

NEERAJ VERMA
BMEF
TYBCA-B
2593



BRAIN GATE

TURNING THOUGHT INTO ACTION

NOTICE ON THOUGHT DURING

ΔΘΩ : κδιε # 3448
ΔΥΟ : δφιχ # 7837
ΙΦΒ : γησι # 9832
ΖΝΓ : σιφω # 1138
ΜΣΚ : ευφδ # 8398
ΘΘΘ : ρεψε # 1111
ΝΧΗ : ορια # 3283
ΑΦΟ : φυτρ # 4949
ΔΕΡ : γηφτη # 9594
ΜΝΑ : τελ # 4838
ΕΡΦ : φυτρ # 4949
ΓΥΕ : νιρι # 9598

2089
3894
2304
5623
7369
4568
4657
6809
6823
8069
5623
0648
0239
5682
6230
0452

ABSTRACT :

- As the power of modern computers grows alongside our understanding of the human brain, we move closer to making some pretty spectacular science fiction into reality. Consider the potential to manipulate computers or machinery with nothing more than a thought! Thousands of people around the world suffer from paralysis and loss of other bodily movement, rendering them dependent on others to perform even the most basic tasks. The mind-to-movement system that allows a quadriplegic man to control a computer using only his thoughts is a scientific milestone. This is the BRAIN GATE system. Brain gate system is based on 'Cyber kinetics' platform technology to- sense, transmit, analyze and apply the language of neurons. A computer chip, which is implanted into the brain, monitors brain activity in the patient and converts the intention of the user into computer commands. It would be a huge therapeutic application for people who have seizures, which leads to the idea of a 'pacemaker for the brain'.

CONTENT :

- BRAIN GATE
 - Introduction.
 - Discovery
 - Working Principle
 - BCI Technology
 - How to Implement It
 - How Information are Transmitted
 - Advantages
 - Limitations
 - Future Scopes & Challenges
 - Conclusion



WHY BRAIN?

WHY BRAIN IS SUPERIOR

WHY BRAIN ALWAYS



Ability of 70k Thoughts per Day

Human Brain can think nearly 2500-3500 Thoughts per Hour. This enables the Human Brain to unleash the Imagination Power.



Storage of 2.5 Peta Bytes (2.5M GB)

Human Brain can store nearly 2.5 Million Giga Bytes. This enables the Human Brain to remember the Thoughts & Imagination.



Human utilized max 10% Brain

According to Research, Human Brain is still undiscovered. Maximum utility of 10% was done by Einstein with IQ of 160.



Brains are always Turned On

Whether a Body is working or sleeping but the Brain is always working part of living Human. It always perform activities of Body.

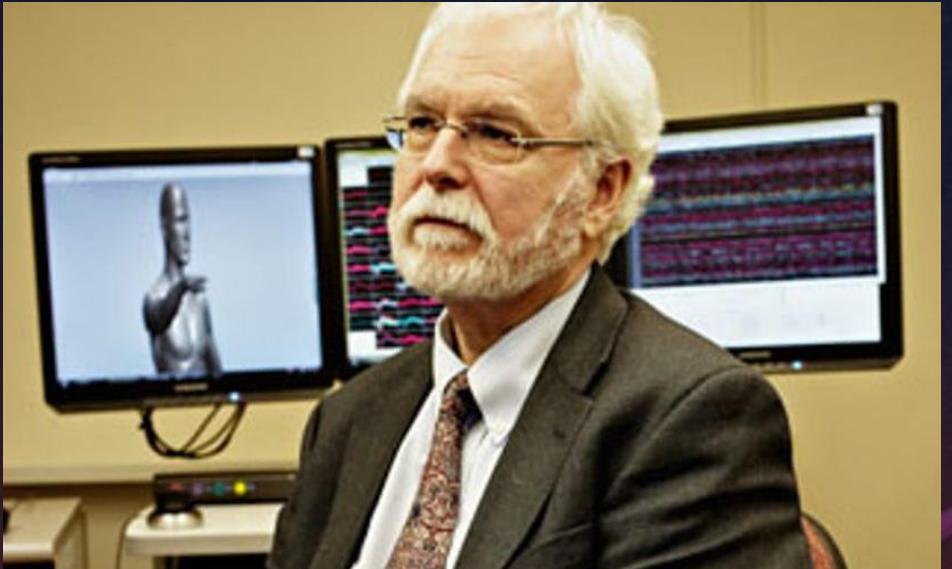
BRAIN GATE?





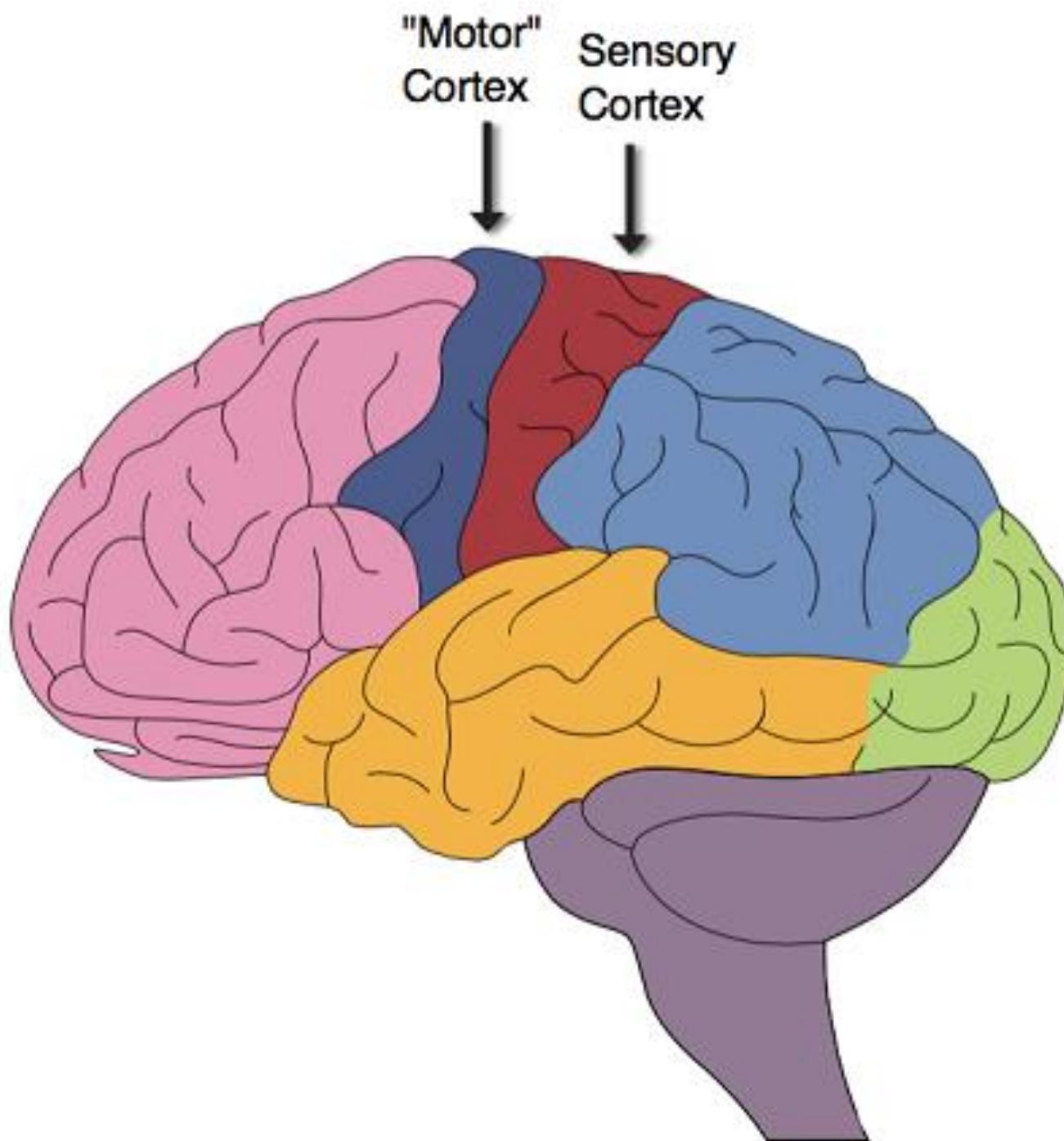
Brain Gate is a tool system which connects Brain to the Computer using Brain Computer Interface Technology. It enables Computer or Machine to perform a particular tasks in real world which Brain Thinks or Focussed on.

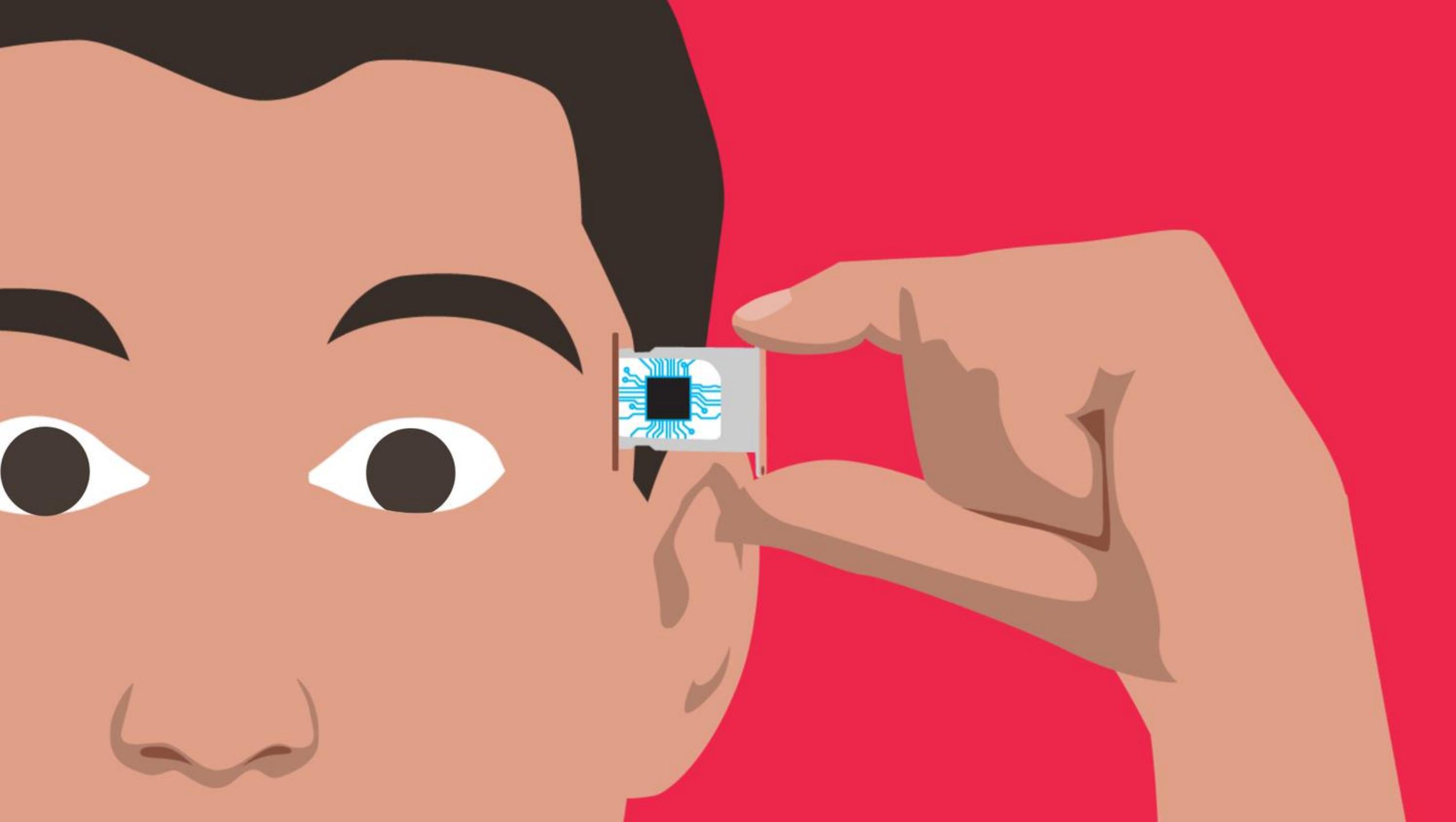
DISCOVERY



- Brain Gate system was commercially developed by the bio-tech company Cyberkinetics in 2003 in conjunction with the Department of Neuroscience at Brown University.
- This research was led by Nicholas Halsopulas a neuroscientist and Dr. John Donaghue, Director of Brain Gate Program.

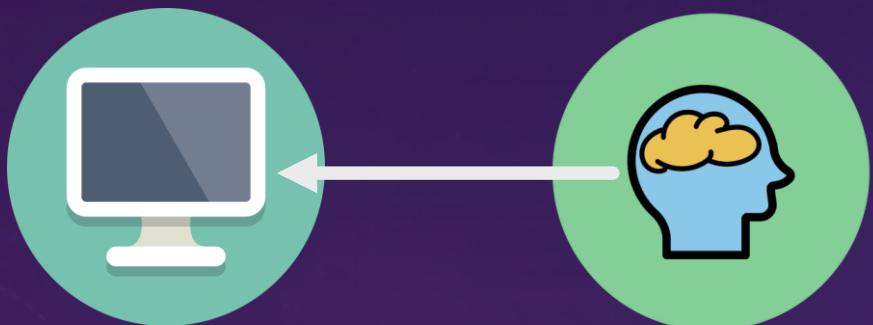
WORKING PRINCIPLE



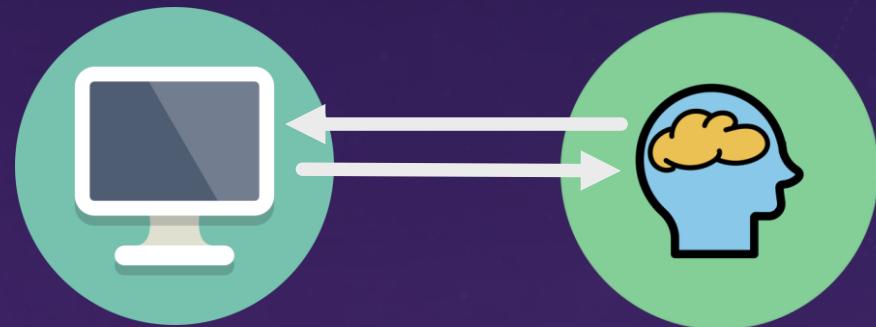




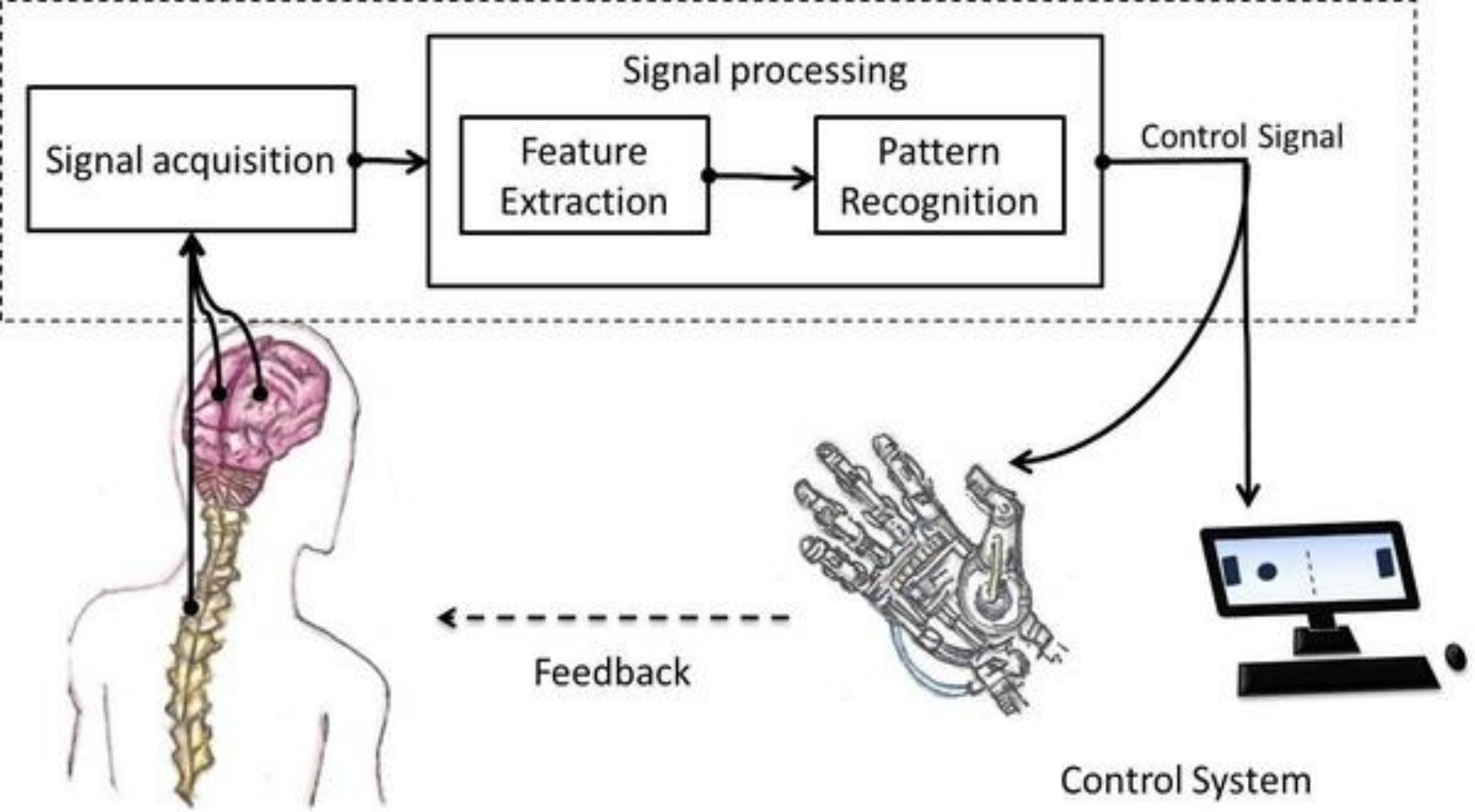
A Brain Computer Interface, called as direct neural interface or brain machine interface is a direct communication pathway between human or animal brain and an external device.

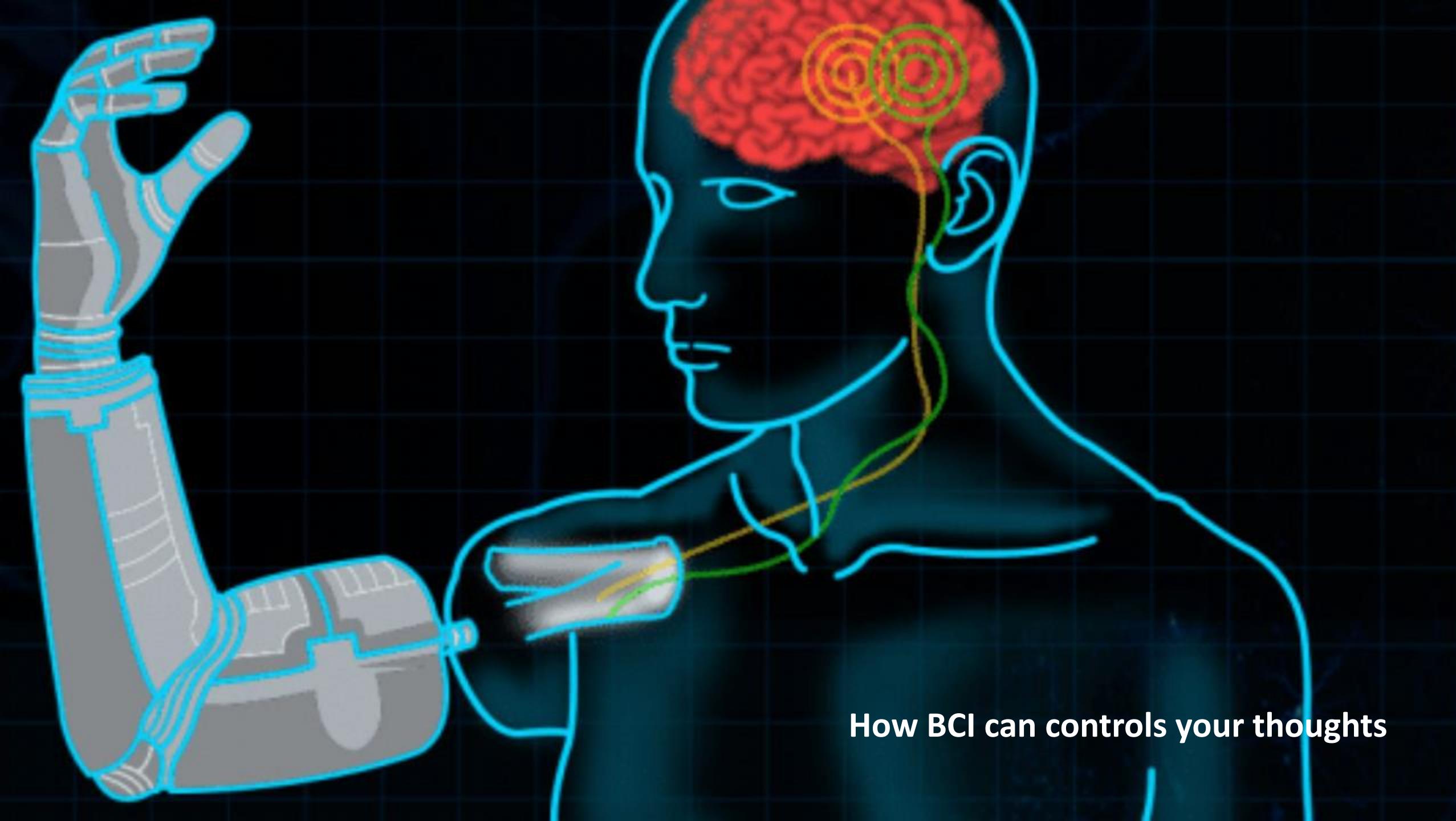


One Way BCI



Two Way BCI

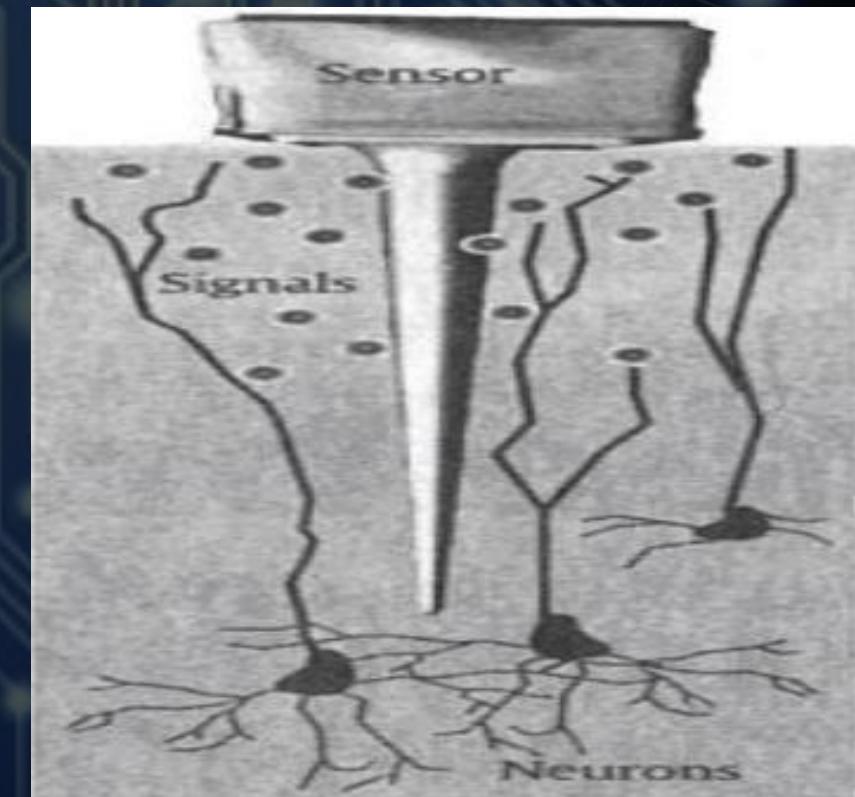
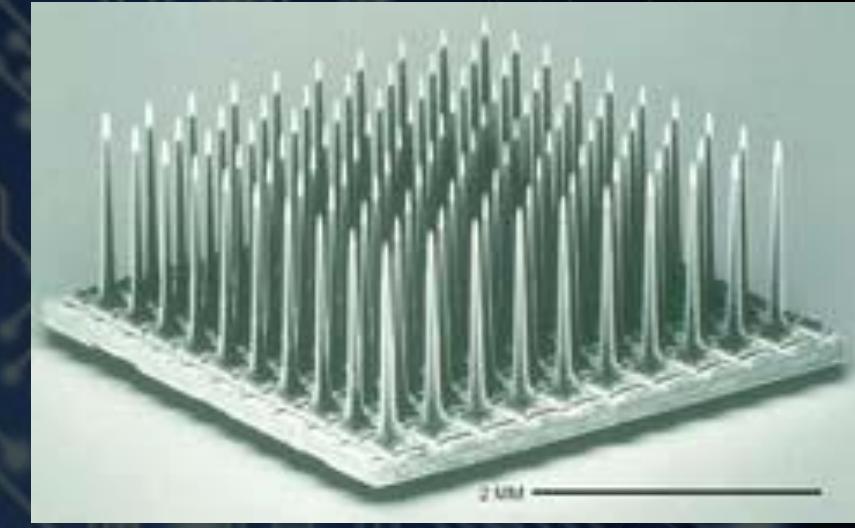




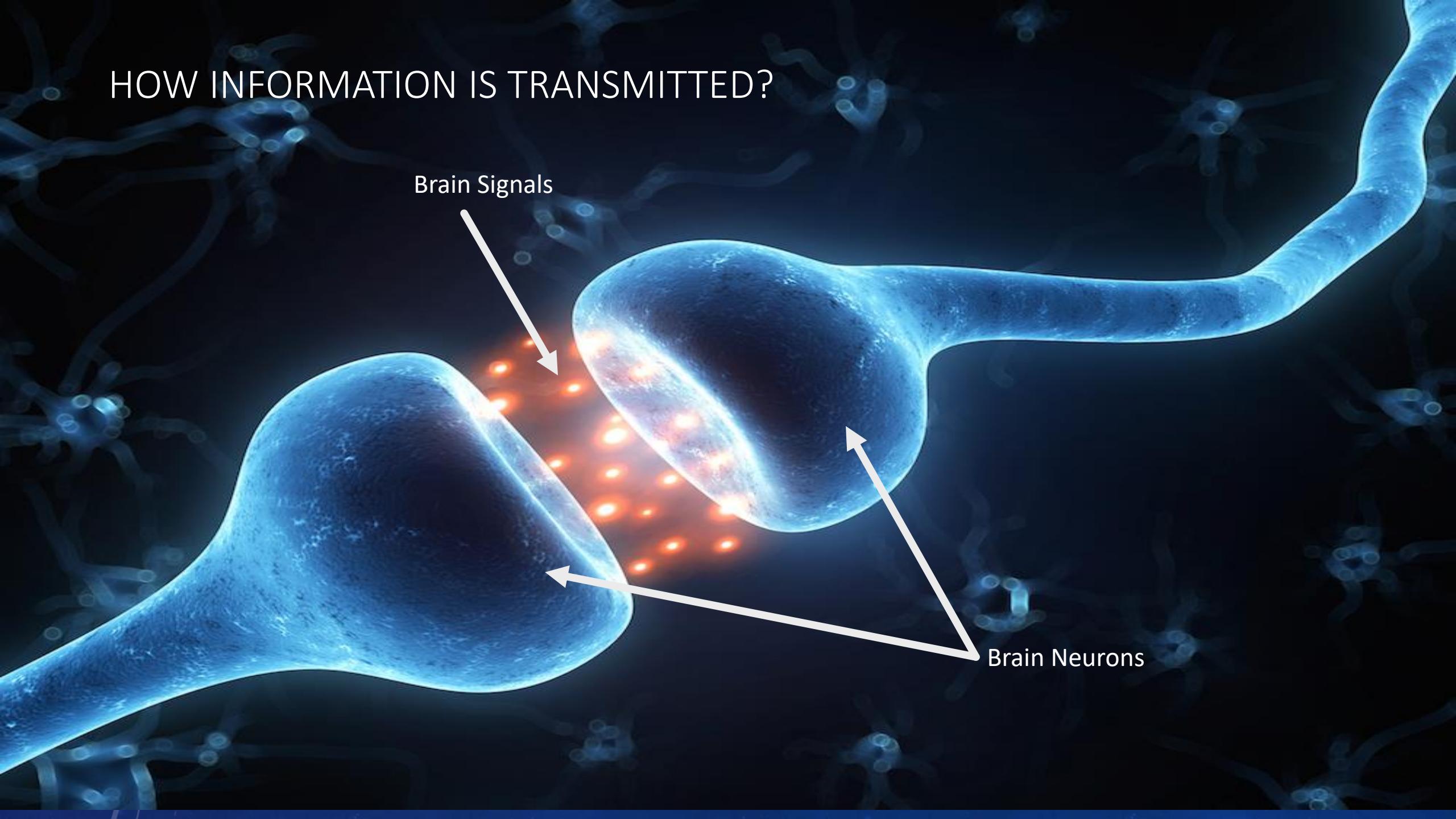
How BCI can controls your thoughts

HOW TO IMPLEMENT IT ?

- There are 3 steps to implement this:
 - SENSE
 - TRANSMIT & ANALYSE
 - APPLY & FEEDBACK



HOW INFORMATION IS TRANSMITTED?



A BOON TO THE PARALYZED ☺

Mathew-Nagel the first person to use the brain-computer interface to restore functionality lost due to paralysis.



CHINA COMPLETES SUCCESSFUL BRAIN-COMPUTER INTERFACE IMPLANT



<http://www.ecns.cn/cns-wire/2020-01-17/detail-ifzsuknk2867059.shtml>

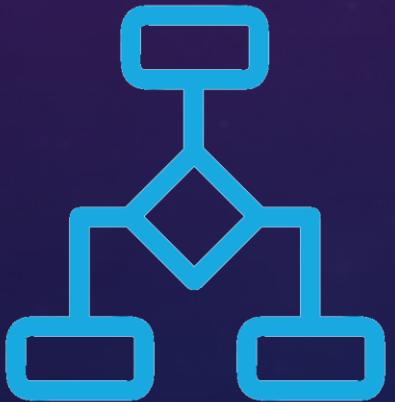
SOFTWARE & NEEDS BEHIND BRAIN GATES :



Custom Decoding Software



C, JAVA, MATLAB



Pattern Matching Techniques



AI, ML, DL, ALGO

ADVANTAGES :



Paralysed People to control Limbs.



Auditory Data to Deaf Person



Display Thoughts of Comma Person



Visual Images to Blind Person



Gamers to play with Thoughts

DISADVANTAGES:



Beginner stages



Expensive



Risky



Adaptations

FUTURE SCOPES & CHALLENGES :

- Making it wireless which creates it easy to adopt and manage also easy to use or assemble the system.
- Making it quick powerful processing by using optical computing which is in developing stage.
- Making it smaller, the above technology will make it more compact.
- Not only for Brain but also other parts of body which are disconnects from brain due to any accident or body problem.
- Upgrading and accessing to comma patients who can do stuffs of activities with his/her brain.
- Making Humans as Super Humans by developing all accessible activities of what their brain thinks.
- Using storage device to store the process of activities in the form of algorithm to perform the same activity on next time or some other can borrow or rent out that same algorithm to complete same task.
- Making and linking robots with our BCI chips, which works as our servants. Ex: Bringing juice for me from kitchen or Commanding to turn off the lights in room or making food from stored algorithm explained in above point.

CONCLUSION :

- The invention of Brain gate is such a revolution in medical field. The remarkable breakthrough offers hope that people who are paralyzed will one day be able to independently operate artificial limbs, computers or wheelchairs.
 - The idea of moving robots or prosthetic devices not by manual control, but by mere “thinking” (i.e., the brain activity of human subjects) has been a fascinated approach

REFERENCES

- www.howstuffworks.com
- www.braingate.org
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- en.wikipedia.org/wiki/Brain%computer_interface

THANKS YOU
FUTURE IS AWESOME

