

**A REVIEW ON PSYCHOPHYSIOLOGICAL MEASURES OF
HUMAN COGNITIVE STATES APPLIED IN HUMAN
COMPUTER INTERACTION**

Dr Vinay Kumar Mishra*

*Associate Professor,
Department of Computer Science,
Faculty of Engineering,
Teerthanker Mahaveer University,
Moradabad, Uttar Pradesh, INDIA
Email Id- vinaym.computers@tmu.ac.in

DOI: 10.5958/2249-7315.2021.00334.8

ABSTRACT

This article examines psychophysiological measurements used in Human Computer Interaction (HCI), with a particular emphasis on research involving human cognitive states. Psychophysiological measurements, despite their drawbacks, provide a potential method of user understanding in fields such as HCI that seek a "sixth sense" for user psychological shifts. First, we'll go through the relevant research and the most common cognitive state assessments. The basics of psychophysiological measurements are next examined in more depth. In the form of a table, we offer comprehensive information on their diagnostic ability and sensitivity to human cognitive processes. Finally, the article examines the most recent applications and suggests future possibilities.

KEYWORDS: *Psychophysiology, Cognitive, Evaluation, Review, Adaptive Interfaces, Mental Workload, Affective, Brain-Computer Interfaces.*

REFERENCES:

1. Curran E. A. and Strokes M. J., 2003. "Learning to control brain activity: A review of the production and control of EEG components for driving brain– computer interface (BCI) systems," *Brain Cognition*, vol. 51, pp. 326– 336.
2. Dornhege G., Millan J., Hinterberger T., McFarland D., and Muller Eds. K.-R., 2007. "Toward Brain Computer Interfacing. Cambridge, MA: MIT Press.
3. Doyle T. E., Kucerovsky Z., Greason W. D., 2006. "Design of an Electro ocular Computing Interface", *Electrical and Computer Engineering, 2006. CCECE '06. Canadian Conference on*, pp. 1458-1461.
4. Alsayegh O.A., 2000. "EMG-based human-machine interface system," *Multimedia and Expo, 2000. ICME 2000. 2000 IEEE International Conference on*, vol. 2, pp. 925 – 928.
5. Barreto A. B., Scargle S. D., Adjouadi M., 2000. "A practical EMG-based human-computer interface for users with motor disabilities," *Journal of Rehabilitation Research and Development*, vol. 37(1), pp. 53-63.
6. Eman M. El –Daydamony, Mona El- Gayar and Fatma Abou- Chadi, 2008. "A Computerized System for SEMG Signals Analysis and Classification," *National Radio Science Conference, 2008. NRSC 2008*, pp. 1-7.
7. Foulds R., Arthur J., and Khan A., 1997. "Human Factors Studies in Eye Movements Related

to AAC Head Movement Studies,” Rehab. R&D 1996 Progress reports, vol. 34, pp. 155-156.

8. Guger C., Edlinger G., Harkam W., Niedermayer I., and Pfurtscheller G., 2003. “How many people are able to operate an EEG-based brain-computer interface (BCI)?,” IEEE Trans. Rehab. Engng, vol 11(2), pp. 145-147.
9. Hiley J.B., Redekopp A.H. and Reza Fazel-Rezai, 2006. “A Low Cost Human Computer Interface based on Eye Tracking,” Proc. 28th Annu. IEEE EMBC, New York, pp 3226 – 3229.
10. Wolpaw J. R. and McFarland D. J., 1994. "Multichannel EEG-based brain-computer communication," Electroencephalography and Clinical Neurophysiology, vol. 90, no. 6, pp. 444-449.