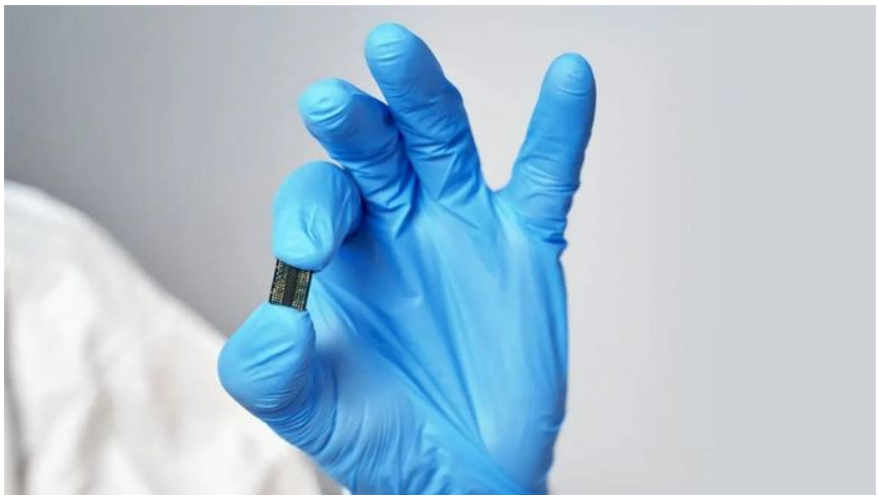
New invention: China launches outstanding energy-saving chip

In a promising new step for the technology industry, a research team at the University of Electronic Science and Technology of China (UETC) has succeeded in developing two types of super-efficient artificial intelligence (AI) chips. save energy.

It is known that the research team has significantly reduced the power consumption of these chips through optimizing the algorithm and structure. Then, the team presented their product at the IEEE 2024 International Solid State Circuits Conference (ISSCC) taking place in San Francisco, USA.



The first AI chip designed to be integrated into smart devices, to support offline voice control. The main advantage of this new AI chip is its ability to overcome the barriers of standard speech recognition systems, the research team said. Unlike other systems, this microchip is capable of accurately recognizing speech even in noisy environments with distractions such as TV, music or chatter.

The chip achieves recognition power consumption of less than two microjoules per use, with an accuracy rate of more than 95% in quiet spaces and 90% in noisy environments' This is considered a new benchmark in both power efficiency and accuracy in AI chip technology.

In a demonstration, a microchip measuring 1 cm2 was integrated into the microcontroller inside a toy car to control its movements. In addition, this microchip can also be used in low-power, voice-controlled cases such as in furniture applications, wearables and smart toys.

The team's second AI chip is designed to detect seizure signals in people with epilepsy. This technology is integrated into wearable devices, using electroencephalogram (EEG) identification to detect seizures and notify patients to immediately go to a medical facility for treatment. With an average recognition power consumption

of only 0.07 microjoules, this is the most energy-efficient AI chip in the world to date.

In a presentation at ISSCC, the South China Morning Post (SCMP) reported that information about the user's brain activity is collected and transmitted for analysis or testing via Bluetooth technology. In addition, the AI ?? chip is reprogrammed to recognize imagined motor commands from EEG signals, helping users imagine the actions they want to perform. Thanks to that, the chip will detect and interpret the corresponding signals to control the movement of a robot.

The team concluded that the chip is not only capable of detecting seizures, but can also be widely applied in a variety of medical and technological applications, such as brain-machine interfaces and sleep monitoring .

With the introduction of these two chips, China is continuing to play a pioneering role in the field of AI technology and contribute to the advancement of global industry.