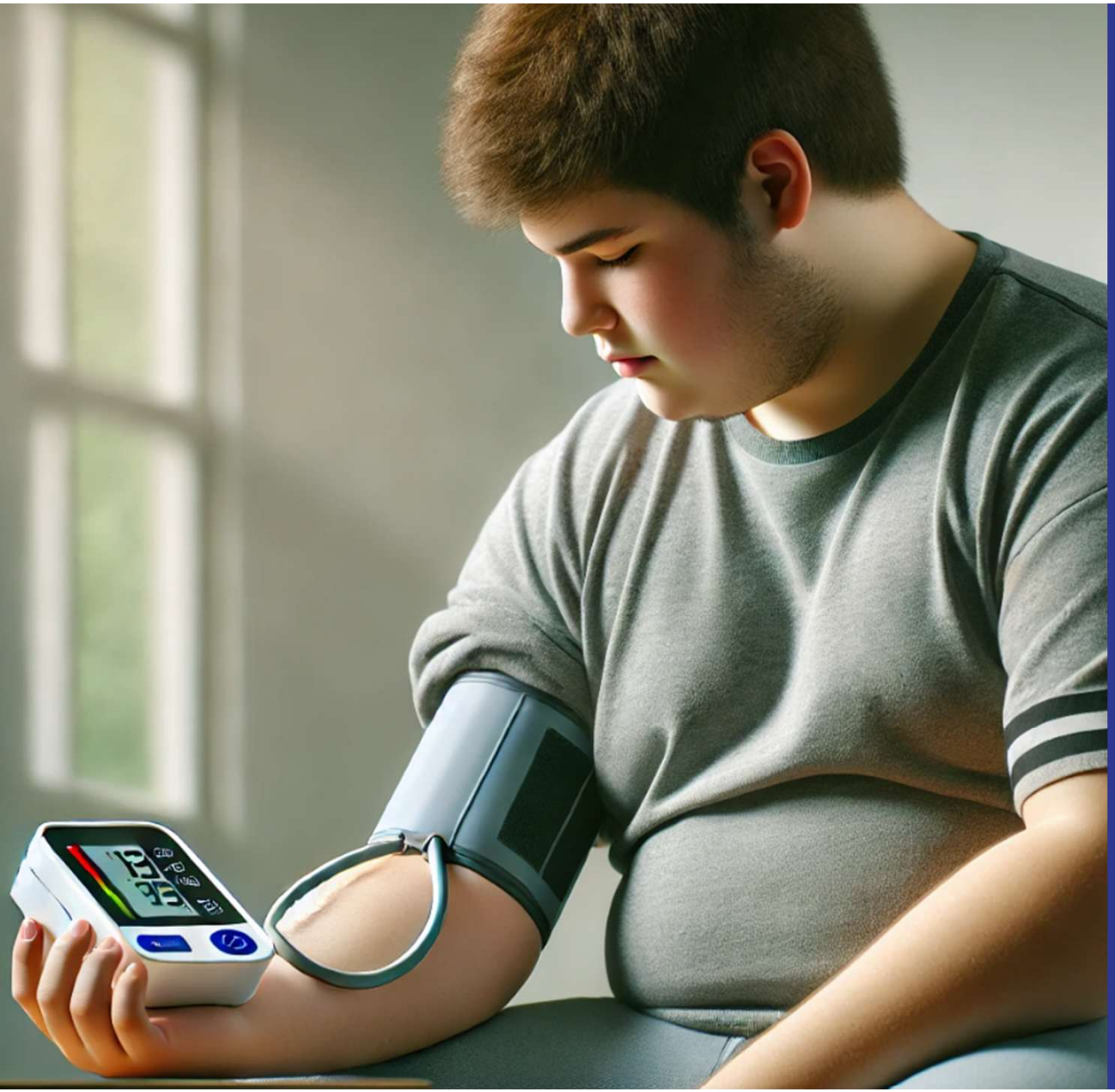
Transformação Digital

7 aspectos do novo modelo do setor de saúde com a transformação digital.


dora
Benefícios
Recursos
Preços
FAQ
Login
SUA AGENDA SEMPRE COMPLETA
Aumente seus atendimentos com a secretária virtual especializada em relacionamento com o cliente, diretamente no Whatsapp.
Comece Agora
Fale Conosco
Sem taxas de configuração
Instalação em 5 minutos
Dora - Assistente
Online
Oi, gostaria de agendar uma consulta com o Dr. Paulo
Claro! Já te passo a disponibilidade. Alguma preferência de horário?
Ter, Jul 26
Oi! Vi que não respondeu. O que acha de sexta às 14h?
Obrigado pela lembrança. Es
horário está ótimo!


dora
Benefícios
Recursos
Preços
FAQ
Resultados Comprovados
Clínicas que utilizam a Dora registram melhorias significativas nos processos de agendamento e na satisfação dos pacientes.
20%
Aumento em agendamentos
-30%
Redução em faltas
60%
Recuperação de agendamentos abandonados


LYA
HEALTH
Encerrar Atendimento
Plano Gratuito: você ainda possui
9689 consultas
Upgrade
Transcrição
Exibir transcrição
Alergias
Sugestões de Perguntas
Sintomas
Medicações em uso
Hipóteses Diagnósticas
Check-list
Sumarizar



IEEE Access
Multidisciplinary | Rapid Review | Open Access Journal

Received 27 June 2024, accepted 29 July 2024, date of current version 12 September 2024.

Digital Object Identifier 10.1109/ACCESS.2024.3443688

RESEARCH ARTICLE

Machine Learning-Enabled Hypertension Screening Through Acoustical Speech Analysis: Model Development and Validation

BEHRAD TAGHIBEYGLOU[1,2,3], (Graduate Student Member, IEEE), JAYCEE M. KAUFMAN[3], AND YAN FOSSAT[3,4]

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[2]KITE Research Institute, Toronto Rehabilitation Institute-University Health Network, Toronto, ON M5G 2C4, Canada
[3]Klick Applied Sciences, Klick Inc., Toronto, ON M4W 3R8, Canada
[4]Faculty of Science, Ontario Tech University, Oshawa, ON L1G 0C5, Canada

Corresponding author: Behrad TaghiBeyglou (behrad.taghibeyglou@mail.utoronto.ca)

This work was supported by Klick Inc.
This work involved human subjects or animals in its research. Approval of all ethical and experimental procedures and protocols was granted by the Ethics Clearance From Saanvi Ethical Research LLP, Jasleen Hospitals Ethics Committee, and Mavens Institutional Ethics Committee.

ABSTRACT Hypertension, referred to as the "silent killer" by the World Health Organization, affects over 35% of the global population. Early diagnosis and behavioural interventions have been shown to mitigate morbidity and mortality associated with this condition. However, conventional methods of measuring blood pressure and accordingly identifying hypertension, such as sphygmomanometry, require technical expertise and may not be readily accessible, particularly in remote or underserved areas. Automatic blood pressure measurement devices offer an alternative but are often inaccessible in certain populations. In this study, we propose a novel framework for detecting hypertension through acoustic analysis of speech. By recording speech across multiple sessions and analyzing its temporal and spectral characteristics, we aim to identify indicators of hypertension. We explore two thresholds for labeling individuals with hypertension: 1) systolic blood pressure (SBP)$\geq$135 mmHg or diastolic blood pressure (DBP)$\geq$85 mmHg and 2) SBP$\geq$140 mmHg or DBP$\geq$90 mmHg. Our study involved 245 participants, including 91 females. We developed predictive models for each gender and assessed their performance using leave-one-subject-out validation. For the first threshold, the balanced accuracy achieved was 84% for females and 77% for males. For the second threshold, the corresponding balanced accuracies were 63% for females and 86% for males. These results demonstrate the potential of utilizing speech-based representations for non-invasive screening of hypertension.

INDEX TERMS Acoustic representation, health monitoring, hypertension, machine learning, speech analysis.

I. INTRODUCTION

Blood pressure, defined as the pressure pushed to the walls of the blood vessels during circulation, is one of the most common indicators of cardiac health [1]. Blood pressure is commonly measured at the level of arteries and varies over each heartbeat from a minimum called diastolic pressure (DBP) to a maximum called systolic pressure (SBP). The SBP is almost traceable at the beginning of the cardiac cycle and indicates the maximum pressure exerted on the walls of the arteries after contraction of the heart, while the DBP occurs in the resting phase of the cardiac cycle and

The associate editor coordinating the review of this manuscript and approving it for publication was Lin Wang.

Transformação Digital

7 aspectos do novo modelo do setor de saúde com a transformação digital.

John Nosta
O principal teórico de inovação do mundo em tecnologia, inteligência artificial e medicina

John Nosta
The Digital Self

AI's Watchful Eye on Patient Health Status

AI can predict health deterioration accurately without human assessment.

Posted August 14, 2024

Reviewed by Kaja Perina

KEY POINTS

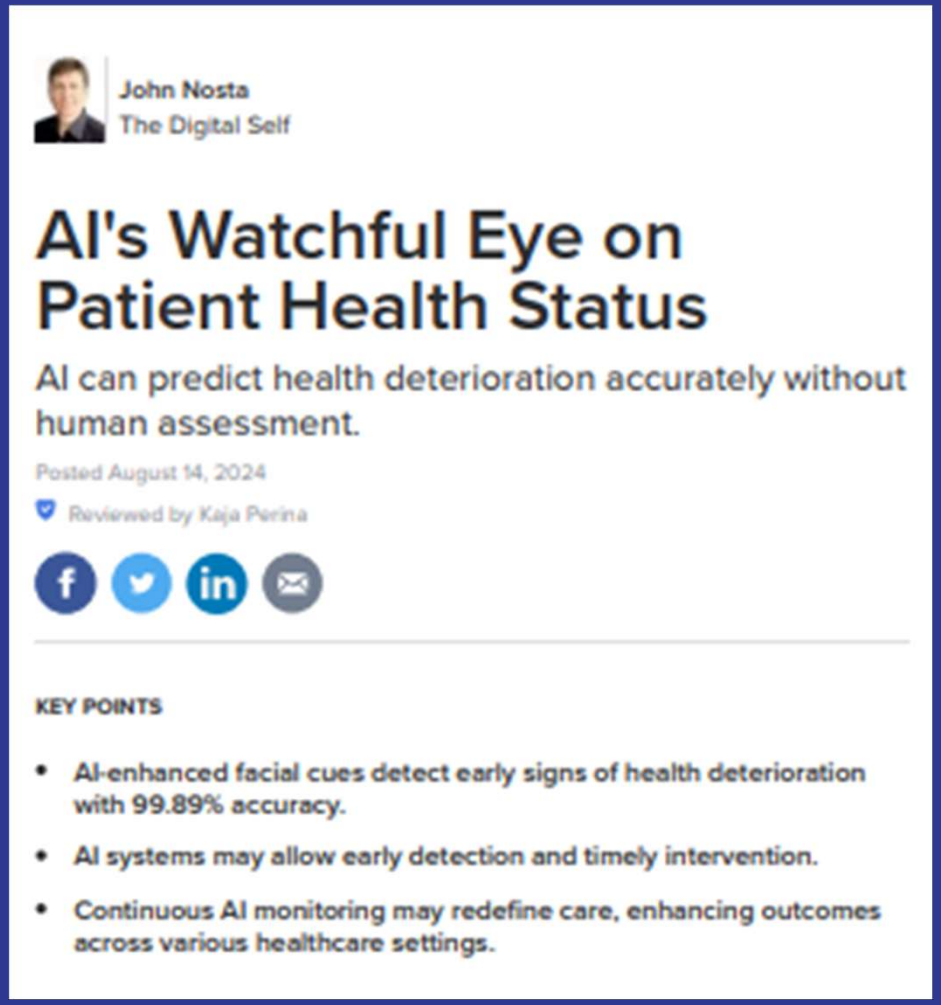
- AI-enhanced facial cues detect early signs of health deterioration with 99.89% accuracy.
- AI systems may allow early detection and timely intervention.
- Continuous AI monitoring may redefine care, enhancing outcomes across various healthcare settings.

***Cuidados em Casa**

- Monitoramento de paciente crônico com IA

*** Cuidados Preventivos**

- Integração da IA em check-ups e Telemedicina detectando precocemente



John Nosta
The Digital Self

AI's Watchful Eye on Patient Health Status

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***Cuidados**

- Monitorc
  com IA

*** Cuidados**

- Integraç
  Telemed
  precocer

Saúde Business

Registrar Agora

Entra

Gestão Mercado Healthtechs Hospitais Laboratórios Operadoras Colunas Biblioteca Eventos Podcast

MAIS LIDAS

Sírio-Libanês assume gestão de três hospitais estaduais em São Paulo
AUG 28, 2024

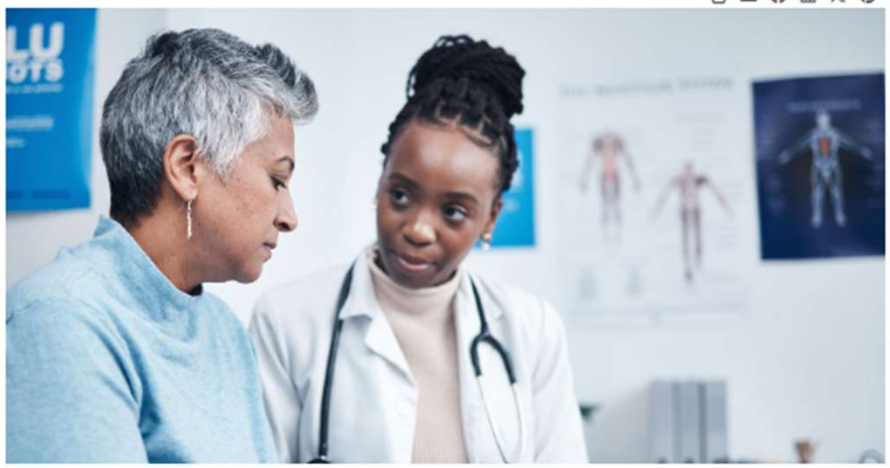
Como construir uma cultura de segurança do paciente em hospitais?
SEP 02, 2024

HIS 2024 reúne as principais inovações do setor de saúde: IA, telemedicina e monitoramento remoto
AUG 29, 2024

GPTW 2024: As Melhores Empresas para Trabalhar na Área da Saúde
AUG 26, 2024

Perspectivas para a saúde brasileira em 2030
SEP 10, 2024

Hospital Moinhos de Vento utiliza plataforma digital para apoiar pacientes com câncer de pulmão



Inicialmente, a ideia é utilizar a plataforma digital para acompanhar 30 pacientes por oito meses, oferecendo suporte personalizado e digitalizado durante o tratamento de câncer de pulmão. Com isso, se espera reduzir as barreiras do tratamento. Saiba mais!

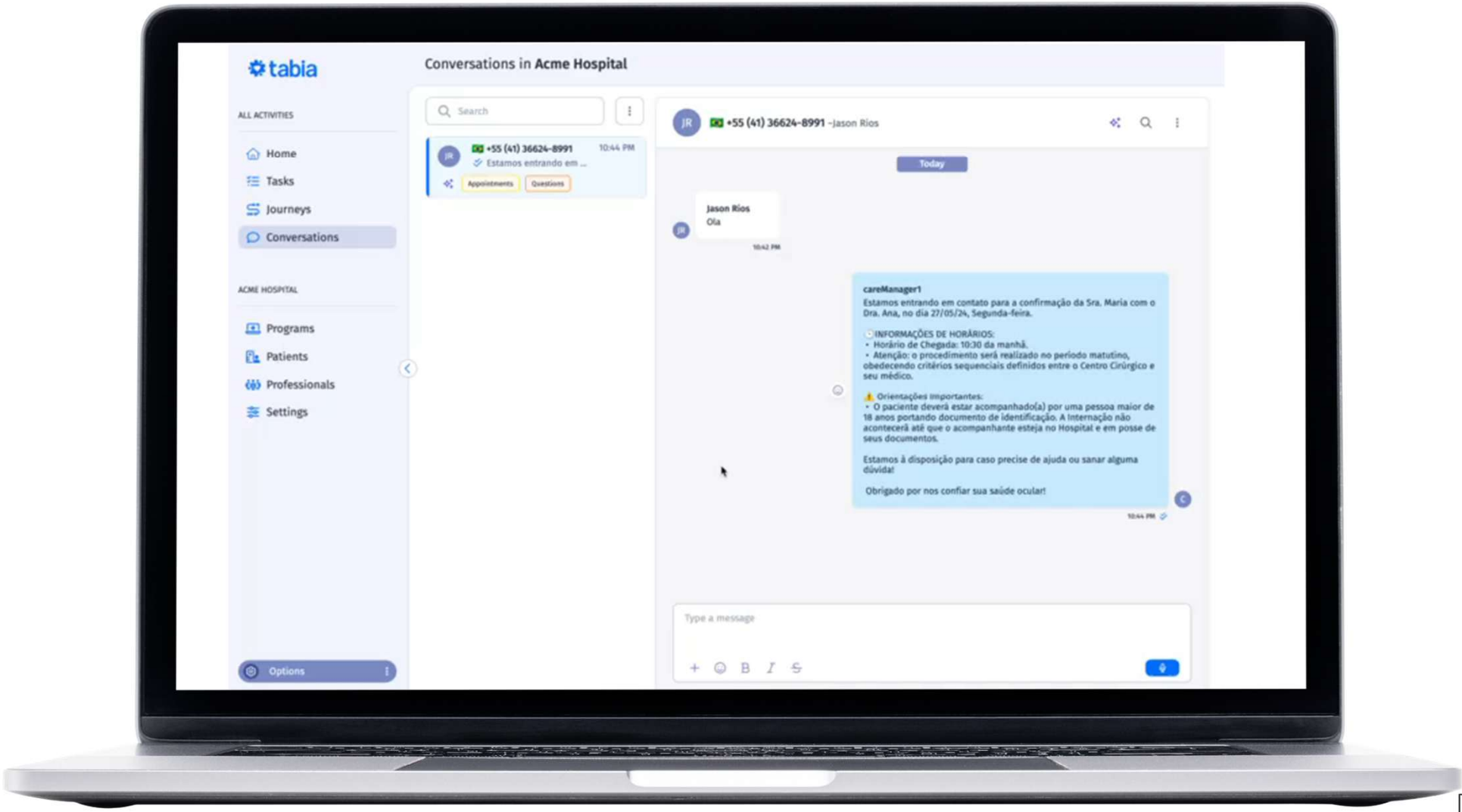
Juliana Santos | 20 Jun, 2024

ately without

deterioration

ervention.

cing outcomes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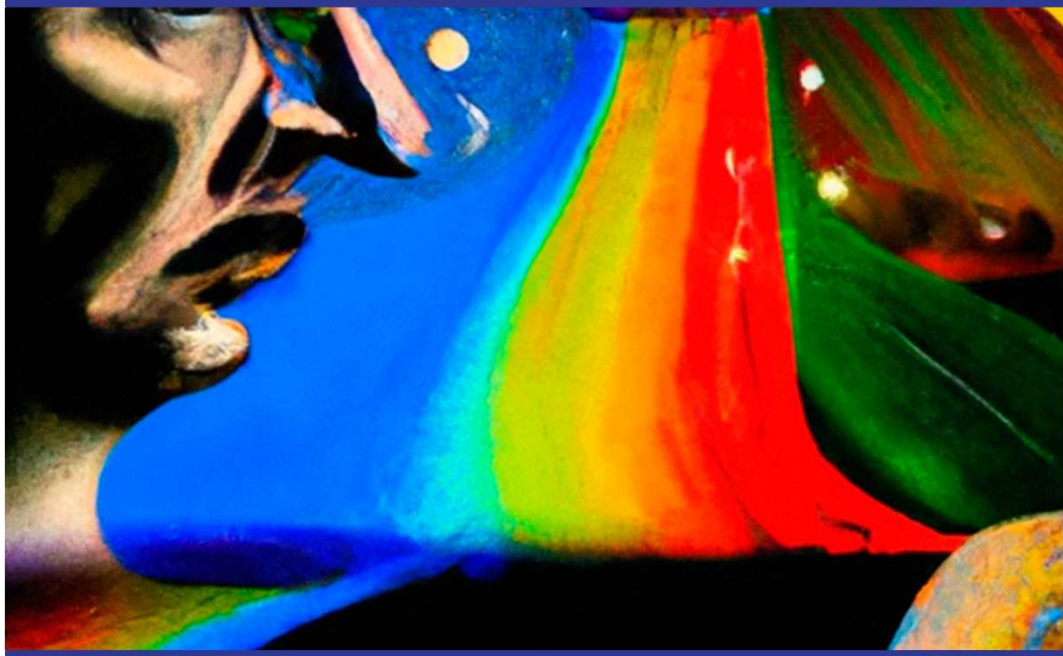
Conversations in Acme Hospital
ALL ACTIVITIES
Home
Tasks
Journeys
Conversations
ACME HOSPITAL
Programs
Patients
Professionals
Settings
Options
Search
+55 (41) 36624-8991
10:44 PM
Estamos entrando em ...
Appointments
Questions
JR
+55 (41) 36624-8991 -Jason Rios
Today
Jason Rios
Ola
10:42 PM
careManager1
Estamos entrando em contato para a confirmação da Sra. Maria com o Dra. Ana, no dia 27/05/24, Segunda-feira.
INFORMAÇÕES DE HORÁRIOS:
• Horário de Chegada: 10:30 da manhã.
• Atenção: o procedimento será realizado no período matutino, obedecendo critérios sequenciais definidos entre o Centro Cirúrgico e seu médico.
Orientações Importantes:
• O paciente deverá estar acompanhado(a) por uma pessoa maior de 18 anos portando documento de identificação. A Internação não acontecerá até que o acompanhante esteja no Hospital e em posse de seus documentos.
Estamos à disposição para caso precise de ajuda ou sanar alguma dúvida!
Obrigado por nos confiar sua saúde ocular!
10:44 PM
Type a message



MIT Technology Review

IA e terapias digitais tratam a insônia sem medicamentos

Para controlar distúrbios do sono, softwares desenvolvidos por startups brasileiras prometem benefícios de longo prazo com base em terapias cognitivo-comportamentais.

Gêmeos Digitais

Gêmeos Digitais

O gêmeo digital é uma réplica virtual de órgãos ou sistemas humanos que permite diagnósticos e tratamentos personalizados, otimizando cuidados de saúde com base em dados em tempo real

- Medicina de Precisão.
- Prevenção e Diagnóstico.
- Simulações Virtuais e Previsão de Intervenções
- Custo-efetividade e Eficiência.

Check for updates

Review article

DIGITAL HEALTH

Digital twin in healthcare: Recent updates and challenges

Digital Health
Volume 9: 1–13
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DOI: 10.1177/20552076221149651
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SAGE

Tianze Sun[1,2,*], Xiwang He[3,*] and Zhonghai Li[1,2]

Abstract

As simulation is playing an increasingly important role in medicine, providing the individual patient with a customised diagnosis and treatment is envisaged as part of future precision medicine. Such customisation will become possible through the emergence of digital twin (DT) technology. The objective of this article is to review the progress of prominent research on DT technology in medicine and discuss the potential applications and future opportunities as well as several challenges remaining in digital healthcare. A review of the literature was conducted using PubMed, Web of Science, Google Scholar, Scopus and related bibliographic resources, in which the following terms and their derivatives were considered during the search: DT, medicine and digital health virtual healthcare. Finally, analyses of the literature yielded 465 pertinent articles, of which we selected 22 for detailed review. We summarised the application examples of DT in medicine and analysed the applications in many fields of medicine. It revealed encouraging results that DT is being increasing applied in medicine. Results from this literature review indicated that DT healthcare, as a key fusion approach of future medicine, will bring the advantages of precision diagnose and personalised treatment into reality.

Keywords

Digital twin, healthcare, precision diagnose, personalised treatment, medicine

Submission date: 4 August 2022; Acceptance date: 14 December 2022

Introduction

It is often said that 'there is no disease, there is the patient'. Compared with other disciplines, medicine has inherent uncertainty, which makes medical practice challenging. Conventional drug therapy has many limitations such as medication ineffectiveness and the concept of personalised medicine has proved to play an important role in the healthcare sector.[1–3] Over the past few decades, more and more attention is being paid to precision medicine, which has been described as an emerging approach for disease treatment and prevention that considers variability in the genes, environment and lifestyle among individual people.[4] Some previous studies have used digital technology to construct a virtual physiological human body, with the vision of translating computational physiology into clinical practice, and have achieved certain progress.[5,6] The development of the technologies of big data, cloud computing, virtual-reality and the internet of things (IoT) has laid a technical foundation for the application of digital twin (DT) and thus provided clinicians and researchers with a more detailed dimension with which to study the occurrence and development of diseases and to conduct more precise diagnoses and treatments.

In recent years, the concept of DT is attracting more and more attention from researchers and engineers. With the continuous DT research by both industry and academia, however, the boundaries between DT and other related concepts have become increasingly blurred. The preliminary meaning of the DT included the physical product, virtual product and their connections.[7] The rapid development of communication technology, sensor technology, big data analysis, the IoT and simulation technology has led to the

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MIT Technology Review

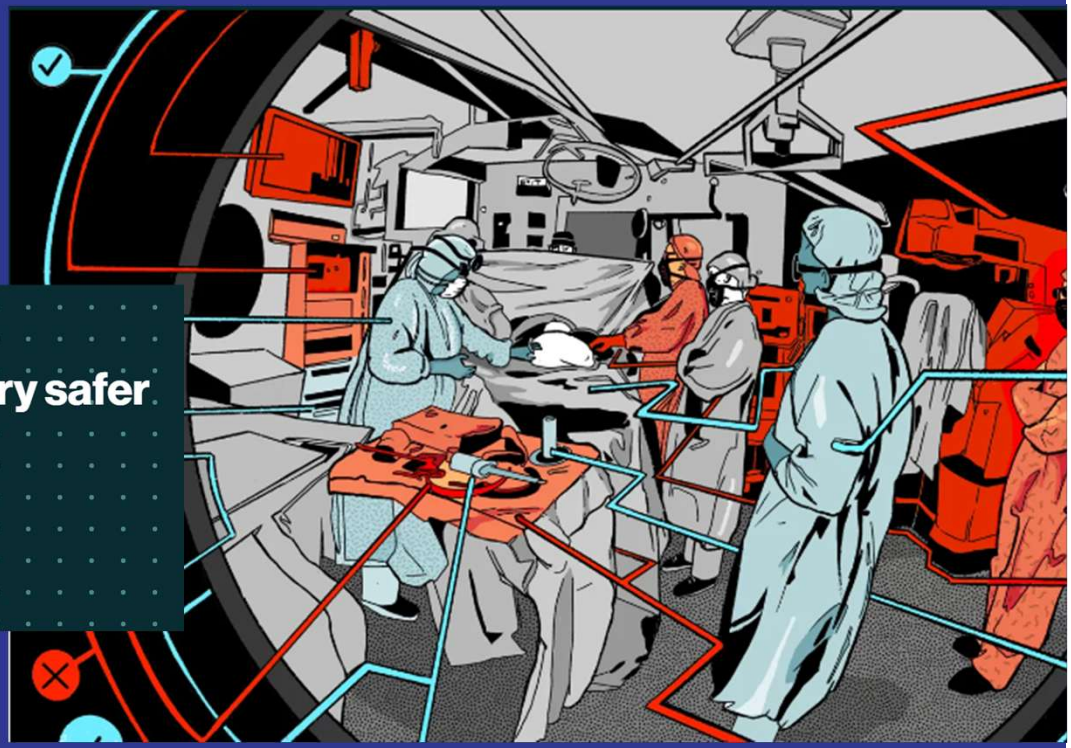
ARTIFICIAL INTELLIGENCE

This AI-powered “black box” could make surgery safer

A new smart monitoring system could help doctors avoid mistakes—but it's also alarming some surgeons and leading to sabotage.

By Simar Bajaj

June 7, 2024



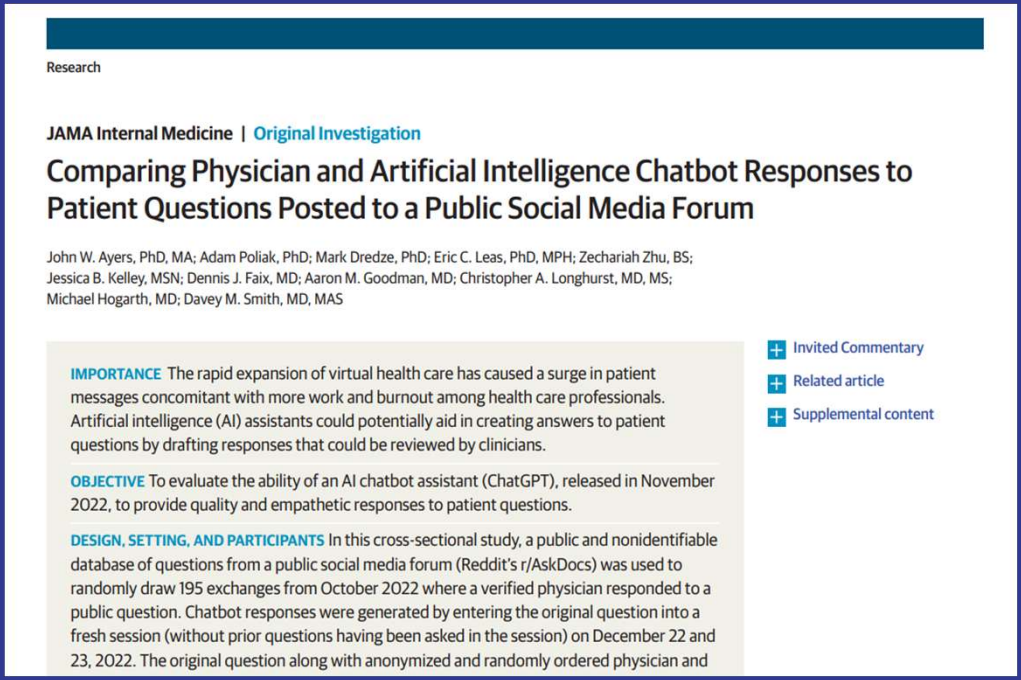
- **IA para Sistemas de Monitoramento em Salas de Cirurgia**
- **Aprimoramento do Treinamento e Educação Médica**

IA e empatia

Capacidade de um assistente de chatbot de IA (ChatGPT) para fornecer respostas de qualidade e empáticas a perguntas de pacientes

- Dos 195 casos, os avaliadores preferiram as respostas do chatbot em 78,6%.
- As respostas dos médicos foram significativamente mais curtas.
- As respostas do chatbot foram avaliadas como de qualidade significativamente mais alta e mais empáticas.

O estudo sugere uma exploração adicional desta tecnologia em ambientes clínicos, como usar o chatbot para elaborar respostas que os médicos poderiam editar.



Research

JAMA Internal Medicine | Original Investigation

Comparing Physician and Artificial Intelligence Chatbot Responses to Patient Questions Posted to a Public Social Media Forum

John W. Ayers, PhD, MA; Adam Poliak, PhD; Mark Dredze, PhD; Eric C. Leas, PhD, MPH; Zechariah Zhu, BS; Jessica B. Kelley, MSN; Dennis J. Faix, MD; Aaron M. Goodman, MD; Christopher A. Longhurst, MD, MS; Michael Hogarth, MD; Davey M. Smith, MD, MAS

Invited Commentary
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Supplemental content

IMPORTANCE The rapid expansion of virtual health care has caused a surge in patient messages concomitant with more work and burnout among health care professionals. Artificial intelligence (AI) assistants could potentially aid in creating answers to patient questions by drafting responses that could be reviewed by clinicians.

OBJECTIVE To evaluate the ability of an AI chatbot assistant (ChatGPT), released in November 2022, to provide quality and empathetic responses to patient questions.

DESIGN, SETTING, AND PARTICIPANTS In this cross-sectional study, a public and nonidentifiable database of questions from a public social media forum (Reddit's r/AskDocs) was used to randomly draw 195 exchanges from October 2022 where a verified physician responded to a public question. Chatbot responses were generated by entering the original question into a fresh session (without prior questions having been asked in the session) on December 22 and 23, 2022. The original question along with anonymized and randomly ordered physician and

IA e raciocínio clínico

Raciocínio Clínico de uma Inteligência Artificial Generativa de Grandes Modelos Comparado com Médicos

- A amostra envolveu 21 médicos assistentes e 18 residentes de centros médicos acadêmicos de Boston
- Foram usados 20 casos clíncos.
- A pontuação mediana no R-IDEA (uma pontuação revisada para avaliação do raciocínio clínico) foi de 9 para o chatbot, 9 para os médicos assistentes e 8,4 para os residentes.

IA teve alta precisão em identificar diagnósticos corretos e um raciocício clínico semelhante aos médicos assistentes experientes..

JAMA | JAMA Network

RESEARCH LETTER

Clinical Reasoning of a Generative Artificial Intelligence Model Compared With Physicians

Large language models (LLMs) have shown promise in clinical reasoning, but their ability to synthesize clinical encounter data into problem representations remains unexplored.[1-3] We compared an LLM's reasoning abilities against human performance using standards developed for physicians.

Methods | We recruited internal medicine residents and attending physicians at 2 academic medical centers in Boston, Massachusetts, from July to August 2023. We used 20 clinical cases, each comprising 4 sections representing sequential stages of clinical data acquisition.[4] We developed a survey instructing physicians to write a problem representation and prioritized differential diagnosis with justifications for each section (eTable 1 in Supplement 1). Each physician received the survey with 1 randomly selected case (4 sections). We developed a prompt with identical instructions (eTable 2 in Supplement 1) and ran all sections in GPT-4 (OpenAI) on August 17-18, 2023.[5] The Massachusetts General Hospital and Beth Israel Deaconess Medical Center Institutional Review Boards deemed this cross-sectional study exempt from review. Written informed consent were obtained. We followed the STROBE reporting guideline.

Supplemental content

Primary outcome was the Revised-IDEA (R-IDEA) score, a validated 10-point scale evaluating 4 core domains of clinical reasoning documentation (eTable 3 in Supplement 1).[6] To establish reliability, we (D.R., Z.K., A.R.) independently scored 29 section responses from 8 nonparticipants, showing substantial scoring agreement (mean Cohen weighted κ = 0.61). Secondary outcomes included the presence of correct and incorrect reasoning, diagnostic accuracy, and cannot-miss diagnoses (eMethods in Supplement 1). Scorers were blinded to respondent type (chatbot, attending, resident).

Descriptive statistics were calculated for all outcomes. R-IDEA scores were binarized as low (0-7) or high (8-10). Associations between respondent type and score category were evaluated using logistic regression with random effects accounting for participant repeat structure (eMethods in Supplement 1). Significance was defined as 2-sided $P < .05$. Analyses were performed using R 4.2.1 (R Core Team).

Results | The sample included 21 attendings and 18 residents, who provided responses to a single case. Chatbot provided responses to all 20 cases. Two hundred thirty-six sections were completed, with 232 unique combinations of respondent type and section.

Median (IQR) R-IDEA scores were 10 (9-10) for chatbot, 9 (6-10) for attendings, and 8 (4-9) for residents (**Table**). In logistic regression analysis, chatbot had the highest estimated probability of achieving high R-IDEA scores (0.99; 95% CI, 0.98-1.00), followed by attendings (0.76; 95% CI, 0.51-1.00) and residents (0.56; 95% CI, 0.23-0.90), with chatbot being significantly higher than attendings ($P = .002$) and residents ($P < .001$) (**Figure**). Using Wilcoxon signed-rank test, chatbot had significantly higher R-IDEA scores than attendings (154; $P = .003$)

Table. Descriptive Statistics of Clinical Reasoning Outcomes Stratified by Respondent Type

Outcome	Respondents, No. (%)			
	All (N = 232)[a,b]	Chatbot (n = 80)	Attending physician (n = 80)[a]	Resident (n = 72)
R-IDEA score				
Median (IQR)	9 (7-10)	10 (9-10)	9 (6-10)	8 (4-9)
Score group				
Low: 0-7	90 (38.8)	4 (5.0)	29 (36.3)	33 (45.8)
High: 8-10	142 (61.2)	76 (95.0)	51 (63.8)	39 (54.9)
Correct clinical reasoning instances	222 (95.7)	80 (100)	79 (98.8)	63 (87.5)
Incorrect clinical reasoning instances	23 (9.9)	11 (13.8)	10 (12.5)	2 (2.8)
Diagnostic accuracy				
Median (IQR)	100 (100-100)	100 (100-100)	100 (100-100)	100 (100-100)
Score group				
Low: <75%	32 (13.8)	8 (10.0)	14 (17.5)	10 (13.9)
High: 75%-100%	200 (86.2)	72 (90.0)	66 (82.5)	62 (86.1)
Cannot-miss diagnoses included, median (IQR), %[b]	66.7 (33.3-100)	66.7 (50.0-100)	50.0 (27.1-100)	66.7 (33.3-81.2)

Abbreviation: R-IDEA, Revised IDEA.

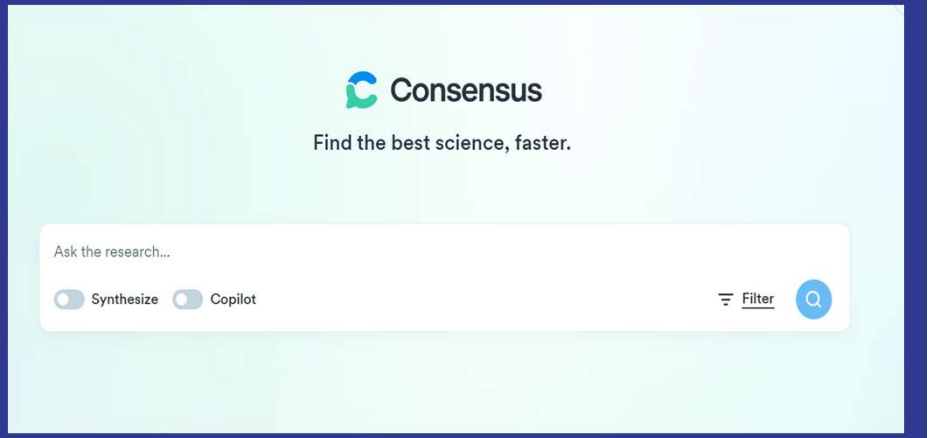
[a] There was 1 instance in which 2 attending physicians provided responses for the same case. Means of section scores were calculated prior to analysis.

[b] For the cannot-miss diagnoses outcome, which reflects the percentage of cannot-miss diagnoses included in the initial differential (first section of each case), the sample size for all respondents was 52, with 18 responses each from chatbot and attending physicians and 16 responses from residents. Two cases without identified cannot-miss diagnoses were excluded.

IA – evidências médicas

https://www.openevidence.com/

https://consensus.app/search/



Transformação Digital

7 aspectos do novo modelo do setor de saúde com a transformação digital.

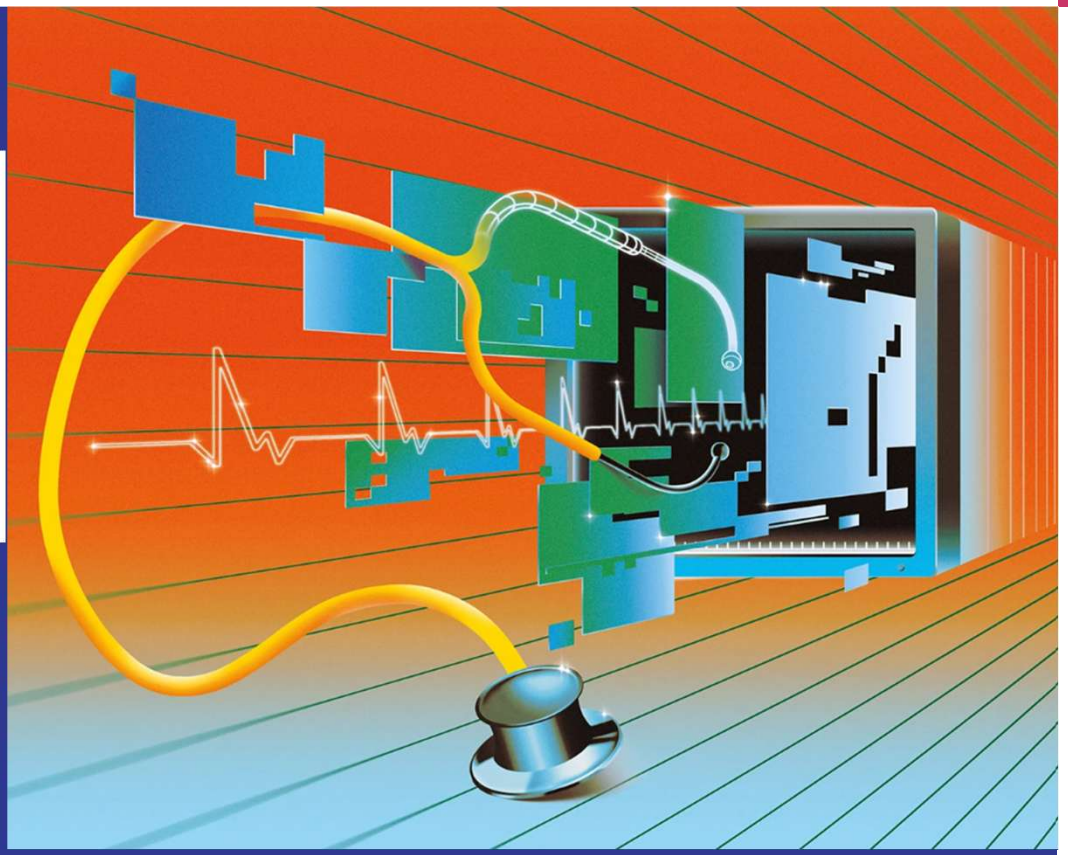
nature

NEWS FEATURE | 21 August 2024

The testing of AI in medicine is a mess. Here's how it should be done

Hundreds of medical algorithms have been approved on basis of limited clinical data. Scientists are debating who should test these tools and how best to do it.

By Mariana Lenharo



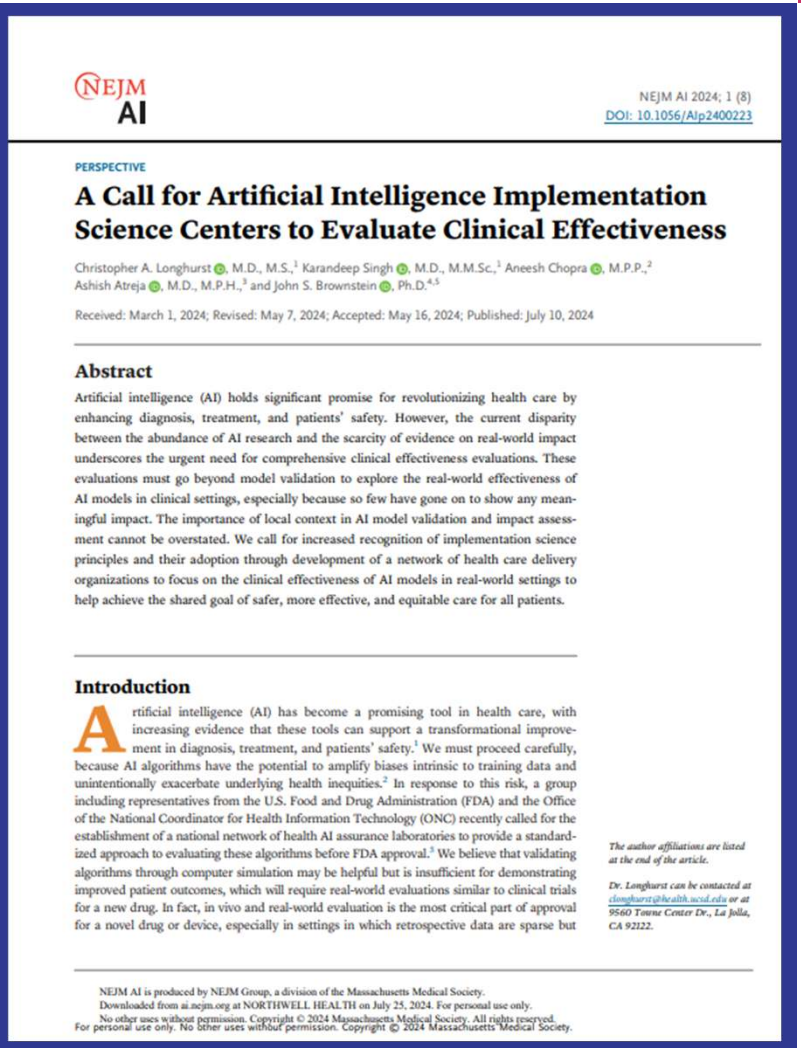
- **Muitos dispositivos de IA médica são aprovados sem validação clínica suficiente**
- **Dados tendenciosos são um problema comum, limitando a aplicação prática das tecnologias.**


“O viés que existem nos dados em saúde são inimagináveis.
Se não tomarmos cuidado, a IA que vamos criar irá incorporar todas as injustiças e desigualdades”.
Leo Anthony Celi
Principal Research Scientist, MIT Clinical Research Director, Laboratory of Computational Physiology
Corporate Relations
MIT ILP
INDUSTRIAL LIAISON PROGRAM

Atenção aos modelos de IA

Necessidade de **centros de ciência da implementação de IA** no setor de saúde

Importância de avaliar a ***eficácia clínica*** dos modelos de IA em cenários do mundo real.



NEJM AI

NEJM AI 2024; 1 (8)
DOI: 10.1056/AIp2400223

PERSPECTIVE

A Call for Artificial Intelligence Implementation Science Centers to Evaluate Clinical Effectiveness

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Abstract

Artificial intelligence (AI) holds significant promise for revolutionizing health care by enhancing diagnosis, treatment, and patients' safety. However, the current disparity between the abundance of AI research and the scarcity of evidence on real-world impact underscores the urgent need for comprehensive clinical effectiveness evaluations. These evaluations must go beyond model validation to explore the real-world effectiveness of AI models in clinical settings, especially because so few have gone on to show any meaningful impact. The importance of local context in AI model validation and impact assessment cannot be overstated. We call for increased recognition of implementation science principles and their adoption through development of a network of health care delivery organizations to focus on the clinical effectiveness of AI models in real-world settings to help achieve the shared goal of safer, more effective, and equitable care for all patients.

Introduction

Artificial intelligence (AI) has become a promising tool in health care, with increasing evidence that these tools can support a transformational improvement in diagnosis, treatment, and patients' safety.[1] We must proceed carefully, because AI algorithms have the potential to amplify biases intrinsic to training data and unintentionally exacerbate underlying health inequities.[2] In response to this risk, a group including representatives from the U.S. Food and Drug Administration (FDA) and the Office of the National Coordinator for Health Information Technology (ONC) recently called for the establishment of a national network of health AI assurance laboratories to provide a standardized approach to evaluating these algorithms before FDA approval.[3] We believe that validating algorithms through computer simulation may be helpful but is insufficient for demonstrating improved patient outcomes, which will require real-world evaluations similar to clinical trials for a new drug. In fact, in vivo and real-world evaluation is the most critical part of approval for a novel drug or device, especially in settings in which retrospective data are sparse but

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Setor saúde – cuidados e riscos

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Erros e P recomenda

Adapt implementa

Custos e A instituições ricas e p

Algoritmos de IA são apenas tão imparciais quanto os dados em que são treinados.

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Dr. Felipe Cezar Cabral
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É hora de arriscar

"A inovação que transforma não começa na tecnologia, começa nas mentes que acreditam que o impossível é só o início.”.

Felipe Cezar Cabral


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