

ChatGPT took people by surprise—here are four technologies that could make a difference next

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Credit: AI-generated image ([disclaimer](#))

In the evolving relationship between technology and society, humans have shown themselves to be incredibly adaptable. What once left us breathless, soon becomes integrated into our everyday lives.

The astonishing functionalities of large language models (LLM) like [ChatGPT](#) were, just a few months ago, the epitome of cutting-edge AI. They are now on course to be mere add-ons and plugins to our text editors and search engines.

We'll soon find ourselves relying on their capabilities, and seamlessly incorporating them into our routines.

Yet, this rapid acclimatization leaves us with a lingering question: what's next? As our expectations shift, we are left wondering about the next innovation that will capture our imagination.

People will try to achieve all kinds of [smart](#)—and [not-so-smart](#)—things with AI. Many ideas will fail, others will have a lasting impact.

Our [crystal ball](#) is not much better than yours, but we can try to think about what's coming next in a structured way. For AI to have a lasting impact, it needs to be not only technologically feasible, but also economically viable, and normatively acceptable—in other words, it complies with the values that society demands we conform to.

There are some AI technologies waiting on the sidelines right now that hold promise. The four we think are waiting in the wings are next-level GPT, humanoid robots, AI lawyers, and AI-driven science. Our choices appear ready from a technological point of view, but whether they satisfy all three of the criteria we've mentioned is another matter. We chose these four because they were the ones that kept coming up in our investigations into progress in AI technologies.

1. AI legal help

The startup company DoNotPay claims to have [built a legal chatbot](#)—built on LLM technology—that can advise defendants in court.

The company recently said it would let its AI system help [two defendants fight speeding tickets](#) in real-time. Connected via an earpiece, the AI can listen to proceedings and whisper legal arguments into the ear of the defendant, who then repeats them out loud to the judge.

After criticism and a lawsuit for [practicing law without a license](#), the startup postponed the AI's courtroom debut. The potential for the technology will thus not be decided by technological or economic constraints, but by the authority of the legal system.

Lawyers are well-paid professionals and the costs of litigation are high, so the economic potential for automation is huge. However, the US legal system currently seems to oppose robots representing humans in court.

2. AI scientific support

Scientists are increasingly turning to AI for insights. Machine learning, where an AI system improves at what it does over time, is being employed to identify patterns in data. This enables the systems to propose novel scientific hypotheses—proposed explanations for phenomena in nature. These may even be capable of surpassing human assumptions and biases.

For example, [researchers at the University of Liverpool](#) used a [machine learning](#) system called a [neural network](#) to rank chemical combinations for battery materials, guiding their experiments and saving time.

The complexity of neural networks means that there are gaps in our understanding of how they actually make decisions—the so-called [black box problem](#). Nevertheless, there are techniques that can shed light on the logic behind their answers and this can lead to unexpected discoveries.

While AI cannot currently formulate hypotheses independently, it can inspire scientists to approach problems from new perspectives.

3. AutoGPT

We will soon see more new versions of AI chatbots based on the latest LLM technology, known as GPT-4. We'll see AI that can handle different types of data, such as images and speech, as well as text. These are called [multimodal systems](#).

But let's gaze a little further into the future. [Auto-GPT](#), an advanced AI tool released by Significant Gravitas, is already [making waves in the tech industry](#).

Auto-GPT is given a general goal, such as planning a birthday party, and splits it into sub-tasks which it then completes by itself, without human input. This sets it apart from ChatGPT.

Auto-GPT incorporates AI agents, or systems, that make decisions based on predetermined rules and goals. Despite installation limitations, such as functionality problems when used with Windows, Auto-GPT shows great potential in various applications.

4. Humanoid Robots

Humanoid robots—those that look and move like us—have significantly advanced since the first Darpa Robotics Challenge in 2015, a contest where teams built robots to perform a series of complex tasks set by the organizers. These included getting out of a car, opening a door and drilling a hole in a wall. Many struggled to achieve the objectives.

However, startups are now developing "humanoids" capable of doing

tasks like these and being used in warehouses and factories.

Advancements in AI fields such as computer vision, as well as in power-dense batteries which provide [short bursts](#) of high current, have enabled robots to [navigate complex environments, maintaining balance](#) dynamically—in real time. Figure AI, a company building humanoid robots for warehouse work, has already secured US\$70 million (£55 million) in investment funding.

Other companies, including 1X, Apptронik and Tesla, are also investing in [humanoid robots](#), which indicates that the field is maturing.

Humanoid robots offer advantages over other robots in tasks requiring navigation, maneuverability, and adaptability because in part, they will be operating in environments that have been built around [human needs](#).

Taking the long view

The long term success of these four will depend on more than just computation power.

Humanoid robots could fail to gain traction if their production and maintenance costs outweigh their benefits. AI lawyers and chatbot assistants might possess remarkable efficiency. However, their adoption might be halted if their decision making conflicts with society's "moral compass" or laws don't agree with their use.

Striking a balance between cost-effectiveness and society's values is crucial for ensuring these technologies can truly flourish.

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