The next frontier

Qi Zhao

May 9,2018

Brain-computer[1] interface maybe change what it means to human(see Fig.1). TECHNOLOGIES are often billed as transformative. For instance, William Kochevar is paralyzed below shoulder and yet has managed to feed himself by his own hand. And the signals are detected by implants in his brain and processed into commands to activate the electrodes in his arms.

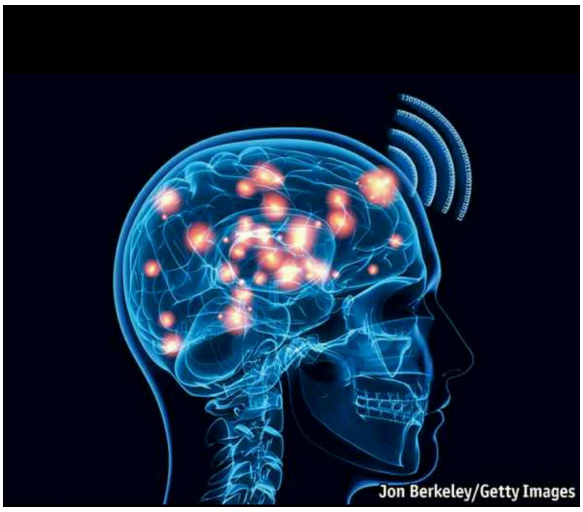

Figure 1: Brain-computer

The pace of research into BCIs[2] and the scale of its ambition are increasing. And BCIs could open the door to remarkable new application. Entrepreneurs envisage a world in which people can communication telepathically, with each other and with machines, or acquire superhuman abilities, such as hearing at very high frequencies.

1 That thinking feeling

The BrainGate system[3] used by Mr kochevar was developed more than ten years ago, but only a handful of people have tried it out. The path to the mainstream is blocked by three formidable barriers-technological, scientific and commercial.

2 Like a hole in the head

The third obstacle comprises the practical barriers to commercialisation. It takes time, money and expertise to get medical devices approved. And consumer applications will take off only if they perform a function people find useful.

These question are not urgent. And it is not the realm of pure fantasy. Technology changes the way people live.

References

[1] J. R. Wolpaw, N. Birbaumer, W. J. Heetderks, and D. J. Mcfarland, "Brain-computer interface technology: a review of the first international meeting," *Rehabilitation Engineering IEEE Transactions on*, vol. 8, no. 2, pp. 164–173, 2000.

[2] F. Beverina, "User adaptive bcis : Ssvep and p300 based interfaces," *Psychology Journal*, vol. 1, no. 4, pp. 331–354, 2003.

[3] J. Vogel, S. Haddadin, J. D. Simeral, S. D. Stavisky, D. Bacher, L. R. Hochberg, J. P. Donoghue, and P. V. D. Smagt, "Continuous control of the dlr light-weight robot iii by a human with tetraplegia using the braingate2 neural interface system," *Springer Tracts in Advanced Robotics*, vol. 79, pp. 125–136, 2014.