Lesson 6 Living with AI

See the Future in Movies

Several artificial intelligence (AI) technologies described in films are now a reality. One of them is self-driving cars. In Total Recall, for example, the taxi driver is the vehicle's computer system. The taxi is capable of driving itself without any human intervention. Having seen that movie, many people wanted self-driving cars. Luckily, self-driving cars are being developed and certain versions are already on the road. Additionally, many other AI technologies from movies are either in use or under development.

2001: A Space Odyssey

This movie, set in 2001, realistically describes a group of scientists on a spaceship heading to another planet. However, it was released in 1968, a year prior to the first moon landing. This means that human imagination goes far beyond reality. In the movie, the ship has a computer system, called "HAL-9000." It provided the audience with the chance to understand AI. It could operate and regulate all of the spacecraft's systems and help the astronauts conduct experiments by analyzing data. In one scene, the astronauts and HAL-9000 carry out a conversation about a faulty component of the spacecraft. Then, HAL-9000 makes a recommendation for the next step. The system could even draw logical conclusions and evaluate its decisions. The AI helper for a spaceship, which was only seen in the film at the time, has become a reality. In 2008, the International Space Station, a large spacecraft orbiting Earth, started to use an AI robot named CIMON. It is a floating spherical robot that can move around inside the spacecraft. CIMON, weighing only 5 kg, serves as a competent AI assistant for astronauts. The robot assists astronauts in more effectively accomplishing complex tasks by offering advice during experiments and work. It is also able to record and film the astronauts' activities when asked.

Minority Report

Minority Report, a film set in the year 2050, was released in 2002. It features AI-based advertisements that can identify individuals from a remote distance by scanning people's eyes. There is a scene where the main character enters a shopping mall. After scanning him and identifying who he is, the advertising system offers products that may be appealing to him. Nowadays, we frequently encounter personalized advertisements provided by AI. For instance, many online shopping malls, platforms for sharing videos, and social media use AI. Their AI systems provide us with advertisements based on our previous searches or other online behavior. Regarding the technology identifying people through scanning eyes, some devices have already been developed. However, those that do not use AI technology have a critical limitation. They can identify a person only if he or she is standing still. On the other hand, devices employing AI have overcome this limitation. They can scan people's eyes when they are walking. There has been continuous development of this technology up until now.

Big Hero 6

This is a science fiction animation that was released in 2014. There is a scene in the movie where a boy meets Baymax, a personal medical aid AI robot. The robot scans the boy's body to detect potential health problems using its sensors and cameras. What it discovers within seconds is a wound in his arm. It administers medicine on the wound. In another scene where he has a mood swing, Baymax checks his hormone levels to determine the cause of his mood swing.

These days, AI-based programs or robots are widely used in the medical industry. Some AI programs have been refined to the point that they can not only identify cancer quickly and accurately, but also predict the chance of getting cancer. AI robots are also used in operating rooms. Based on the collected data, AI surgical robots can conduct cognitive activities such as voice recognition, decision-making, problem-solving, and more. Under the guidance and control of doctors, they can conduct elementary operations such as cutting and stitching patients undergoing surgery.

Another example is the development of an AI system to forecast when a hospitalized patient's condition is likely to get worse. It analyzes the patient's profile and data and assigns scores indicating the need for transfer to an intensive care unit. The medical team intervenes when a patient's scores reach a certain level.

AI in movies and our future

AI has been progressing rapidly over the years, and its potential is only beginning to be fully recognized. It is certain that AI will continue to play a significant role in more and more aspects of our lives. Accordingly, these days, a lot of movies feature various kinds of AI. Some AI robots have personalities and emotionally engage with people in the same way that humans do. Furthermore, some AI characters are physically indistinguishable from humans. These movies are not only fun to watch, but also inspiring. They show us what AI might be like in the future and how it could affect us. What AI technology from a movie do you think will be used in our lives in the future?

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AI in Cinema Industry

The film production industry extensively utilizes AI in various ways. This is because it not only assists producers in creating films more conveniently, but also enables them to make what they intended to express come alive with enhanced realism and naturalness. Recently, an AI-based program was developed, through which actors' faces on the screen are aged or made younger. For example, when provided with the input of a thirty-five-year-old man's face, the AI program generates different facial images at different ages. While there have been existing techniques that can achieve similar results, they required an extensive process. However, the newly developed automatic program accelerates the process. In order to develop this program, thousands of pictures of faces ranging from eighteen years old to eighty-five years old were accumulated as input to this program. It was then trained to learn how faces change as people age, and derived the principles for aging.

With them, the program can manipulate the facial changes of actors with the addition or removal of wrinkles. As a result, it can produce output that is highly realistic. These results are maintained even when the actors make varied facial expressions. Due to the convenience and the naturalness of the results, it is expected that this technique will be widely incorporated in filmmaking.