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CHATGPT

MASTERING CONVERSATIONS WITH ARTIFICIAL INTELLIGENCE

A comprehensive guide
to enhance
your daily life and work

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Iași, 2023

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1. ChatGPT – Your New AI Assistant

1.1 Overview

Welcome to the future! Dive into the world of ChatGPT, the latest innovation capturing global attention! ChatGPT is not just any AI assistant; it is founded on the groundbreaking technology of Generative AI. This technology harnesses unstructured data (such as texts, images, and sounds) to discern intricate patterns, which it stores as statistical values. When prompted by a user via a simple interface (Figure 1.1), Generative AI leverages these patterns to generate new content, either text, sound, 2D images, or 3D objects. It is a harmonious fusion of art and science, underpinned by advanced algorithms.

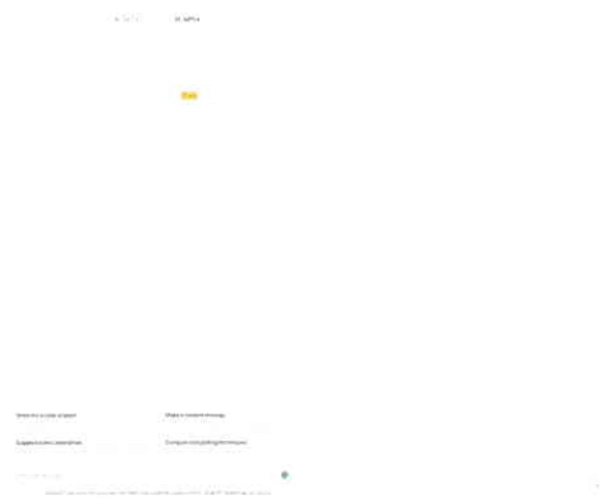

Figure 1.1 ChatGPT user interface

ChatGPT stands out as a unique application within the Generative AI domain. It is specifically designed for generating and processing text and is primed for conversational interaction. Such tools are broadly termed Large Language Models, or LLMs for short, and they evolve at an astonishing rate.

This book primarily delves into ChatGPT LLM and the DALL-E image generator, both luminaries in the world of Generative AI. ChatGPT was unveiled by OpenAI in November 2022. Made freely available to the public, its reception was overwhelmingly positive, amassing one hundred million users in merely two months.

What makes Generative AI so transformative? It is the first technology that allows us to delegate tasks requiring human-like intelligence. This ushers in an era where machines not only execute predefined actions but also conceive original ideas, making informed decisions and sparking innovations.

1.2 Architecture

To learn human talk patterns, ChatGPT reads a lot of text from books, websites, chats, encyclopedias, and other text resources. It keeps these patterns in a computer brain called a neural network. It is like a sponge soaking up tons of text. This learning stage helps it learn the words, the rules of grammar, and some facts about the world. As it learns how words and sentences are structured, it is able to predict how the sentence will continue. Then it goes through more training where it sees lots of questions and answers back-and-forth. This helps ChatGPT to improve its responses to questions (guessing word by word) in a way that "feels" more human. This part of the training is like having a teacher who gives detailed feedback.

How is this done?

ChatGPT is built on a blueprint called the Transformer Architecture[1] (Figure 1.2). This architecture has two main components: an Encoder and a Decoder. The Encoder delves into the text input, analyzing and understanding the meaning of the words. A built-in mechanism, called "Attention"[2] helps the Encoder focus on the proper parts of

1. Visual Storytelling Team; Madhumita Murgia, "Generative AI exists because of the transformer. This is how it works," in *The Financial Times* (accessed in October 2023; https://ig.ft.com/generative-ai/).
2. Ashish Vaswani et al., "Attention Is All You Need" (arXiv:1706.03762v7; last modified June 12, 2017; https://arxiv.org/pdf/1706.03762.pdf).

the text and empowers the language model to home in on pertinent parts of the input and to discern the relations between words and phrases:

- The domain of discourse and context of the discussion,
- The position of words in the sentence, and
- The relation of every word to the other words in the sentence.

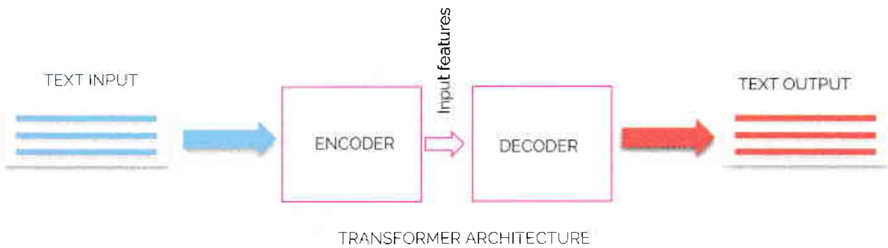

Figure 1.2 Simplified representation of the interaction with a Language Model

Word position in a sentence is important, like the order of ingredients in a recipe. The relationship between words (weak or strong) is also important as it can change the meaning of the sentence. The Decoder has a record of words, grammar patterns, and authorial style acquired during training. It crafts responses based on these insights, mirroring the language patterns evident in your text input.[1]

1.3 Capabilities

ChatGPT's generative potential extends far beyond simple Q&As, making it a valuable tool for a plethora of creative and innovative tasks.

For writers, it serves as an ideation partner, suggesting story arcs, and character developments, and even crafting poetry or prose snippets.

1. Timothy B. Lee, Sean Trott, "A jargon-free explanation of how AI large language models work," in *Arstechnica* (accessed in October 2023; https://arstechnica.com/science/2023/07/a-jargon-free-explanation-of-how-ai-large-language-models-work/).

Bloggers and journalists can leverage it for headline generation, lead paragraph optimization, or even for brainstorming article topics.

Teachers can utilize ChatGPT to create tailored lesson plans, exam questions, or inventive educational scenarios to engage students.

Researchers, on the other hand, can employ it to synthesize abstracts or summaries from dense academic texts.

Business professionals can harness its power for brainstorming sessions, generating product names, and taglines, or even formulating business strategies based on provided data.

Designers and artists are not left out either; with a textual prompt, ChatGPT proposes design concepts, art themes, or even music lyrics.

In coding and development, it aids in suggesting code snippets, debugging solutions, or proposing algorithmic structures.

Moreover, its ability to simulate diverse conversational styles makes it an ideal tool for scriptwriters, enabling drafting dialogues for plays, movies, or video games.

In essence, ChatGPT's generative prowess offers unparalleled versatility, transforming how professionals across sectors ideate, create, and innovate.

But, since language models learn from text and not real events, their knowledge is a mix of real and made-up stuff. They do not know the difference between right and wrong. They might sound like they understand, but they do not. They just give back text that fits the one we provide.

1.4 Limitations

We, as humans, have invented a machine that mimics the way we talk. This is huge because text is still the primary form in which human experience, knowledge, and feedback are stored. And now, it seems we finally have access to machines with the ability to analyze, interpret, and generate language.

How cool is that? And how cool is to work with such a machine?

Before we go any further, it is time to discuss ChatGPT's temporary limitations.

Like all LLMs, ChatGPT does not truly "understand," or "reason," it does not really "process" information the way we, as humans, do. We train an LLM with vast amounts of textual data, but we give it no mechanism to distinguish between opinions and scientific facts expressed in those texts. Unlike humans, LLMs do not possess a consistent "worldview" or a definite "source of truth."

We can consider ChatGPT a storybook character, a "Keeper of Knowledge," who have read and now remembers tons of texts. It may suggest the books he have read, now summarizing them, answering questions, and acting like the characters from the books. However, he does not have access to those books anymore and most of the time, when discussing a subject, he combines ideas read in different writings, having difficulties remembering exactly which idea is from what book or even if the idea is an opinion or a real fact. So, we need to verify everything he says.

But the "Keeper of Knowledge" is still useful because he can pull out tiny details from a huge pile of information, finding links that even smart humans might miss. The trick of getting those hidden insights that even human experts might miss is to ask proper questions.

This book is about how to ask those questions, and how to talk to AI.

When OpenAI introduced ChatGPT, its impact was profound. The nuanced, human-like interaction resonated with millions, echoing the dream of interactions like those with Commander Data from "Star Trek: The Next Generation" (Figure 1.3). The fluency of such LLMs might lead one to anticipate capabilities beyond mere language comprehension and generation. We might yearn for genuine reasoning, dynamic learning, and external resource access. However, linguistic prowess does not guarantee accuracy.

Technologies that mimic Commander Data would possess:

- A comprehensive world model, equipped with learning dynamics,
- Capability for intelligent processes, inclusive of causal rules and algorithms, and
- Real-time access to diverse real-world data.

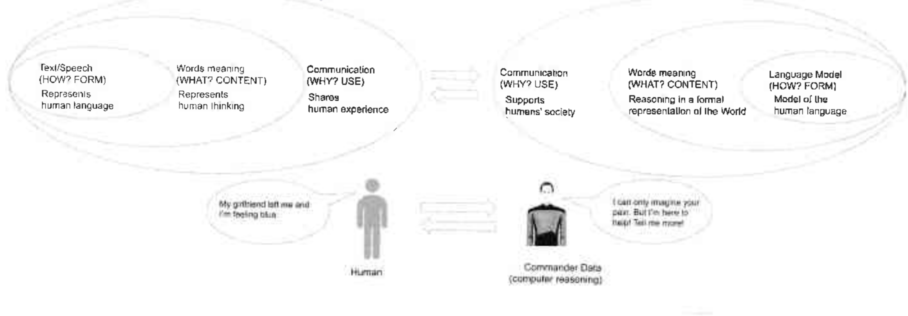

Figure 1.3 Simplified representation of the use of language with AI reasoning machines. It is scientifically proven that language plays a role in thinking, although the exact relationship between language and thought is still a topic of debate

Yet, our current technology has not reached this zenith. LLMs, sophisticated as they are, primarily operate on numerical understanding, conducting statistical analysis on input text. Subsequent mathematical operations produce contextually relevant outputs. LLMs nowadays, including ChatGPT, remain tools rather than sentient entities like Commander Data (Figure 1.4).

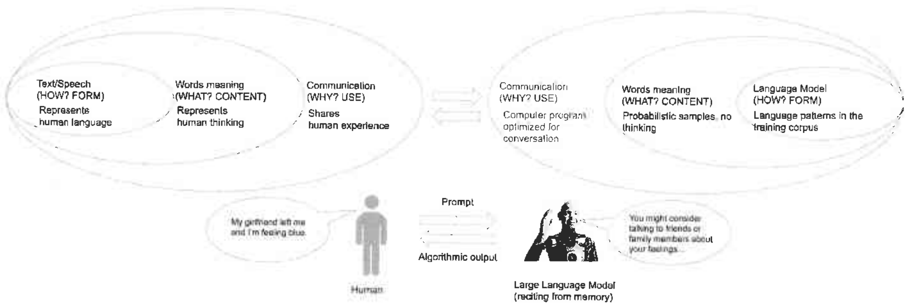

Figure 1.4 Simplified representation of the use of language with a Language Model like ChatGPT

So why the predilection to anthropomorphize?

"Humans are wired to anthropomorphize things. [...] We're ready to love and fear things that aren't even alive." (Ben Sawyer, Psychology program professor at the University of Central Florida)

It is imperative not to anthropomorphize machines, regardless of humanoid appearances. These devices do not "think" but "recite" learnings from their training, using statistics to determine apt responses.

All right then. Now we know that ChatGPT, the "Keeper of Knowledge," is a machine, not a human.

What is so appealing in ChatGPT?

Its prowess in illuminating connections across vast data sources is unique. The tool blends human-generated content seamlessly, revealing unexpected parallels between diverse human works. Such AI tools exemplify original social collaboration. And this is the real performance.

AI's tools we are building today have become an innovative form of social collaboration. Therefore, learning to work with AI is probably the highest leverage skill you can develop this decade.

In the end, this is what civilization is all about, a way of working together.

Close-up portrait of a Scottish clan leader, in traditional Scottish attire

2. Getting Started

ChatGPT is a platform designed for dialogue.[1] It listens to you, detects your intents, feelings, and emotions, and tries to reply as close as it can to your request. It works in a way like a mirror. The clearer the image of what you want to display, the clearer the reflection you get. So, it is not just about asking questions; it is about asking the right questions, about giving the context of your question, about how clearly you express your thoughts.

In this chapter, we will guide you through the basics to help you get started. By the end, you will be ready to communicate with one of the most advanced AI models out there.

Let's get started!

2.1 Setting Up ChatGPT

You can access ChatGPT through any up-to-date browser at chat.openai.com (Figure 2.1). Any modern device with an up-to-date browser works great. For an uninterrupted flow in your conversations would be good to have a stable internet connection but no large bandwidth is necessary.

And now, let's prepare for your AI conversations.

Connect to ChatGPT; Step-by-step Instructions

1. Connect to chat.openai.com and Sign-up
- Open your browser,
- Go to https://chat.openai.com.

1. OpenAI, "OpenAI's technology explained" (accessed in November 2023; https://openai.com/global-affairs/openai-technology-explained).

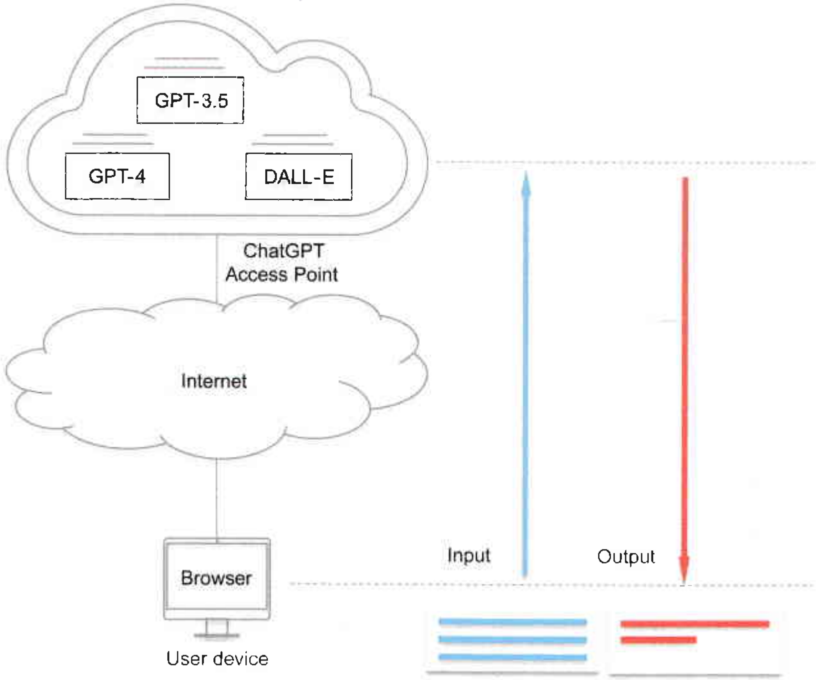

Figure 2.1 How to access ChatGPT using web browser interface

2. Set up the account
– Enter your email address and create a password
– Verify your account via the link sent to your email.

3. Log in for the first time
– Log in with your email and password
– Accept the Terms of Service and Privacy Policy.

4. Check the main dashboard (Figure 2.2)
– Check all tabs
– Explore settings for customization options.

5. Start your conversation
– Start your first conversation by typing in the provided chat box. Responses will be written out in front of you
– Start by using ChatGPT; upgrade later to ChatGPT Plus.[1]

1. OpenAI, "Introducing ChatGPT Plus" (accessed in August-October 2023; https://openai.com/blog/chatgpt-plus).