Non-Invasive Brain Imaging Technique Chess with Brain-Computer Interface

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Editorial

A Brain–Computer Interface (BCI), sometimes called a Neural Control Interface (NCI), mind–machine interface (MMI), Direct Neural Interface (DNI), or brain–machine interface (BMI), may be a direct communication pathway between an enhanced or wired brain and an external device. BCIs are often directed at researching, mapping, assisting, augmenting, or repairing human cognitive or sensory-motor functions.
The history of BCI began already within the 1920s: Hans Berger, from the University in Jena in Germany, published his seminal work on the electroencephalogram of humans in 1929.

Brain-computer interfaces (BCIs) allow their users to speak or control external devices using brain signals instead of the brain's normal output pathways of peripheral nerves and muscles. Motivated by the hope of restoring independence to severely disabled individuals and by interest in further extending human control of external systems, researchers from many fields are engaged during this challenging new work.

This technology, called brain-computer interface technology, provides a replacement output channel for brain signals to speak or control external devices without using the traditional output pathways of peripheral nerves and muscles. A BCI recognizes the intent of the user through the electrophysiological or other signals of the brain. Electrophysiological signals could also be recorded over the scalp, underneath the scalp, or within the brain; other sorts of physiological signals could also be recorded by magnetic sensors or other means. In real time, a brain signal is translated into output commands that accomplish the will of the user. the foremost common example of use of such technology is that the direct control of a computer cursor by an individual or animal employing a BCI supported electrophysiological signals.
A brain-computer interface (BCI), also sometimes mentioned as a brain-machine interface (BMI), may be a communication and/or system that permits real-time interaction between the human brain and external devices.

A BCI is defined as a system that measures and analyzes brain signals and converts them in real-time into outputs that don't depend upon the traditional output pathways of peripheral nerves and muscles
In principle, a spread of neurophysiologic signals reflecting in-vivo brain activities could be recorded and wont to drive a BCI. Counting on the biophysical nature of the signal source, these signals are often broadly grouped into three categories: electrophysiological, magnetic, and metabolic BCI systems supported electrophysiological signals measured by noninvasive (EEG), cortical surface and intracortical recording devices. Each of the recording methods has its own advantages and drawbacks. Electroencephalographic (EEG) signals are recorded from the scalp.

Students in bioengineering are trained in fundamentals of both biology and engineering, which can include elements of electrical and engineering, computing, materials science, chemistry, and biology. This breadth allows students and school to concentrate on their areas of interest and collaborate widely with researchers in allied fields.

Most studies of BCI clinical applications in humans are performed with EEG-based BCIs. These have shown that EEG-based BCIs can allow an individual to regulate a computer cursor in a minimum of three dimensions, to pick letters to perform word-processing, to run computer-based Windows™ programs, and to perform environmental control BCI-based environmental control could greatly improve the standard of lifetime of severely disabled people. People with severe motor disabilities are often home-bound.

Brain-Computer Interface (BCI): devices that enable its users to interact with computers by mean of brain-activity only, this activity being generally measured by Electroencephalography (EEG). BCI proved successful for communication and control in patients with severe paralyses or within the LIS. BCI allow users to directly communicate their intention with none involvementofthemotorperiphery.

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