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## **Аннотация**

In this book, you will embark on a remarkable journey into the depths of artificial intelligence, where language models become your intellectual companions, capable of deeply understanding your ideas. This is your passport to a world where the boundaries between human and technology become invisible. With guides to ChatGPT 4 plugins, your creativity and business will transcend to a new level.

# ChatGPT 4. Guide Language Models of the Future

**Ruslan Akst**

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## **Introduction: Why Are Language Models Changing the World?**

When I first encountered language models, I was deeply struck. It was more than just a new technology; it was a true revolution in the world of communication and information processing.

But let's set the awe aside for now and start from the very beginning. This book is your guide to the fascinating world of language models, where words and algorithms intertwine, creating something completely new and captivating.

Prepare yourself: an exciting journey into the heart of artificial intelligence awaits you. Have you ever wondered by what «miracle» we communicate with each other?

After all, our language is not just words. It is a bridge between

our minds, a magical tool that allows us to convey ideas, feelings, and knowledge to each other.

Over the course of millennia, humanity has refined language, creating increasingly complex structures and rules for this amazing exchange of information.

Now imagine that machines are starting to understand this language. They don't just recognize words, but also penetrate the deep meaning, context, and subtle nuances of our communication.

This is not just the next stage in the evolution of technology; it is a giant leap that promises to radically transform our world. Fascinating, isn't it?

Dive into this book, and you will learn how this revolution in the field of artificial intelligence is beginning to change the rules of the game in various aspects of our lives.

Language models, like GPT, act as a key to a whole new world, where the boundaries between human and machine are blurred to near complete fusion.

In this world, opportunities for learning, working, and creating expand to such an extent that they seem almost limitless.

But before we dive into this astonishing new world, let's take a step back and remember where it all began.

Allow me to guide you through the history of language technology development to understand how we arrived at creating such amazingly powerful tools like ChatGPT.

Humanity has always been obsessed with the desire

to understand and create language. From the first primitive signs on cave walls to the most complex language systems, our journey has been long and full of remarkable discoveries.

Each stage of this path was motivated by the desire to understand each other and the world around us more deeply.

The primal task that our brain faced was the desire to describe the surrounding world – all the objects it sees – with words. And our brain handled this task surprisingly brilliantly.

This became the key to conveying information to other people using a completely new, powerful tool: speech.

This breakthrough allowed us not only to communicate but also to think collectively, laying the foundation for all human progress.

Primitive written symbols became a bridge to the future for us, providing a unique opportunity to preserve and pass knowledge to future generations.

This was the embryo of culture and civilization as we know them today. With expanding horizons, the development of trade, culture, and science, there arose a dire need to create more complex and flexible language systems.

Grammar, syntax, vocabulary – each of these language elements became the subject of constant development and refinement over the centuries.

This was not just a process of forming rules and structures; it was an art, the magic of words, which allowed people to express their thoughts and feelings with incredible accuracy and depth.

This path that humanity has taken opens up one of the most amazing and inspiring chapters in the chronicles of our species.

But the true breakthrough came with the dawn of the digital era. Computers, as powerful analysis tools, gave us the ability to process and interpret vast volumes of data like never before.

It was at this moment that the history of language technology development, in the form we know today, was born.

The first text processing programs were truly pioneers, but their capabilities were quite limited. They could recognize individual words or phrases, but understanding the deep meaning or context of these words was beyond their reach.

Let's imagine one of the first such programs: it could determine that the word «apple» refers to a fruit, but it wouldn't understand that in the phrase «apple of discord,» the discussion is not about a fruit, but about a cause of conflict.

Or, for example, early machine translators: they could literally translate words from one language to another, but the result was often far from ideal.

The phrase «It's raining cats and dogs» was translated not as «It's pouring heavily,» but in the literal sense, which, of course, sounded quite amusing and absurd to native speakers.

These first programs were like infants just beginning to learn language: they could recognize words, but they couldn't yet understand complex phrases or ambiguities that are a natural part of communication for us humans.

However, with each passing year, they became smarter,

learning from their mistakes and gradually approaching a human level of language understanding.

But with each year, these programs, like students, became increasingly wise and powerful, gradually pushing the boundaries of what is possible and rewriting the rules of the game in the world of communications.

Today, we are in an era where language models, like GPT, have the ability to understand and generate text comparable to human output. But how did we get here? Let's find out together.

With the development of computer technology, the opportunity arose to create programs capable of understanding and generating text. But the first attempts were far from perfect. They were simple and limited.

Remember the dawn of the computer era. Huge machines, occupying entire rooms, performed basic arithmetic operations.

But even then, scientists and engineers dreamed of machines that could «talk» to people. This dream became the starting point for research in the field of artificial intelligence and language technologies.

As time passed, the programs became smarter. They began to recognize individual words, then phrases, and eventually entire sentences.

But understanding language is not just about recognizing words. It is about understanding context, meaning, and emotions.

And this is where the difficulties began. Many of us remember

the first text translation programs. They often produced funny and absurd results. Why?

Because language is not just a set of rules and words. It is a living organism that is constantly changing and evolving. But technology did not stand still.

With each passing year, algorithms became more complex, machines more powerful, and data more accessible.

And now, we have finally arrived at the creation of language models that can not only understand text but also generate it, creating new ideas and concepts.

This progress was astonishing. But what does this mean for us, for ordinary people? How can these technologies change our lives?

Let's find out together. Imagine a world where machines cease to be mere tools in our hands and become our faithful partners – in communication, learning, and the creative process.

In this world, they help us expand our horizons, discover new ideas, and reach unprecedented heights. ChatGPT and other models discussed in this book are the keys to this amazing future.

They are not just programs; they are intellectual entities capable of understanding us and complementing our thoughts, becoming true companions on the path to knowledge and excellence.

Entities capable of analyzing, learning, and creating, while not having an organic form of life as we understand it.

Many of you may have heard stories about how GPT wrote

articles, composed poems, assisted in scientific research, and even wrote a thesis.

These are not just anecdotes; these are real examples of how language models can be applied in various areas of our lives.

But what makes GPT so special? Why is this model at the center of the world community's attention?

The answer is simple: it has a unique ability to understand context and generate text that is indistinguishable from text written by a human.

This achievement was made possible thanks to the massive volumes of data and powerful computing resources that were used to train the model. But behind this lies not only technology but also years of research, experiments, and the efforts of many scientists.

Today, we stand on the threshold of a new era where the boundaries between human and machine are blurring. But how will this affect our lives, our society, our culture?

These questions are at the center of our attention, and I invite you to explore this amazing new world with me.

You might think that this is only interesting for scientists or programmers. But I am convinced that this technology will touch each and every one of us.

Do you remember the moment when you first used a smartphone or sent an email? At that time, it seemed like something new and unusual, but today it is part of our daily lives.

In the same way, language models will become an integral part

of our future existence. For a businessman, it may be a tool for market analysis; for a teacher, an assistant in preparing materials; for a student, a means to learn new languages.

The possibilities are virtually limitless. The book you are reading is not just about technology. It is about how we interact with each other, how we learn and grow alongside machines, and how we learn to coexist with them.

Language models can help us better understand each other, overcome cultural and linguistic barriers, and create new ideas and solutions.

Imagine a world where every person, regardless of their origin, age, or education, can communicate and learn on equal terms.

Where there are no language barriers, and knowledge is accessible to all. This is the world that language models can help us create.

It is important to note that, like any powerful technology, they also carry risks. It is crucial to understand these risks and use them wisely.

In this book, we will delve deeply into all aspects of this revolutionary technology. We will immerse ourselves in the ethical and moral questions it raises, and examine the key aspects of its safe application.

Our goal is to provide you with all the necessary information so that you can make a conscious and thoughtful decision in this new and exciting world of opportunities.

Imagine having a personal assistant who is always ready

to answer any of your questions, help with your homework, or even write an article for you.

This is not science fiction; this is the reality of modern language models. And we need specific knowledge to manage all these innovations.

In a world where information is a key resource, the ability to quickly and accurately get answers to your questions becomes invaluable.

But what if I tell you that this is just the beginning? That language models can do much more than just answer questions?

Perhaps you have heard about how companies are using these technologies to improve customer service, automate workflows, or analyze large volumes of data. But let's look at it from another perspective.

Each of us has unique knowledge, experience, and talents. But sometimes we lack the time, resources, or knowledge to implement our ideas or achieve our goals.

Language models can be the link that connects us to a world of boundless possibilities.

For example, you want to start your own business, write a book, create a new product, or post on social media.

Instead of spending hours searching for information, you can simply ask the right question to your virtual assistant.

It will help you with market analysis, provide the necessary data, or even create a prototype of your product.

This doesn't just simplify our lives; it changes them. We

cease to be passive consumers of information and become active creators of our own destiny.

And this is possible thanks to the power and potential of language models.

Moreover, these models can be integrated into various spheres of our lives: from medicine to education, from business to art.

Imagine a doctor who can gain instant access to the latest research and clinical data, simply by asking a question to their virtual assistant.

Or a teacher who can create a personalized learning plan for each student, based on an analysis of their knowledge and abilities.

In business, language models can assist in market analysis, trend forecasting, or the automation of routine tasks.

For artists and writers, they become a source of inspiration, helping to create new works of art.

But what is really important to understand, and I will pay special attention to this in the book, is that these new technologies do not replace, but complement humans.

They enhance our capabilities, making us more productive, creative, and efficient. They become a tool that helps us better understand the world around us and find new solutions to old problems.

I often say in my trainings that the key to success is continuous learning and development. And I believe that language models can become one of our most valuable allies on this journey.

They open up new horizons and opportunities for us that previously seemed unattainable.

They can assist lawyers in analyzing legislation, engineers in designing projects, and managers in leading teams.

This is a new stage in human development. Let us recall that each new stage in human history has been associated with the discovery or creation of something unique that changed the course of history.

The invention of the wheel, the discovery of electricity, the first human flight into space – each of these events opened up new horizons for us and set new challenges.

Today, we stand on the threshold of a new era – the era of language models. This is not just a technological breakthrough; it is a shift in how we interact with information, how we learn, and how we make decisions.

Imagine a lawyer who can swiftly analyze complex legislation, pinpointing key aspects for their case.

Or an engineer who can model and optimize intricate systems using data analysis from language models.

Or a manager who can predict team behavior and optimize workflows based on communication analysis.

This doesn't just improve the quality of our lives; it fundamentally changes it. But, like any revolution, new challenges lie ahead of us.

How do we use this power responsibly? How do we ensure data security and confidentiality?

How do we guarantee that these technologies will serve the benefit of all humanity, not just select groups or corporations?

These questions demand answers, and I am confident that together, we will find them. Because this is our collective responsibility and our shared opportunity to create a better world for future generations.

Remember the first automobiles? They were a symbol of freedom and opened new horizons for human mobility, but they also introduced risks like traffic accidents and environmental pollution.

Or consider the internet – an incredible resource that has given us access to boundless information and connected people from all corners of the globe.

However, it has also become a source of new threats, such as computer viruses, fraud, and privacy breaches.

So it is with the language models discussed in this book. They promise to be a powerful tool for enhancing communication and access to knowledge, but they also raise important questions about safety, ethics, and responsibility.

This book invites you on a journey to explore these complex and multifaceted issues together.

It is important to understand that technology itself is neither good nor bad. It all depends on how we use it.

That is why it is so crucial to approach its application consciously, knowing its capabilities and limitations.

In this book, I want to share with you my vision of how

language models can change our world, the opportunities they open up for us, and the challenges they pose.

Remember the feeling when you first sat behind the wheel of a car or when you first saw color television? Those moments were pivotal; they opened new horizons and possibilities for us.

In the same way, language models offer us a new perspective on the world of communication. Today, they may seem innovative, but very soon, they will become the standard to which we will all become accustomed.

I am confident that together, we can find a balance between the opportunities and risks, to use this technology for the benefit of all humanity.

## **Chapter 1: The Fundamentals of Language Models.**

We have slightly lifted the veil over the greatness of human language and saw that a word is not just a set of letters in a single palette of sounds.

It is a powerful source of information, a tool through which we can convey our thoughts, feelings, and knowledge.

A word is the key to understanding the world around us and ourselves; when words form sentences, they connect us with other people, allowing us to convey our ideas to them and understand their perception of the world.

In every word we say, there is immense potential. Words shape our world, set the tone for our relationships, and even determine our business success.

With words, we share ideas, inspire teams, and close million-dollar contracts. Words are our tool for influencing the world around us.

Now imagine that the same power inherent in words is enhanced by the latest technological achievements. What if machines could not only listen but truly «understand» us?

What if artificial intelligence could process and analyze our language, making our words even more powerful?

Meet the new era of human-machine interaction – the era of language models. These models are not just code or algorithms.

They are complex systems, trained on billions of words and phrases, capable of understanding human language, its nuances, and context.

Language models are a real breakthrough in the field of artificial intelligence. Remember how you learned a language: starting from simple words to complex sentences and texts.

Imagine that you had billions of books and documents to study and only a few minutes for it. This is how language models work.

Based on machine learning methods, these models analyze vast volumes of text.

They «see» patterns, learn sentence structures, and become capable of creating new texts based on this learning.

In simple terms, a language model predicts the probability of the next word based on the previous context. Take, for example:

«In a distant galaxy...". This is our context. We feed it into the language model, and it predicts the next word. In this case, it could be «lives», «is located», or «evolves».

Why is this so important? Recall the Turing test. This test was created to determine a machine's ability for human-like thinking.

In it, a person communicates with a machine and another human, and their task is to determine which of them is the machine.

If the machine passes this test, it means that it can mimic human thinking so well that a person cannot distinguish it from another human.

This is the essence of language modeling. If we reach a high level in this area, machines can become «conscious» in a certain sense.

In our everyday world, language models are already actively used. For example, when you write a message on your smartphone, and it suggests the next word to you. This is the work of a language model.

For instance, you write «On the horizon appeared...», and the model might suggest «castle», «ship», or «rainbow» as the next word.

How can this be useful for you? Let's consider a simple example. Suppose you are a company owner and want to create an advertising text for a new product.

With a language model, you can get several text options in seconds! This saves time and resources.

The architecture of the language model determines how the model processes and generates text based on the data provided to it.

In the context of machine learning and artificial intelligence, architecture is the foundation on which the model is built and defines its structure, functioning, and learning ability.

Let's consider the main components:

**Embedding Layer:** This layer transforms words or characters into numerical vectors. These vectors are dense representations of words that the model can easily process.

Imagine you have a book with pictures of different animals: a cat, a dog, a lion, and so on. Now, instead of showing the entire picture, you want to give a short numerical description of each animal.

The Embedding Layer does something similar, but with words. When you tell it the word «cat,» it can transform it into a set of numbers, like [0.2, 0.5, 0.7].

This set of numbers (or vector) now represents the word «cat» for the computer. Thus, instead of working with letters and words, the model works with these numerical representations, making its processing much faster and more efficient.

For example, the word «dog» might be [0.3, 0.6, 0.1], and «lion» – [0.9, 0.4, 0.8]. Each word gets its unique numerical «portrait,» which helps the model understand and process the text.

**Recurrent Layers:** They are used for processing sequences,

such as sentences or paragraphs.

Recurrent Neural Networks (RNNs) and their variations, like LSTM (Long Short-Term Memory) and GRU (Gated Recurrent Units), are popular choices for these layers, as they can «remember» information from previous parts of the sequence.

Imagine reading a book and every time you turn the page, you forget what happened before. It would be hard to understand the story, wouldn't it?

But in real life, when you read a book, you remember the events of previous pages and use this information to understand the current page.

RNNs work in a similar way. When they process words in a sentence or paragraph, they «remember» previous words and use this information to understand the current word.

For example, in the sentence «I love my dog because she...» the word «she» refers to «dog,» and the RNN «remembers» this.

Variations of RNNs, like LSTM and GRU, are designed to «remember» information even better and for longer periods of time.

**Transformers:** This is a modern architecture that uses attention mechanisms to process information.

Models based on transformers, such as GPT (Generative Pre-trained Transformer) and BERT (Bidirectional Encoder Representations from Transformers), have shown outstanding results in language modeling tasks.

We will talk about these two models in more detail in the following chapters, compare their principles of operation, and try to give them our assessment.

**Output Layer:** Usually, this is a fully connected layer that transforms the model's hidden states into probabilities of the next word or token in the sequence.

Imagine a candy factory. In the early stages of production, ingredients are mixed, processed, and formed into semi-finished products.

But before the candies are packaged and sent to stores, they pass through the final stage – a control device that checks each candy and determines whether it is suitable for sale.

The output layer in a neural network works similarly to this control device. After all the information has been processed within the model, the output layer transforms it into the final result.

In the case of a language model, it determines the probabilities of what the next word or token will be in the sequence.

So, if the model reads the phrase «I love to eat...», the output layer might determine that the words «apples,» «chocolate,» and «ice cream» have a high probability of being the next word in this phrase.

The architecture of the language model determines how it will learn and how it will generate text. The choice of the right architecture depends on the specific task, the volume of data, and the required performance.

Moreover, language models don't just mechanically generate texts. They «understand» context. For example, if you ask them a question about finance, the answer will be relevant.

They are trained on such a vast dataset that they can account for nuances, idioms, and language specifics.

Language models are a tool that may soon become an integral part of your business process. They offer new possibilities, making text processing and creation more efficient, faster, and innovative.

The first steps in the field of language models were taken decades ago. If we could go back in time to the beginnings of the computer era, we would see that the initial language systems were primitive and limited.

They were based on simple rules and templates. But, as in many areas, progress did not stop. In the 1980s, statistical language models were developed.

They used probabilistic approaches to predict the next word in a sequence. This was a big step forward, but still far from perfect.

With the advent of the 2000s, thanks to increased computing power and the availability of large volumes of data, the era of deep learning began.

It was during this period that we began to see real breakthroughs in the field of language models. Networks, such as LSTM (Long Short-Term Memory) and transformers, implemented new approaches to language processing.

A significant milestone was the creation of the BERT model in 2018 by Google. This model was capable of understanding the context of a word in a sentence, which was considered a revolutionary achievement.

But an even bigger resonance was caused by the appearance of GPT models, especially GPT-3 and GPT-4, from the American startup OpenAI.

With its ability to generate quality texts based on a given context, it represented a real revolution in the field of language models.

Each stage in the history of language models carried its own lessons and challenges. But the general trend was clear: from simple rules to complex algorithms, from limited models to systems capable of «thinking» and «creating».

Looking back on this journey, we can only marvel at how far we have come. But, as in any business, the key to success lies in understanding the past to better see the future and understand how they work.

When we, as humans, learn something new, we rely on our experience, knowledge, and understanding of the world. And what if language models learn in a similar way, but on a much larger and accelerated scale?

Let's imagine that every book, article, or blog you have ever read is just a small part of what a language model is trained on.

They «read» millions and billions of lines of text, trying to understand the structure, grammar, stylistics, and even

nuances such as irony or metaphors.

At the heart of this process lies a neural network. This is an architecture inspired by the structure of the human brain.

Neural networks consist of layers, each of which processes information and passes it to the next layer, refining and improving the result.

Transformers, which I mentioned earlier, are a special type of neural networks. They can process different parts of the text simultaneously, allowing them to understand the context and relationships between words.

Think of language models as musicians playing instruments. The texts are the notes, and the algorithms and mathematics are the instruments.

With each new «composition,» the model becomes more skilled in its «performance.»

The work of language models is based on analyzing and understanding language in its deepest details. They literally «immerse» themselves in the text to give us outputs that can sometimes surprise even the most experienced linguists.

The training of models occurs according to certain principles. Here are some, and you will see the similarity with the principles of human learning:

**Supervised Learning:** This is the primary training method for most language models. Models are trained on examples where they are given both input data (text) and corresponding output data.

The goal here is to learn to make predictions or generate text based on the given examples. Imagine that you are a teacher in a school, and you have a student named Vasya.

You want to teach Vasya to solve math problems correctly. For this, you provide him with examples of problems (input data) and show the correct solutions (output data).

Vasya learns from these examples and, over time, begins to solve similar problems independently, based on his knowledge.

**Transfer Learning:** After the model has been pre-trained on a large volume of data, it can be further trained (or «fine-tuned») on specialized data for specific tasks. This allows the model to apply general knowledge to specific scenarios.

**Fine-Tuning Models:** This is when a language model is adjusted or «tuned» for a specific task.

This is often used after transfer learning so that the model can better handle the unique aspects of a specific task.

For example, if you bought a new piano and you already know how to play classical pieces, but you decide to join a jazz band.

Although you already have basic piano skills, jazz requires a special style and technique. To adapt to this new style, you start taking additional lessons and practice exclusively in jazz.

This process of adapting your skills to a new style is akin to «fine-tuning» in the world of machine learning.

In the same way, if we have a language model trained on

a large volume of data, and we want it to solve a specific task (for example, analyzing restaurant reviews), we can «retrain» or «tune» this model on specialized review data so that it performs better in this specific task.

**Reinforcement Learning:** In this method, the model is «rewarded» or «punished» based on the quality of its responses or actions, encouraging it to improve its results over time.

Imagine a child's game where a child controls a radio-controlled car, trying to navigate a closed track. Initially, the child may frequently veer off the track or collide with obstacles.

But each time the car successfully completes a lap around the track without errors, the child rejoices and feels satisfaction.

This joyful feeling serves as a «reward.» If the car goes off the track or collides with an obstacle, the child may experience disappointment or frustration – this is «punishment.»

Over time, responding to these rewards and punishments, the child improves their skills in controlling the car and makes fewer mistakes.

In the world of artificial intelligence, this is analogous to how reinforcement learning works.

A model, for example, playing a computer game, receives a «reward» for correct actions and a «punishment» for mistakes. Responding to these signals, the model gradually refines its game strategy.

In machine learning, especially in reinforcement learning,

«encouragements» are often referred to as «rewards,» and «punishments» are called «penalties» or «negative rewards.»

The model aims to maximize the sum of received rewards (or minimize the sum of penalties) during its training process.

**Context Adaptation:** Language models do not merely «memorize» words, but they also understand the context in which they are used.

This helps them better interpret queries and generate more accurate responses. For instance, if you are reading a book about space and ask a friend, «How many more planets do you think they will find?» your friend understands that you are talking about celestial planets.

But if you are reading a book about ancient Greece and ask the same question, your friend might think you are referring to gods or mythological characters.

In the same way, language models strive to understand the context of your queries. If you ask the model, «Which poison?» after discussing plants, it is likely to assume that you are talking about poisonous plants.

But if this question is asked after discussing detective novels, the model might think the conversation is about poison used in crimes.

In this era of digitization and automation, the ability of machines to learn, adapt, and evolve is key.

As language models become increasingly advanced, their potential grows, opening new opportunities for business and

society as a whole.

In today's world, where technology literally surrounds us, language models have already become a part of our lives.

Smart Assistants: Siri from Apple, Google Assistant from Google, Alexa from Amazon – these are examples of smart assistants that use language models to process your voice commands and provide responses.

Here's my personal experience of receiving help. I got not only pleasure but also concrete assistance!

One evening, as I was preparing dinner, I encountered a problem. I wanted to cook a special dish, carbonara, but I forgot the key ingredients.

My hands were covered in flour, and I couldn't pick up my phone to check the recipe. In desperation, I remembered my smart assistant.

«Hey Siri,» I began, feeling my heart race, «how do I cook carbonara?»

A moment of silence, and then Siri's soft voice filled the kitchen, telling me each step of the recipe.

I followed the instructions, and soon the scent of freshly cooked carbonara filled the room.

That evening, I deeply felt how smart assistants can be useful in our daily lives.

Customer Support Chatbots: Many companies use chatbots for automated customer service on their websites.

Thanks to language models, these bots can understand your

requests and provide relevant responses or direct you to the appropriate specialist.

**Personal Recommendations:** Services like Netflix or Spotify use language models to analyze your preferences and offer personalized recommendations based on reviews and text descriptions.

**Educational Platforms:** Platforms such as Duolingo use language models to create grammar and style exercises, helping students learn new languages more effectively.

**Automatic Text Completion:** When your software or application suggests completing your sentence, that is also the result of a language model at work.

All these examples illustrate how language models have become an important tool, making our daily lives simpler and more efficient.

This technology is constantly evolving, and it is possible that its role in our lives will become even more significant in the future.

The capabilities of these virtual assistants, which are based on language models, are astonishing and even a bit mesmerizing. But these assistants are just the tip of the iceberg.

Let's dive deeper into a world where machines and programs, trained to understand human language, make our lives simpler.

**Microsoft Cortana:** An integrated assistant in the Windows operating system. It helps the user organize their workflow, reminds them of important meetings, and can even tell a joke

upon request.

**Therapeutic Bots:** Woebot is a chatbot based on the principles of cognitive-behavioral therapy, designed to help people cope with anxiety and depression.

Returning home after a hard day, you feel down and have no one to talk to.

You open an app on your phone and start a conversation with Woebot. It asks you about how you are feeling and suggests strategies to manage your emotions based on cognitive-behavioral therapy.

After talking to Woebot, you feel relief and gain tools to work with your mood.

Woebot's website can be found at: <https://woebot.io/>

**Shopping Assistants:** Chatbots like «Mona» or «Lark» help users find the perfect product or service by analyzing their preferences and asking clarifying questions.

**Banking Consultant Bots:** Many banks have started using chatbots for initial customer consultations.

Imagine this scenario: you decide to take out a loan to buy a house and approach a bank. Instead of waiting in line or trying to reach an operator, you start a dialogue with a neuro-consultant – a chatbot created based on artificial intelligence.

You ask the bot a simple question: «What documents are needed to get a home loan?».

Thanks to the trained neural network, the bot instantly analyzes your request and provides a precise and understandable

list of required documents.

Then you inquire about the interest rate, and the bot, knowing your interest in a home loan, provides up-to-date information on the rates for this type of loan, as well as information about possible promotions and special offers.

When you have a more complex question, such as the procedure for insuring property during the loan period, the bot understands that a live specialist would be better suited to answer this question and instantly redirects your chat to the bank's loan consultant.

In this way, the use of a neuro-consultant in the bank significantly simplifies and accelerates the process of communicating with clients, helping them quickly and efficiently obtain the necessary information and save their time.

Assistants in Cars: The latest car models are integrated with voice control systems that allow drivers to ask questions, manage multimedia, and even check the weather without being distracted from the road.

Virtual assistants and language models are actively infiltrating every sphere of our lives, making it not only easier but also more interesting, enabling us to interact with technology as naturally as we interact with each other.

Many believe that art and creativity are the exclusive domain of humans, an area where machines could never replace us. However, thanks to language models, the line between human creativity and machine-generated content is becoming blurred.

Literature: OpenAI, the company behind many cutting-edge language models, has presented projects where models generated short stories, poems, and even essays on given topics. Some of these works were so convincing that they impressed even professional writers.

In the chapter about GPT plugins, you will find examples of how books can be created in a matter of seconds, complete with ready-made illustrations and the ability to be instantly published in the Amazon bookstore.

Of course, not everything is smooth sailing; people are reluctant to surrender their positions to artificial intelligence.

The first ones to raise the alarm were Hollywood screenwriters. They expressed concerns that artificial intelligence could take away their jobs.

They also pointed out the threat that artificial intelligence poses if real movies start being made according to its scripts.

They believe that something fundamental could be lost if Hollywood allows itself to become a wasteland of stories created by AI.

Music: Google's Magenta is a project that utilizes AI for creating musical compositions.

These algorithms can craft melodies, harmonies, and even entire compositions that sound as if they were composed by a human.

Machine-generated singing and music composition could indeed become a new wave in the world of art. With

the advancement of artificial intelligence technologies, the possibilities in this field are growing exponentially.

AI is already capable of generating melodies, accompaniments, and even song lyrics that can compete with the works of human composers.

Imagine a world where your personal AI composer can create a unique song or melody based on your mood or the events of your day.

Or even a world where machines can perform as singers or musicians at concerts, offering an entirely new experience for the audience.

Such a future might seem distant, but considering the current pace of technological development, it could become a reality much sooner than we think.

Artificial intelligence continues to learn and improve, and who knows what new horizons it will open for the world of music in the coming years.

In the book's epilogue, you will become acquainted with the latest achievements of language models in this direction and be amazed by what modern models are capable of.

Visual Arts: Midjourney, DeepArt, and DALL•E are examples of programs that can create artistic images and illustrations based on given descriptions or styles.

They can replicate the style of famous artists or create entirely new, unique masterpieces.

Imagine you want to delight your friend with a unique birthday

gift. You decide to give them a portrait, but with a special twist.

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