CHATGPT VS AI CHATBOTS TO ASSESS SYMPTOMS

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CONTENT

01 INTRODUCTION

ChatGPT is an artificial intelligence language model developed by OpenAI which uses deep neural networks to generate responses to natural language queries. Its recent boom across the globe during 2023 has raised questions on how it will interfere with every aspect of human life, including healthcare.

There are main differences between a generative AI model like ChatGPT, created primarily to deploy general information collected from the web, and AI-based medical assistants designed to offer clinical guidance at the onset of symptoms. ChatGPT was not designed to assess people about healthcare issues but to provide reasoning and informational context across a wide range of answers.

This document presents a brief overview of ChatGPT features and a list of the main differences with advanced AI-based medical assistants at the moment.

02 WHAT IS CHATGPT, AND HOW IT WORKS

ChatGPT stands for “Chat Generative Pre-trained Transformer.” It refers to a type of artificial intelligence (AI) language model developed by OpenAI, founded in 2015 by a group of tech industry leaders, including Elon Musk, Sam Altman, and Greg Brockman. Due to extensive training in text data, it can produce responses to natural language queries using a deep neural network.

Years go by, and improved versions of GPT keep coming. The first version went live in 2018 under GPT-1. In 2022, it exploded with a groundbreaking language model, which has 175 billion parameters and was tailored specifically for chatbot applications. While for other platforms, it took a matter of months before reaching the 1 million user milestone (as in the case of Instagram, 2.5 months, for example), ChatGPT jumped to a million users just five days after its November 2022 launch. It now attracts an estimated 96 million visitors per month. The recent launch of GPT 4 promises significant improvements in the overall functionalities and user experience.

The core of ChatGPT’s functioning consists of a type of machine learning called “transformer” architecture, designed particularly for natural language processing tasks. It runs thanks to multiple layers of neural networks that work together to analyze language inputs and then generate a precise answer. As for GPT-3.5, these neural networks received vast amounts of data extracted from the internet until 2021 from various sources. This is why it can not respond accurately to queries regarding dates after that year. An important fact is that none of the sources were actually validated by the model’s creators, meaning even validated data could be mixed or used for unvalidated purposes.

An average of 300 billion words are introduced into the system, allowing the deep learning of human patterns when writing and interacting online. The whole training process involved supervised learning. However, it generates outputs without direct supervision, making it an unsupervised learning model.

The information provided by ChatGPT is clear and easy to understand. It can accomplish various tasks, including all types of text generation (i.e., from poems to scientific articles) and answering questions on multiple topics. GPT 4 extended this by adding the possibility of using images for search and conversation. The model can predict the next word in a sentence from the context of previous comments and photos, resulting in a coherent and human-like conversation to answer user queries.

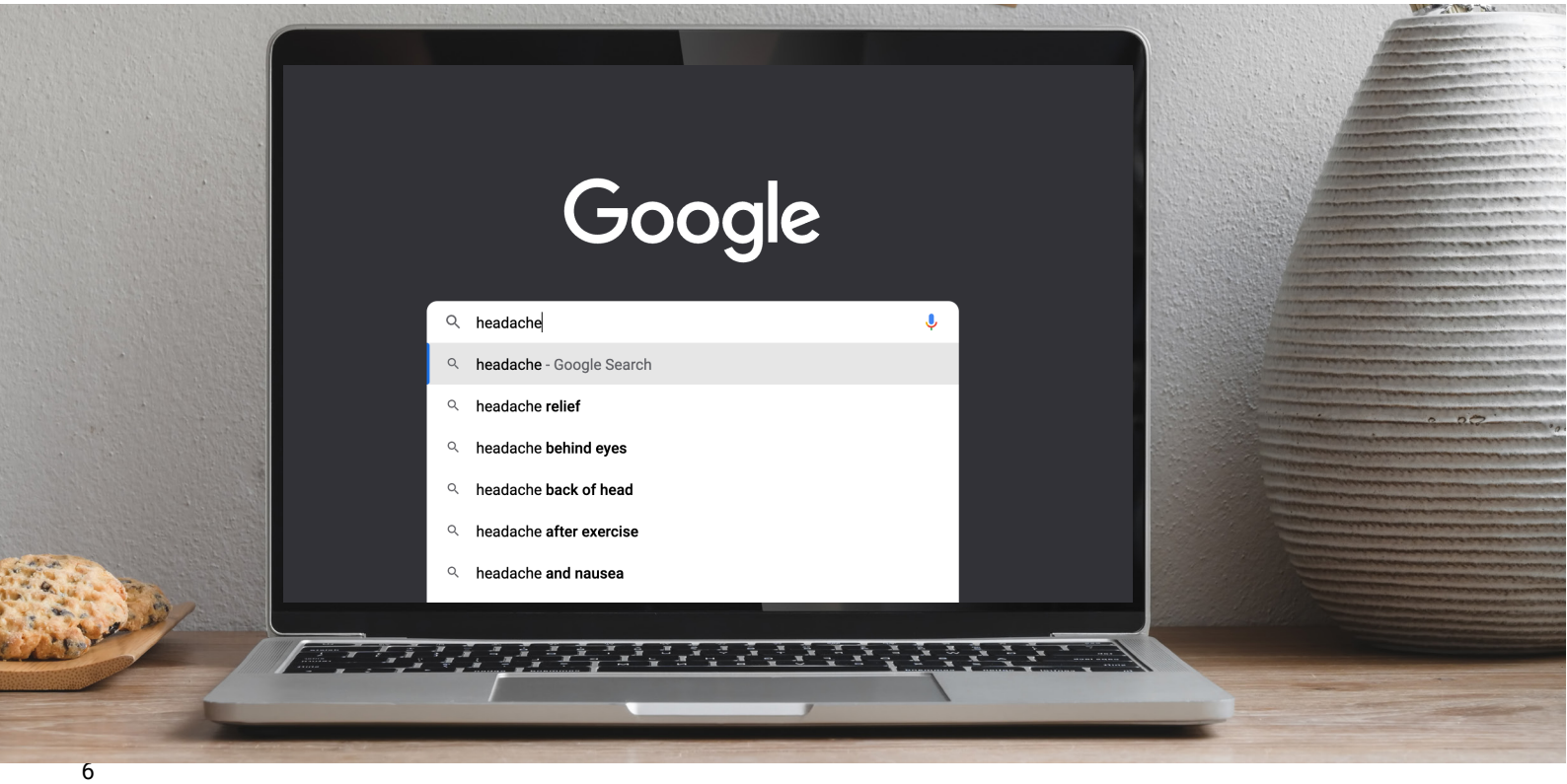
“An average of 300 billion words are introduced into the system”

03 CHAT GPT IN HEALTHCARE

People googling their symptoms is a general concern in the healthcare industry. According to a study 89% of patients google their health symptoms before going to their doctor. This alarming situation doesn't only lead to bad decisions regarding people's health conditions but also directly impacts the professionals that will later have to face its consequences. Enhanced search machines could worsen this problem.

Although ChatGPT is not an AI tool created to assess people about healthcare issues, its natural and close way of explaining and communicating with humans has raised the question of how it will affect healthcare. As an illustration, a study measured how well ChatGPT does if taking the US Medical Licensing Exams. It showed the generative AI tool to have a similar level to a third-year medical student, with an accuracy of around 60% for the most challenging questions. According to the study, this demonstrates ChatGPT's ability to provide reasoning and informational context across most answers, which has considerable potential as an educational tool.

ChatGPT probes to be an information provider, just like Google, but with a better user experience and interface. It gives people the necessary context in almost any life situation. Anyway, when speaking specifically of healthcare, although it can deploy general information and resources to help understand health topics, it does not function as an AI-based medical assistant explicitly created to help users at the onset of symptoms and triage their urgency level.



04 DIFFERENCES BETWEEN CHATGPT AND AI-BASED SYMPTOM ASSESSMENT TOOLS

The danger of unsupervised assistance in healthcare

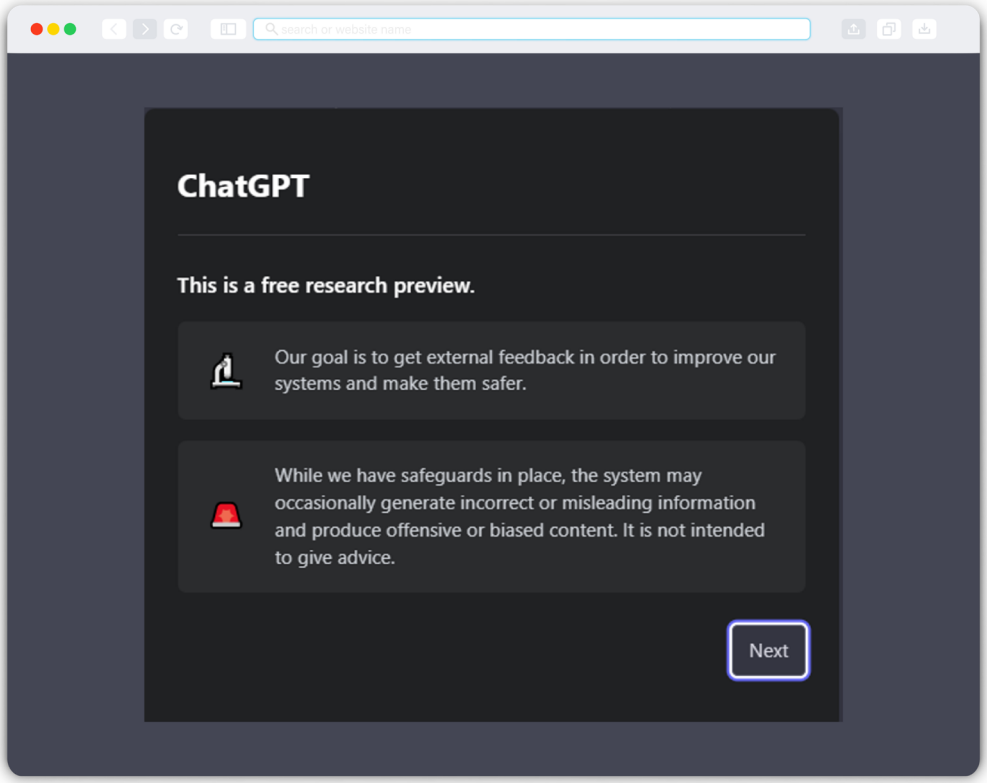
The language model may be the main difference between ChatGPT and other AI-based medical assistants. The conversation flow runs in opposite directions. While ChatGPT answers people's doubts, AI-based medical assistants ask the questions to arrive at the most accurate answers.

ChatGPT focuses on creating a fluid chat exchange with the users and providing information using deep learning technologies. It is based on a generative AI model. It delivers data collected from the internet for every input it receives from users. However, its results are not personalized but somewhat generalized. It allows one question at a time, making maintaining a conversation regarding clinical questioning challenging.

Advanced AI-based medical assistants generally function under a trained algorithm to narrow disease possibilities and urgency levels according to a personalized questioning model. The whole process adjusts to each person's needs. It doesn't create brand-new texts to hand over to the patient but provides personalized orientation regarding symptoms inputs. The results are highly qualified and precise thanks to its supervised learning models.

However, Natural Language Processing may be a central technology these two AI models share. The ability to understand and process human language, involving a wide range of synonyms and understanding even misspelled words. This technology overcomes human language's ambiguities, like variations in the same expression, idioms, slang, or humor detection. In summary, NLP gives machines the power to comprehend text and spoken words in much the same way a human can. AI-based medical assistants use NLP to translate actual words into medical truth or statements, so then specialized AIs can deploy a proper questioning model to reach a medical result. Once it achieves a result, NLP generates the expected output if needed.

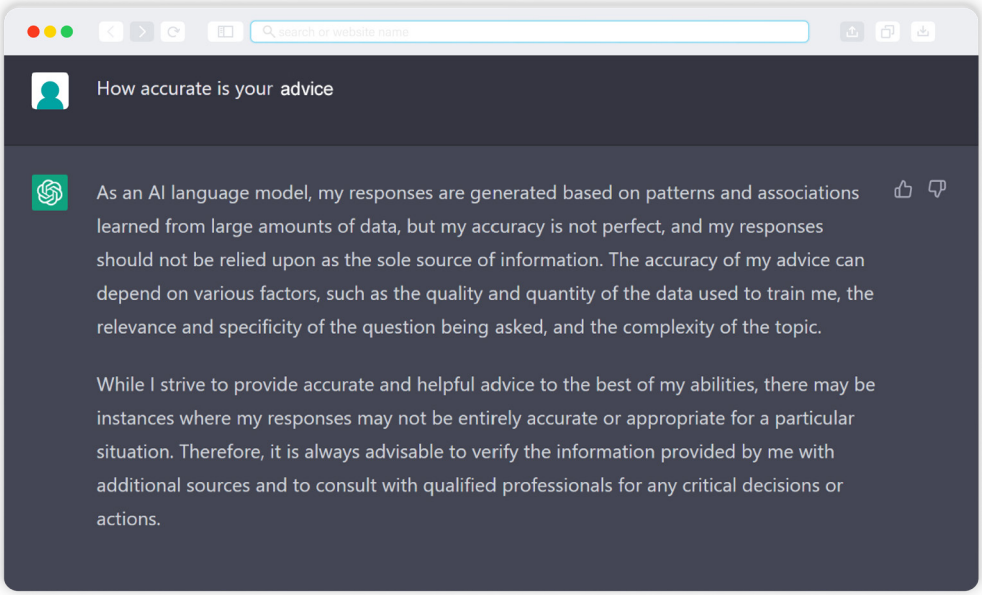
Since its foundation, GPT has never intended to function as a medical device. It does not focus on providing supervised assistance or offering a validated clinical tool. For this reason, unlike advanced AI-based healthcare tools, it has never been through a clinical validation process. Furthermore, this is almost impossible because ChatGPT results vary depending on specific words. To achieve it, fixing the inputs and outputs would be necessary, something infeasible to accomplish. Clinical validation is the process every serious healthcare device should face to determine its level of efficacy, reliability, and safety in the real world. To improve the accuracy of the results, some of the symptom AI evaluation tools face this process involving actual patients, avoiding using vignettes that sometimes may deploy unrealistic cases.



The information source challenge that ChatGPT is not up to

When speaking about professional-based AI assistants, specified bibliography supports every answer — a significant difference with ChatGPT, where information comes from indistinguishable sources across the web. AI-based medical assistants count on an extensive database of diseases and symptoms, offering users safe answers that won't put their health in danger and don't require double-checking of the sources.

In contrast, ChatGPT presented a warning before users enter their questions, explaining how the system may occasionally generate incorrect or misleading information and produce biased content. This kind of AI bias is extremely unsafe when speaking about assessing people's symptoms, a process that requires professional support and caring. Traspoling this model to the healthcare area may endanger people's health. ChatGPT and other NLP-only-based models work with words and depend on literal bibliography to understand something. AI-based assistants usually work with medical truth and are fed objective medical evidence.



The hallucination effect: a risk for healthcare

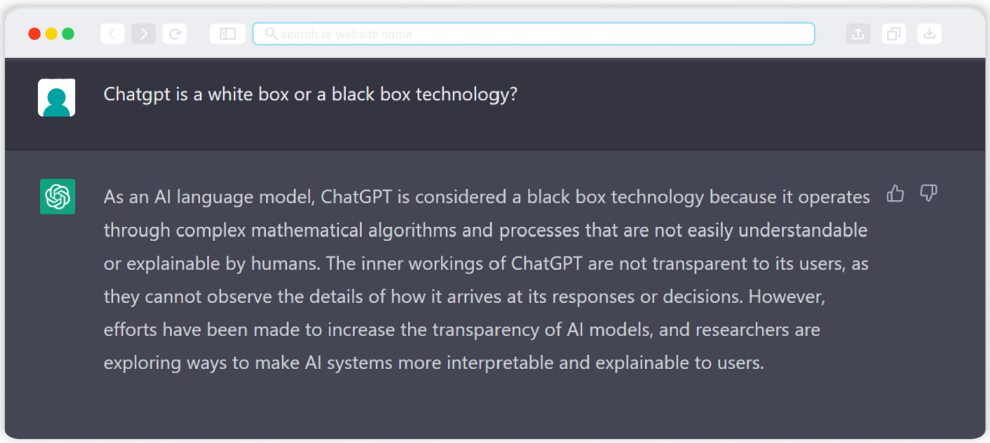
Hallucinations are experiences that seem real, but they actually don't exist. This is the double edge of ChatGPT's confidence. It expresses its answers with security, reflecting certainty over every topic, even if it is mistaken.

This is what is called the hallucination effect. It uses a confident tone to describe something uncertain — an enormous threat in the healthcare context. As an illustration, it may deploy a medical report alarming a patient about their symptoms when, in fact, they are not at risk. Hallucinations are not possible under an AI-based medical assistance model. Professionals create and structure the information, always offering personalized and responsible reports to the users according to correct medical inputs.

Black box vs. White box AI

There are two ways of relying on an AI algorithm: understanding how it works and how it achieves the results versus a non-approachable algorithm, impossible to elucidate the technicalities of its processes. In healthcare, white box algorithms provide more confidence to clinicians than black box ones. AI algorithms should better be transparent and explainable, allowing healthcare professionals and patients to understand how and why decisions are taken. AI-based medical assistants clearly explain how evaluations are completed with in-depth information on all diseases, symptoms, and justifications for the pre-diagnosis and triage decisions.

The opposite of this are the black box models like ChatGPT. Warned by the European Commission because of its opacity ('black box effect), complexity, unpredictability, and partially autonomous behavior. Black box AI may make it hard to verify compliance with and may inhibit the effective enforcement of rules of existing EU law meant to protect fundamental rights. Not understanding how it works is also dangerous because it is impossible to verify how a given decision made with the involvement of AI was taken and, therefore, whether relevant ethical rules were respected.



Equitable healthcare is unachievable using black box technologies

Supervision allows the reduction and control of biased information. Black box models like ChatGPT can potentially deliver answers not aligned with the high ethical standards needed in the healthcare industry.

A transparent supervision mechanism ensures that the responses generated by AI-based medical assistants are not biased or inaccurate. Such supervision can involve various techniques, including training the model on diverse and representative data sets, implementing explainability tools to understand the model's decision-making process, and having human experts review and evaluate the model's outputs regularly.

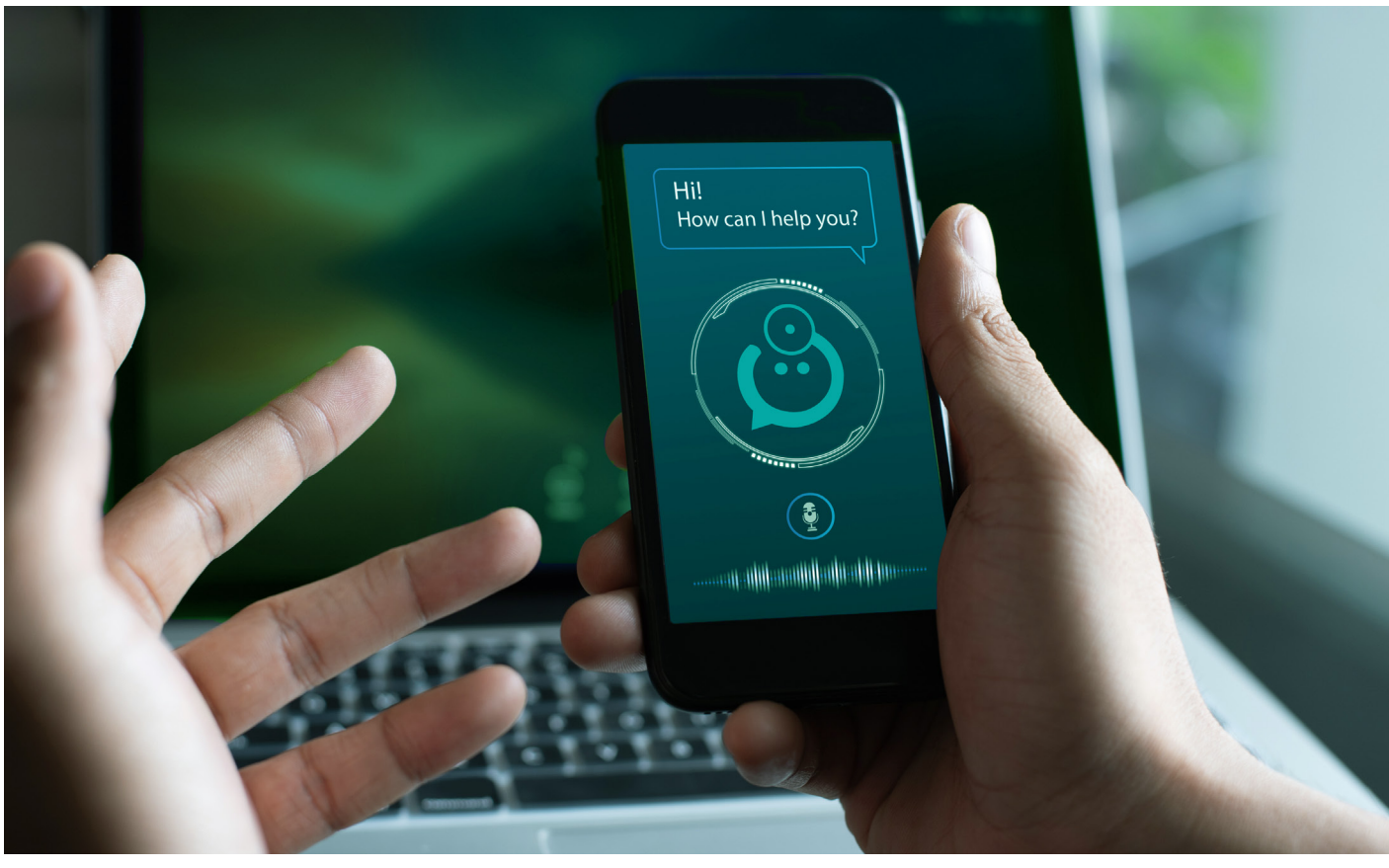
Clarifying each AI's intentions

The most advanced AI-based medical assistants can process a natural conversation and provide proper medical answers. But more importantly, they are created to drive patients to the right level of care at the right time, shortening the time between the onset of symptoms and the start of the appropriate care pathway.

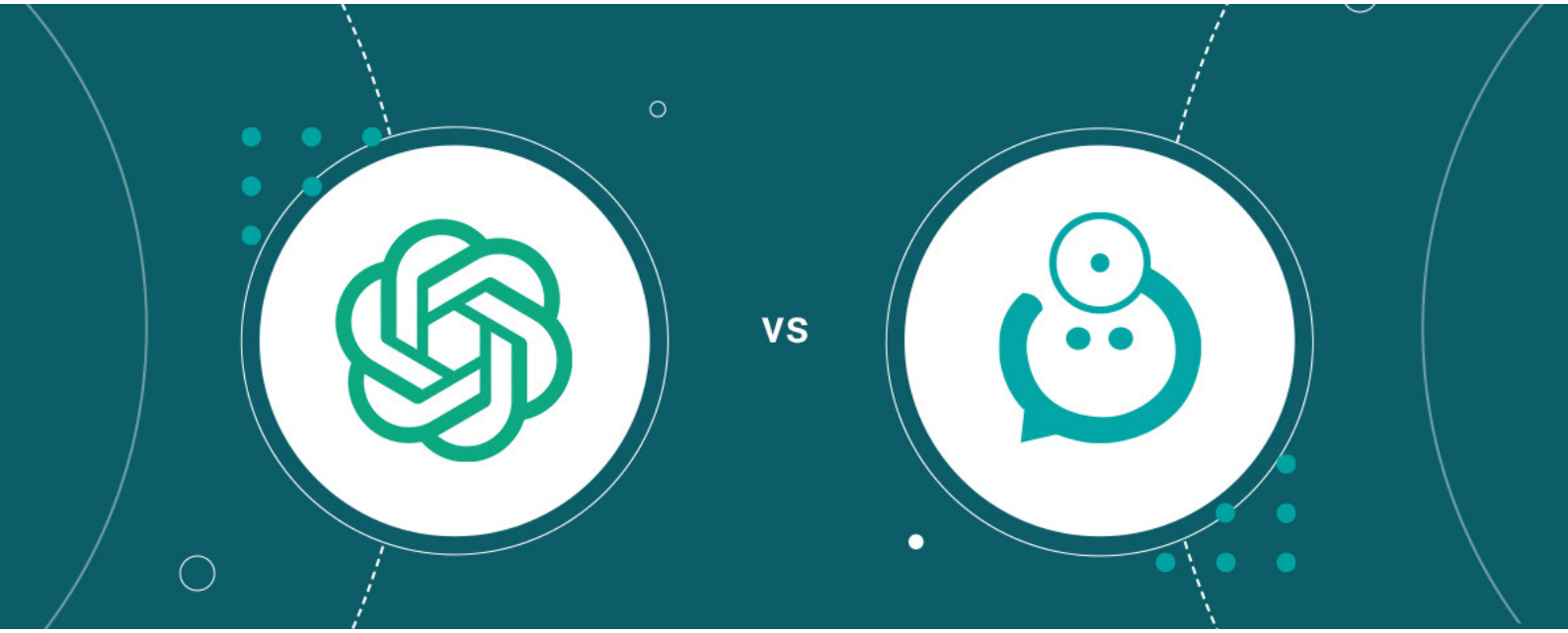
ChatGPT is not trained to detect illnesses in users and evaluate their symptoms; it aims to generate human-like responses to natural language inputs across various domains and applications. It means it may provide not validated information by medical experts without clinical context. Ultimately, it is the same situation as when users google their symptoms.

The intention of each AI is what ultimately molds user experience. Some AI medical assistants support their model with a flexible and customizable user interface to correctly identify symptoms and reinforce the understanding of the questioning process- users can, for example, place the head area in which they are experiencing pain through illustrations. AI healthcare chatbots automatically deploy these images according to each case thanks to a moldable UI in terms of screen, multimedia, controls, etc.

Even though ChatGPT continues to improve its language model and interface, strictly speaking about symptom assessment, it does not leverage or adapt its UI to achieve a more accurate pre-diagnosis.



05 SUMMARY



The differences listed above summarize one main focus of variation: the ultimate purpose of each AI tool. Since its foundation, ChatGPT has intended to offer users organized data collected across the web. The answers provided will be elaborate and valuable to give context but will not count on specific medical bibliographic and professional backup. It means it also does not matter with the flexibility needed to act as a clinical AI-based assessment.

AI-based medical assistants mean to direct patients online to the proper care pathway. Everything they will work for is related to improving user experience: a language model based on medical inputs to sustain a natural conversation, an enhanced UI, and a series of actions to clinically validate and offer a secure digital tool for every party involved in the healthcare journey. It is all thought to act as a game-changer instrument during the care pathway of multiple business platforms. Everything follows from the mission of each tool and what they mean to offer to society.

ChatGPT is the result of the outstanding application of an intelligence language model to solve a vast amount of questions. AI Chatbots combine various technologies like machine learning, NLP, and AI to provide an excellent result for a defined and exact problem. AI came to stay in the healthcare system. It is up to healthcare stakeholders to be responsible for correctly identifying and selecting adequate AI help to assess the patient journey.