Chapter 16
Enhancing Recruitment Processes With Brain-Computer Interface Applications

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ABSTRACT

The integration of brain-computer interface (BCI) technology into recruitment processes offers a novel approach to assessing candidate suitability with greater precision and objectivity. By leveraging BCI applications, recruiters can gain insights into cognitive and emotional responses during various stages of the hiring process, including interviews, assessments, and simulations. This approach allows for the evaluation of traits such as stress management, cognitive flexibility, and decision-making skills in real-time, thus enabling a more comprehensive understanding of a candidate's potential. Additionally, BCI can help mitigate unconscious bias by focusing on neural responses rather than subjective judgments. This chapter explores the potential of BCI technology to revolutionize recruitment by enhancing the accuracy of candidate evaluations, improving the quality of hires, and ultimately leading to more efficient and effective recruitment strategies.

I. INTRODUCTION

Improving the entire candidate experience, as well as the accuracy (Zaidi, A., 2022) and efficiency of the recruiting process, is the key impetus behind the continual evolution of the process. Brain-Computer Interface (BCI) technology is an innovative tool (Rai, P. K. et al., 2024) that has the potential to contrib-

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ute to the improvement of recruitment strategies. The applications of brain-computer interfaces (BCI) make it possible to establish a direct wirelesss connection using microstrip antenna (Raja, D.S.S. et al., 2024) between the human brain and other devices (Abdulkarim, Y.I. et al., 2024), which in turn makes it possible to uncover cognitive and emotional processes that have not been discovered before (Kennedy, G. W. et al., 2024). When it comes to the evaluation of job applications, the implementation of BCI technology in recruiting processes has the potential to completely transform the method in which firms evaluate candidates. Conventional approaches such as psychometric tests and interviews rely on self-reported data (JayaLakshmi, G. et al., 2024) and observable activities, which may not correctly represent a candidate's genuine skills. These methods are considered to be considered conventional. Candidates could be provided with accurate and up-to-date information regarding their cognitive capacities, levels of tension, and mental exertion through the use of brain-computer interfaces (BCI). It is possible that the exploitation of these data (Pandey, B. K. et al., 2024b) could substantially facilitate the identification of qualified applicants who are in accordance with the values and culture of the organization (Pandey, B. K. et al., 2024c).

It is possible that applications of BCI have the potential to lessen the impact of prejudice in the recruitment process in organization (Muralidhar, L. B. et al., 2024). It is possible that judgments about recruitment that are impacted by unconscious prejudices would result in a workforce that is less diversely diverse. Recruiters can profit from the usage of BCI technology to get a more objective appraisal of a candidate's talents, which can help them make better hiring decisions. It is possible that this may result in a more egalitarian method of recruiting, since candidates will be judged based on their true ability rather than on superficial traits. The utilization of BCI technology during the recruitment process, on the other hand, creates significant ethical and privacy problems (Pandey, D. et al., 2024b). As part of the process of gathering and evaluating data (Pandey, D. et al., 2024d) on the brain, it is very necessary to carry out a comprehensive evaluation of the rights of persons. The establishment of a complete set of laws and regulations is absolutely necessary in order to ensure that the use of BCI in the employment process is conducted in an ethical and transparent manner. Because they provide extensive information (Shahul, A. et al., 2024) about the cognitive and affective states of applicants, minimize biases (Pandey, D. et al., 2024c), and improve decision-making, applications that use brain-computer interfaces have the potential to greatly improve recruiting operations. This potential is significant. As a result of their ability to revolutionize the process of talent acquisition, technological innovations (KVM, S. et al., 2024) have become an invaluable resource for those who are responsible for recruiting.

II. RELATED WORKS

The employment of Brain-Computer Interfaces (BCIs) during the process of recruitment is an innovative strategy that blends the field of neuroscience with the management of human resources. Despite the fact that resumes, interviews, and psychometric tests are all essential components of the conventional recruitment process, it is important to note that these elements are equally susceptible to subjectivity and bias (Saxena, A. et al., 2024). Brain-computer interfaces (BCIs) shown in figure 1, provide an objective evaluation of candidates by continually monitoring (Sharma, M. et al., 2024) neural activity in the brain. This allows for the provision of information regarding the candidates' levels of memory, attention, and